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Environmental Sampling and PFC Analysis Program

Adjacent Land, Fiskville Vic

Job No. 212163.31

Prepared for Ashurst

March 2014

DOCUMENT CONTROL

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ENVIRONMENTAL SAMPLING AND PFC ANALYSIS PROGRAM

Adjacent Land, Fiskville Vic

EXECUTIVE SUMMARY

Background

Cardno Lane Piper was engaged by Ashurst (the "Client"), to conduct a Soil, Sediment, Grass and Surface Water Assessment (the Assessment) on farmland adjacent to CFA's Fiskville Training College. The farm is located at the adjacent land to the south of the CFA training college, Fiskville Vic (the adjacent farm property is the "Site"). The location and features of the site are shown on Figures 1 and 2, presented in Appendix A.

Purpose and Objectives of the Assessment

The purpose of the investigation was to assess the Site for impacts from the fire fighting training activities at the CFA Fire Fighting Training College.

The specific objective of this assessment is to investigate and identify, to the extent practicable, the impact of Perfluorinated Compounds (PFCs), specifically Perfluorooctane Sulfonate (PFOS), Perfluorooctanoic Acid (PFOA) and 6:2 Fluorotelomer Sulfonate (6:2 FtS), on soil, sediments, grass, dam water and drinking water at the site. While PFCs were the primary Contaminant of Potential Concern (CoPC); selected sediment samples were also analysed for some metals, petroleum hydrocarbons (PHC) and the suite of analyses required by waste soil classification in accordance with EPA Publication IWRG621, 2009.

This report is factual in nature and the level of interpretation is limited to identification of the presence or absence of impact by perfluorinated compounds (PFCs) from the CFA site on the adjoining farm. This information will be taken into account in a further assessment of risks to persons downstream of the CFA site.

Scope of Work

The following tasks were conducted in order to satisfy the purpose and objectives of the assessment:

Assessment of the Site and Surrounding Features

Review of site information including:

- Confirmed the property title description from LANDATA[1] Property Report, included in Appendix E.
- Confirmed the zoning of the site under the local Planning Scheme, included in Appendix E.
- Defined the site boundaries based on title information and established a site base plan, included in Appendix E.

[1] LANDATA is a business of Land Victoria, a division of the Department of Transport, Planning and Local Infrastructure.

- Identified the site features, including buildings and other infrastructure.
- Identify the site topography and surface water drainage features.

Intrusive Site Investigation Sampling & Testing

- Implemented a Sampling and Analysis Plan to address the objectives, including laboratory analysis of field quality control (QC) samples.
- Obtain samples of soil, sediment, surface water, tank water and grass at the site at selected locations, and the corresponding sampling methods are set out in this report.
- Laboratory testing of samples for the parameters listed above.

Data Analysis & Reporting

- Analysis of data to describe the spatial distribution of any contamination reported.
- Prepared this report to provide findings from the site investigation.

Findings

Soil Investigation and Results

Cardno Lane Piper collected a total of 97 soil samples for laboratory testing for PFCs. Sample locations shown in Figure 2 Appendix A. The results of the soil testing indicate that:

- The detection of PFCs in the near surface soil indicates that surface soil has been impacted by fire-fighting training activities at the CFA site.
- The areas most impacted by PFCs were the flood plain of Beremboke Creek and to a lesser extent the northern portion of the site adjoining the CFA site.

Sediment Results

Sediment samples were collected from the main water dams, located in the north-west portion of the Site. The Beremboke Creek, which receives overflow from Lake Fiskville, flows into the dams. The results of the sediment testing indicate that:

- The sediments in the dam have been impacted by activities at the CFA site due to the detection of PFCs.
- Petroleum hydrocarbons reported as TPH (C_{16}-C_{34} and C_{29}-C_{36}) were recorded in sediment samples collected from the main dam.
- Metals (arsenic, cadmium, chromium, copper, lead, molybdenum, nickel and zinc) were also detected in the sediment samples; however, the concentrations are indicative of background contaminations and not necessarily derived from CFA activities.

Dam Water Results

Six surface water samples were collected from the dam at varying depths. The results of surface water investigations and laboratory testing indicate the following:

- The detection of PFCs in the water indicates that it has been impacted by fire-fighting training activities at the CFA site.

Rain Water Storage Tanks

The rainwater storage tanks located at the residence at the site and used for drinking water have been assessed for PFCs. Drinking water was sampled from taps in the house. The

water is rain water collected from roof catchment and is used for drinking water and as well as watering horses. The results indicate that:

- All tank water samples reported PFCs below the analytical laboratory reporting limit and well below the drinking water criteria. Tank water is not impacted by airborne fall-out from activities at the CFA site.

Grass Results

A total of 15 grass samples were taken for the purpose of assessing whether the grass at the site had taken up PFCs from the soil. Grass sample locations are shown in Figure 2, Appendix A. Six samples were located on the north western portion of the site, along the edges of the Beremboke Creek and dams in order to assess the potential impacts of run off from the CFA site. The remaining nine samples were collected from across the paddocks. . The results of the grass testing indicate that:

- There is evidence that some grasses at the site have been impacted by PFCs from the CFA site.
- The areas most impacted by PFCs were from the flood plain of Beremboke Creek and to a lesser extent the northern boundary of the site adjoining the CFA site.

Limitations

While this Executive Summary has endeavoured to accurately summarise the key points of the Report, the latter shall take precedence and the Executive Summary must be read in conjunction with the full report

While this report has been undertaken in accordance with the current industry guidelines and practices, there may be some limitations on the meaning and use of this report. The reader is advised to read this report in conjunction with the attached document *About Site Environmental Assessment Reports* (Appendix H).

Cardno Lane Piper
March 2014

ENVIRONMENTAL SAMPLING AND PFC ANALYSIS PROGRAM

Adjacent Land, Fiskville Vic

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LIST OF ABBREVIATIONS AND UNITS

Chemical Names

6:2 FtS	6:2 Fluorotelomer Sulfonate
8:2 FtS	8:2 Fluorotelomer Sulfonate
BTEX	Benzene, Toluene, Ethylbenzene & Xylenes (subset of MAH)
CHC	Chlorinated Hydrocarbons
MAH	Monocyclic Aromatic Hydrocarbons
PFC	Perfluoro Compounds
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
PFOSA	Perfluorooctanesulfonamide
N-Me-FOSA	N-Methylheptadecafluorooctane sulfonamide
N-Et-FOSA	N-Ethylheptadecafluorooctane sulfonamide
N-Me-FOSE	N-Methylheptadecafluorooctane sulfonamidoethanol
N-Et-FOSE	N-Ethylheptadecafluorooctane sulfonamidoethanol
PFBS	Perfluorobutane sulfonate
PFHxS	Perfluorohexane sulfonate
PFDcS	Perfluorodecane sulfonate
PFHxA	Perfluorohexanoate
PFHpA	Perfluoroheptanoate
PFNA	Perfluorononanoate
PFDcA	Perfluorodecanoate
PFUnA	Perfluoroundecanoate
PFDoA	Perfluorododecanoate
PFTriA	Perfluorotridecanoic acid
PFTeA	Perfluorotetradecanoate
PHC	Petroleum Hydrocarbons
SVOC	Semi-Volatile Organic Compounds
TDS	Total Dissolved Solids (salinity of water)
TPH	Total Petroleum Hydrocarbons
TRH	Total Recoverable Hydrocarbons (= TPH)
VOC	Volatile Organic Compounds
VHC	Volatile Halogenated Compounds

Technical Terms

AGL	Above Ground Level
AHD	Australian Height Datum
AMG	Australian Map Grid
ANZECC	Australian and New Zealand Environment and Conservation Council
AST	Aboveground Storage Tank
BDL	Below Detection Limit
BGL	Below Ground Level
COC	Chain of Custody
CoEA	Certificate of Environmental Audit
CoPC	Chemicals of Potential Concern
DO	Dissolved Oxygen
EC	Electrical Conductivity
EPA	Environment Protection Authority
ESA	Environmental Site Assessment
LOR	Limit of Reporting
N/A	Not Applicable
NTU	Nephelometric Turbidity Units
PID	Photo-ionisation detector (measures in ppm)
QA	Quality Assurance
QC	Quality Control
RPD	Relative Percentage Difference
UST	Underground Storage Tank

Units

ha	Hectares
mBGS	Metres Below Ground Surface
mg/kg	Milligram per Kilogram (approximately equivalent to ppm)
mg/L	Milligram per Litre
ppb	Part per Billion
ppm	Parts per Million
µg/kg	Microgram per Kilogram (approximately equivalent to ppb)
µg/L	Microgram per Litre
µS/cm	Micro Siemens per Centimetre (Electrical Conductivity - Water)

Site Specific

CFA	Country Fire Authority
FTC	Fiskville Training College

ENVIRONMENTAL SAMPLING AND PFC ANALYSIS PROGRAM

ADJACENT LAND, FISKVILLE VIC

1 INTRODUCTION

1.1 Background

Cardno Lane Piper was engaged by Ashurst (the "Client"), on behalf of the Country Fire Authority (CFA) to conduct an assessment of soil, sediment, grass and surface water (the Assessment) on farmland adjacent to CFA's Fiskville Training College. The farm (the "Site") is located at the Adjacent Farmland, Vic 3342. The location and features of the site are shown on Figures 1 and 2, presented in Appendix A.

1.2 Purpose & Objectives

The purpose of the investigation was to assess the Site for impacts from the neighbouring fire fighting training activities at the CFA Fire Fighting Training College.

The specific objective of this assessment is to investigate and identify, to the extent practicable, the impact of Perfluorinated Compounds (PFCs), specifically Perfluorooctane Sulfonate (PFOS), Perfluorooctanoic Acid (PFOA) and 6:2 Fluorotelomer Sulfonate (6:2 FtS), on soil, sediments, grass, dam water and drinking water at the site.

This report is factual in nature and the level of interpretation is limited to identification of the presence or absence of impact by perfluorinated compounds (PFCs) from the CFA site on the adjoining farm. This information will be taken into account in a further assessment of risks to persons downstream of the CFA site.

1.3 Outline of Assessment Tasks

Cardno Lane Piper carried out the following tasks in order to satisfy the purpose and objectives of this assessment.

Review of site information including:

1. Confirmed the property title description from LANDATA Property Report, included in Appendix E.
2. Confirmed the zoning of the site under the local Planning Scheme, included in Appendix E.
3. Defined the site boundaries based on title information and established a site base plan, included in Appendix E.
4. Identified the site features, including buildings and other infrastructure.
5. Identify the site topography and surface water drainage features

Intrusive Site Investigation Sampling & Testing

6. Implemented a Sampling and Analysis Plan to address the objectives, including laboratory analysis of field quality control (QC) samples.

7. Obtain samples of soil, sediment, surface water, tank water and grass at the site at selected locations, and the corresponding sampling methods are discussed in Section 3. As part of the intrusive investigation sampling (i.e. soil, sediment, surface water, tank water and grass) the following sampling methods were used:
   a) Near surface soil and sediment samples along the edges of the dam was taken using a hand trowel;
   b) Dam water samples collected using a Van Dorn Sampler;
   c) Sediments within the dam was collected using a Ponar Grab sampler or hand auger and in the case of samples along the edges of the dam a hand trowel was used;
   d) Tank water samples was taken from taps (e.g. near the north and south tanks and taps accessible from within the residence) and collected directly into laboratory supplied containers, photos of the sampling points have been included in Appendix D; and
8. The analytical schedule for soil, sediment, surface water, grasses and tank water samples was for the Contaminants of Potential Concern (CoPC), namely PFOS, PFOA and 6:2 FtS and other selected analytes. Testing was performed by a by a NATA accredited laboratory.

Reporting

9. Prepared this report to provide findings and recommendations relevant to the objectives of the assessment.

1.4 Assessment Timeline

The key milestones achieved during this assessment are summarised in Table 1-1.

Table 1-1: Site Assessment Timeline

Date	Activity/Milestone
13 September 2013	Cardno Lane Piper engaged by the Client
8 -10 October 2013	Fieldwork for surface water, tank water, sediment, soil and grass sampling.
28 February 2014	Issued draft report
26 March 2014	Issued final report

1.5 Standard of Assessment & Limitations

This assessment has been undertaken in general accordance with the current “industry standards” for an ESA for the purpose, objectives and scope identified in this report. These standards and guidelines are set out in:

- *National Environment Protection [Assessment of Site Contamination] Measure* (NEPM), December 1999, National Environment Protection Council (NEPC).
- AS4482.1 - 2005: *Guide to the sampling and investigation of potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds*. Standards Australia (2005).

The agreed scope of this assessment has been limited for the current purposes of the Client. The assessment may not identify contamination occurring in all areas of the site, or occurring after sampling was conducted. Sub-surface conditions may vary considerably away from the sample locations where information has been obtained.

This assessment report is not any of the following:

- An Environmental Audit Report as defined under the *Environment Protection Act 1970*.
- A geotechnical report (and the bore logs or test pit logs may not be sufficient as the basis for geotechnical advice).
- A total assessment of the site to determine suitability of the entire parcel of land at the site for one or more of the beneficial uses of land set out in *State Environmental Protection Policy (Prevention and Management of Contamination of Land)*.

An overview of Environmental Site Assessments is included in Appendix H.

2 SITE DESCRIPTION & SETTING

2.1 Site Definition and Description

Table 2-1 summarises the key details defining the site. The location of the site is shown on Figure 1, Appendix A, and title details are presented in Appendix E.

Table 2-1: Site Identification Details

Site Area	Approximately 79 ha
Title Details	The site comprises two parcels: • Allotment 13, Section16\PP3939; and • Allotment 18, Section 16\PP3939
Municipality	Moorabool Shire Council
Planning Zone	Farming Zone (FZ) Schedule to the Farming zone

2.2 Site Use & Infrastructure

The site is mainly grassed paddocks with some wind breaks along paddock subdivision fences. There are a few buildings on site, which consists of dwelling and associated sheds, which is located at the south eastern part of the site and is fenced off from the rest of the site.

The Beremboke Creek enters the site on the north-west boundary and runs in a generally north-south direction along the western boundary and meanders into the adjoining property to west. A dam is located near the north-west corner of the site on the creek (Figure 2 in Appendix A). Beremboke Creek flows into this dam which also collects surface runoff from the adjoining area. The dam is divided into two pools by an embankment.

In summary, the main site features include:

- Residential Building located on the south east corner of the site;
- Sheds and silos located on the south of the site;
- Dams, being one larger dam located on the north west of the property with two smaller dams located on the south of the site (the smaller dams were not included in the intrusive investigation sampling program and do not appear to be hydraulically connected with the Beremboke Creek);
- Above ground Rain Water Tanks;
- Beremboke Creek; and
- Paddocks for sheep grazing occupy the remainder of the site.

The site features can be seen on Figure 2a, and site residence features are shown in Figure 2b, Appendix A and selected site photographs presented in Appendix D.

3 SITE INVESTIGATIONS

3.1 Sampling & Analysis Plan

The field work for the collection of soil, sediment, grass, surface water and tank water samples were conducted on 8 to 10 October 2013. The fieldwork was undertaken by experienced environmental engineers/scientists in accordance with the agreed scope of work and using methods set out in the Cardno Lane Piper Integrated Management System which conforms to the industry standard of practice. The following sections provide further detail with regards to the sampling and analytical program.

The surface water, tank water, soil and sediment samples were analysed by ALS in Springvale, Melbourne (primary laboratory), and the secondary laboratory, for quality control was Eurofins-mgt in Oakleigh, Melbourne. Both laboratories are NATA-accredited for the parameters tested. The grass samples were analysed by the National Measurement Institute (NMI) in Sydney. No secondary laboratory was used for the grass sample investigation.

3.2 Soil Program

3.2.1 Sample Strategy & Methodology

The scope and method of the work is summarised in Table 3-1. Locations were chosen to provide even coverage of the site (grid locations) and target areas associated with potential focuses of contamination.

The selected sample locations were identified on-site using a hand-held GPS. The corresponding sample ID and GPS locations are provided in Appendix G.

Table 3-1: Soil Investigation Summary

Activity	Details
Dates of Field Activity	9 to 10 October 2013: Collection of soil samples
Underground Service Location	Underground services utilities clearance was not required during this investigation as the maximum depths for soil samples was 0.3 mBGL and utilising hand tools.
Excavation	Soil samples were collected using a shovel or hand augers at a depth of 0.05 mBGL, and 10 locations were advanced further to 0.3 mBGL.
Soil Logging	Soils encountered during sampling were described and logged, and the corresponding soil descriptions are presented in Appendix C.
Soil Sampling	Soil samples were collected into sample containers provided by the laboratory.
Decontamination Procedure	Reusable soil sampling equipment was rinsed with Decon 90 and deionised water prior to the collection of subsequent samples.
Soil Screening	Due to the nature of the contaminants targeted, PID screening was not required on the soil samples collected.
Sample Preservation and Transport	Samples were stored on ice, in an esky while on-site and in transit to the laboratory under Chain of Custody documentation.

The grid sample locations and corresponding range of sampling depths are summarised in Table 3-2 and shown on Figure 3, Appendix A. The records and observations made during the field work are presented in bore logs, provided in Appendix C, and fieldwork records are provided in Appendix G.

Table 3-2: Soil Sampling Locations

Location / Areas	Location Name	Depth of Investigation (m)	Rationale
Flood plain	AF01-AF06 AF13-AF16 AF25, AF26 AF32, AF38 AF44, AF45	0.05-0.3	To assess for impacts resulting from overflow from Beremboke Creek.
Paddock	AF7-AF12, AF17- AF24, AF27- AF31, AF33- AF37 AF39- AF43 AF46- AF80, AF82- AF86	0.05-0.3	To assess for impacts from the migration of windblown foam or spray-drift from CFA site.
Residence Property	AF81, AF87	0.05	

3.2.2 Laboratory Analysis – Soil

All near-surface samples were selected for laboratory testing and analysed for an extended suite of PFCs[2].

Copies of the NATA accredited laboratory reports, Cardno Lane Piper Chain of Custody and sample receipt records are included in Appendix F. The tabulated laboratory results are presented in Appendix B. The Quality Control and Quality Assurance (QA/QC) of the soil sampling program is discussed in Section 3.7 and Appendix G. A discussion regarding the soil laboratory results is provided in Section 4.1.

3.3 Sediment Program

3.3.1 Sample Strategy & Methodology

The scope and method of the work is summarised in Table 3-3. Locations were chosen to provide even coverage of the main dam area. All sample locations had a sample collected at near surface and at depth.

The selected sample locations were defined on-site by off-sets from permanent site features shown on recent aerial photograph, and confirmed using a hand-held GPS.

[2] Due to a miscommunication at the laboratory, the samples submitted for analysis from the soil sampling program were analysed for an extended PFC screen. Although Cardno Lane Piper had proposed to assess only for the presence of the main COPC (i.e. PFOS, PFOA and 6:2 FtS) all of the reported PFCs are included in the table provided in Appendix B.

Table 3-3: Sediment Investigation Summary

Activity	Details
Dates of Field Activity	8 to 9 October 2013: Collection of sediment samples
Sediment Collection	Surface sediment samples were collected from the floor of the main dam (north-west corner of site) using either a bottom sampling dredge (i.e. Ponar sampler). A hand auger or trowel was used for shallow or dry areas.
Sampling Depths	Sediments were sampled to depths ranging from 0.1 to 0.5 mBGL.
Sediment Logging	Sediments encountered during sampling were described and logged and sample descriptions are presented in Appendix C.
Sediment Sampling	Sediment samples were collected at two depths on the floor of the dam. The depth of the dam water column at the time of sampling was approximately 2.83 m. The sediments are described as silty muds with high organic content.
Decontamination Procedure	Reusable sediment sampling equipment was rinsed with Decon 90 and deionised water prior to the collection of subsequent samples.
Sediment Screening	Sediment samples were field screened using a calibrated PID, noting any odours and other visual signs of contamination. PID calibration records are provided in Appendix G
Sample Preservation and Transport	Samples were stored on ice, in an esky while on-site and in transit to the laboratory under Chain of Custody documentation.

The targeted locations and corresponding range of sampling depths are summarised in Table 3-4and shown on Figure 4, Appendix A.

Table 3-4: Sediment Sampling Locations

Location	Location Name	Depth of Investigation (m)	Rationale
Dam	D4SD-D4SM	0.1 to 0.5	To assess for impacts resulting from the migration of the COPC (PFCs) being discharged from CFA fire fighting training college.

3.3.2 Laboratory Analysis –Sediment

All sediment samples were selected for laboratory testing. The samples were tested for a broad range of inorganic and organic parameters as set out in Table 3-5. Selected samples were tested for an extended suite of parameters to provide an initial assessment of the classification of sediment against EPA criteria of classification of soils for disposal as a waste.

Table 3-5: Laboratory Testing Program – Sediments

Location	Samples	Analysis
Dam – Flood plain	D4SD_0.1, D4SF_0.1, D4SH_0.1, D4SI_0.1	Suite 3
	D4SE_0.1, D4SG_0.1	Suite 2
	D4SD_0.3, D4SE_0.5, D4SF_0.2, D4SG_0.3, D4SH_0.3, D4SI_0.3, D4SJ(0.1,0.3), D4SK(0.1,0.3), D4SK(0.1,0.3), D4SL(0.1,0.25), D4SM(0.1,0.4)	Suite 1
	D4SI_0.1/081013, D4SK_0.1/091013, D4SH_0.1/081013, D4SE_0.1/081013	Suite 4
	D4SD_0.1/081013, D4SH_0.1/081013	Suite 5

Notes:
1. **Suite 1**: PFOS, PFOA, 6:2FtS
2. **Suite 2**: EPA IWRG621 Screen (pH, metals, mercury, hexavalent chromium, total cyanide, fluoride, PCBs, MAHs, BTEX, Volatile halogenated compounds, phenolics, PAHs and OCPs), PFOS, PFOA, 6:2FtS
3. **Suite 3**: Metals, TRH, MAHs, PAHs, PFOS, PFOA, 6:2FtS
4. **Metals (8)**: Arsenic, cadmium, chromium, copper, lead, nickel, mercury, zinc
5. **Suite 4**: ASLP: PFOS, PFOA, 6:2 FTS (EP231)
6. **Suite 5**: ASLP: 8 Metals

A discussion regarding the sediment laboratory results is provided in Section 4. Copies of the NATA accredited laboratory reports, Cardno Lane Piper Chain of Custody and sample receipt records are included in Appendix F.

The tabulated laboratory results are presented in Appendix B. The Quality Control and Quality Assurance (QA/QC) of the soil sampling program is discussed in Section 3.7 and Appendix F.

3.4 Dam Water Program

3.4.1 Dam Water Sampling

Surface water samples were collected in six locations from the main dam. These are identified as samples D4WD to D4WI and the corresponding locations are shown in Figure 5, Appendix A. At one location (i.e. D4WI) two water samples were collected at different depths (0.1 and 1.2 mBSL). All samples were collected using a Van Dorn Sampler.

3.4.2 Laboratory Testing –Dam Water

The laboratory program employed for the dam water sampling is summarised in Table 3-6.

Table 3-6: Laboratory Testing Program- - Surface Water

Sample Location	Analysis
D4WE, D4WF, D4WH, D4WI	PFOS, PFOA, 6:2 FtS
D4WD and D4WG	Inorganics (TDS, alkalinity - CaCO3, turbidity, TDS, TSS), PFOS, PFOA, 6:2FtS

Copies of the NATA accredited laboratory reports and Chain of Custody documentation is included in Appendix F. Tabulated laboratory results are presented in Table 3 in Appendix B.

The quality control/ quality assurance (QA/QC) of the surface water sampling program is discussed in Section 3.7

3.5 Rain Water Storage Tanks Program

3.5.1 Rain Water Storage Tanks Sampling

Water samples from the above ground rain water storage tanks was collected from accessible taps near the tanks, as well as taps inside the residence as follows:

- Samples WT01 collected from kitchen tap, WT02 and WT03 collected from taps outside the residence shown in Plate 10 and 11 in Appendix D . It is understood that the source for water to the residence is the South Tank; and
- WT04 was collected from a tap near the North tank shown in Plate 13, Appendix D, which is used as the drinking water supply for horses.

3.5.2 Laboratory Testing – Rain Water Tanks

The laboratory program employed for the rain water tanks focused only on PFOS, PFOA and 6:2 FtS.

Copies of the NATA accredited laboratory reports and Chain of Custody documentation is included in Appendix F. Tabulated laboratory results are presented in Appendix B. The quality control/ quality assurance (QA/QC) of the Rain Water Tanks sampling program is discussed in Section 3.7.

3.6 Grass Program

3.6.1 Grass Sampling

Locations were chosen to provide even coverage of the site and target areas near the site boundary with the CFA site and also potential preferential grazing areas beside the dam. The selected sample locations were defined on-site using a hand-held GPS. The grass sample locations are shown in Figure 6 in Appendix A.

At each sample location approximately 200 to 400 grams of grass was collected with string trimmer (i.e. whipper snipper) and stored in zip lock plastic bags. Equipment was decontaminated between each sample location and samples were preserved on ice during transit to the laboratory.

3.6.2 Laboratory Testing – Grass

The laboratory program employed for the grass sample is summarised in Table 3-7. The primary laboratory was National Measurement Institute (NMI) in North Ryde, New South Wales. The samples were rinsed[3] prior to analysis to remove any PFC on grass surface. NMI is not NATA accredited for the PFC methods; however, an internal laboratory quality control system is in place.

[3] Samples were rinsed at the laboratory.

Table 3-7: Laboratory Testing Program- Grass Samples

Sample Location	Analysis
AF01G, AF04G, AF07G, AF14G, AF16G, AF44G, AF71G, AF69G, AF67G, AF46G, AF42G, AF33G, AF30G, AF20G, AF10G	6:2 FTS, PFOA, PFOS, PFHpA, PFHxA, PFNA, PFDA, PFUdA, PFDoA

Copies of the laboratory reports and Chain of Custody documentation are included in Appendix F. Tabulated laboratory results are presented in Appendix B. The quality control and quality assurance (QA/QC) of the grass analysis program is discussed in Section 3.7

3.7 Quality Control / Quality Assurance

A critical aspect of an ESA is the demonstration of the quality of the data used as the basis for the assessment. This is achieved through a Data Validation process which includes a review of the following aspects of the data collection process:

- Project Quality Objectives and Plans;
- Data Representativeness;
- Data Precision & Accuracy;
- Laboratory Performance;
- Data Comparability; and
- Data Set Completeness.

A detailed review of these aspects has been undertaken, the results of which are presented in Appendix F.

The data validation process has concluded that there are no significant systematic errors in the data collection process for soil, sediment, dam water and the rain water tanks. Therefore, the data set used as the basis for the assessment is considered valid and complete.

4 DISCUSSION OF RESULTS

4.1 Soil Summary

Soil conditions observed during the soil sampling program are summarised in Table 4-1. Detailed soil descriptions are provided in soil sample description in Appendix C.

Table 4-1: Typical Soil Profile

Sub-Surface Horizon	Typical Depth Range	Description
Clayey SILT	0.05-0.3 mBGL	Clayey silt; dark brown to grey brown; slightly moist; minor fine to medium grained sands and fine grained gravels.

The laboratory analytical results for the compounds which reported concentration above the laboratory LOR for the flood plain have been summarised and presented in Table 4-2.

Table 4-2: Soil Results - Flood plain (mg/kg)

Analyte Name	Number of Analysis	Number of Detects	Minimum Concentration	Maximum Concentration
PFOS	16	16	0.0006	0.218
PFOA	16	5	0.0008	0.0028
6:2 FtS	16	2	0.006	0.014
8:2 FtS	15	2	0.001	0.002
PFBS	15	9	0.0002	0.0056
PFDcA	15	2	0.0003	0.0003
PFHpA	15	9	0.0002	0.0044
PFHxA	15	10	0.0003	0.0057
PFHxS	15	15	0.0003	0.0131
PFNA	15	7	0.0003	0.0044
PFOSA	15	1	0.0005	0.0005
PFTriA	15	1	0.0002	0.0002
PFUnA	15	3	0.0003	0.0011

The laboratory analytical results for the compounds which reported concentration above the laboratory LOR for the paddock area have been summarised and presented in Table 4-3.

Table 4-3: Soil Results – Paddock (mg/kg)

Analyte Name	Number of Analysis	Number of Detects	Minimum Concentration	Maximum Concentration
PFOS	71	48	<0.0005	0.0035
PFOA	71	-	<0.0005	<0.0005
6:2 FtS	71	-	<0.005	<0.005
PFBS	71	2	0.0002	0.0002
PFHpA	71	27	0.0002	0.0018
PFHxA	71	24	0.0002	0.0018
PFHxS	71	63	0.0002	0.0022
PFNA	71	2	0.0002	0.0003

The laboratory analytical results for the compounds which reported concentration above the laboratory LOR for the area near the residence have been summarised and presented in Table 4-4.

Table 4-4: Soil Results - Residence Area (mg/kg)

Analyte Name	Number of Analysis	Number of Detects	Minimum Concentration	Maximum Concentration
PFOS	10	2	0.0009	0.0016
PFOA	10	-	<0.0005	<0.0005
6:2 FtS	10	-	<0.005	<0.005
PFHxS	8	3	0.0002	0.0005
PFNA	8	1	0.0006	0.0006

The soil contamination is summarized as follows:

- Some PFCs (i.e. N-Et-FOSA, N-Et-FOSE, N-Me-FOSA, N-Me-FOSE, PFDcS, PFDoA and PFTeA) reported concentrations below the laboratory LOR for all samples analysed; other PFC are summarized as follows:
  - PFOS was reported above the laboratory LOR in 64% of the samples with concentration ranging from 0.0005 to 0.0561 mg/kg. Most of the results reporting less than the laboratory LOR were at the southern portion of the site;
  - PFHxS was reported above the laboratory LOR in 81% of the samples with concentration ranging from 0.0002 to 0.0131 mg/kg. Most of the results reporting less than the laboratory LOR were at the southern portion of the site
  - The remainder of PFCs analysed which reported concentrations above the laboratory LOR were 6:2 FtS (1%), PFOA (4%), 8:2 FtS (2), PFBS (12%), PFDcA (2%) PFHpA (38%), PFHxA (36%) PFNA (11%) PFOSA (1%), PFTriA (1%) and PFUnA (3%).
- A number of sample locations which have been impacted by PFC compounds on site are primarily soils in the vicinity of the main dam and the floodplain area, and along the northern portion of the site. The PFC concentrations noticeably decrease as you move

south towards the residential property, with most samples collected closer to the southern boundary and the residence area reporting below the laboratory LOR or just slightly above LOR (e.g. PFHxS: at locations AF74 - 0.0003 mg/kg, AF75 - 0.0005 mg/kg and AF86 - 0.0002 mg/kg of and PFOS for locations AF75 – 0.0009 mg/kg and AF81 - 0.0016 mg/kg); and

- It is also noted that PFC compounds were detected in eight out ten deeper samples (i.e. 0.3 mBGL). Most of the deeper samples analysed, PFC concentrations noticeably decreased when compared to the near surface sample.

The primary mode of PFC contamination at the site is via Beremboke Creek. There is evidence of spray drift PFC, although at low concentrations, along the paddock and residence areas.

4.2 Sediment Summary

4.2.1 Field Observations

Ten sediment samples from the main dam were collected on 8 - 9 October 2013 as discussed in Section 3. Sediment descriptions are provided in sample logs in Appendix C and are shown in Figure 4 Appendix A.

4.2.2 Laboratory Sediment Results

Perfluorinated Compounds

The laboratory analytical results for the PFC compounds which reported concentrations above the laboratory LOR have been summarised and presented in Table 4-5,

Table 4-5: Perfluorinated Compounds - Sediments Results (mg/kg)

Analyte Name	Number of Analysis	Number of Detects	Minimum Concentration	Maximum Concentration
PFOS	20	14	0.0037	0.178
PFOA	20	11	0.0006	0.006
6:2 FtS	20	9	0.008	0.038
8:2 FtS	8	3	0.002	0.004
PFBS	8	8	0.0002	0.0026
PFDcA	8	3	0.0003	0.0019
PFDcS	8	1	0.0003	0.0003
PFHpA	8	8	0.0002	0.0063
PFHxA	8	8	0.0016	0.0181
PFHxS	8	8	0.0013	0.0305
PFNA	8	6	0.0002	0.0011
PFOSA	8	1	0.0011	0.0011
PFUnA	8	1	0.0004	0.0004

PFCs were detected in most samples collected from the main dam. However, Table 4-5 provides a summary for all PFC results above the laboratory LOR without classification of sample depth. Figure 4 in Appendix A provides a summary for the corresponding sample locations and the results for PFOS, PFOA and 6:2 FtS with respect to depth. Only four sediment sample locations (i.e. D4SJ, D4SK, D4SG and DFSM) reported PFC concentration above the laboratory LOR at depth ranging from 0.3 to 0.5 mBGL. The northern portion of the main dam reported slightly higher concentrations for the PFCs assessed than the southern portion. This is also reflected in the main dam surface water samples results discussed in Section 4.3.

The rate of detects for the near surface sample for the sediment samples is similar to the soil samples for the floodplain area which indicates that surface water transport is the main mode of contaminant movement from the neighbouring property to the north of the site.

Petroleum Hydrocarbons

The laboratory analytical results for PHC have been summarised and presented in Table 4-6.

Table 4-6: Petroleum Hydrocarbons - Sediment Results (mg/kg)

Analyte Name	Number of Analysis	Number of Detects	Minimum Concentration	Maximum Concentration
C_{16}-C_{34}	6	2	<100	150
C_{29}-C_{36}	6	1	<100	120
+C_{10} - C_{36} (Sum of total)	6	1	<50	120
C_{10} - C_{40} (Sum of total)	6	2	<50	150

The detection of PHC above the laboratory LOR is at low levels and near the laboratory LOR for some PHCs. The PHC detected are also greater than C_{16} and may be due to other forms of hydrocarbon which can include mineral oils present in herbicides or fungicides commonly used in farm management practices. No lighter PHC fraction was reported above the laboratory LOR (e.g. C_6 – C_{10}). Cardno Lane Piper is not inferring that the hydrocarbons detected are due to mineral oil, as this would need additional analysis to assess. It is noted that, it is possible that the hydrocarbon detected is from PHC residual from fire fighting training activities. A previous sediment assessment conducted on the Beremboke Creek on site, did not report any PHC above the laboratory LOR.

Metals

The laboratory analytical results for metals have been summarised and presented in Table 4-7.

Table 4-7: Metals - Sediment Results (mg/kg)

Analyte Name	Number of Analysis	Number of Detects	Minimum Concentration	Maximum Concentration
Arsenic	6	1	<5	18
Cadmium	6	1	<1	2
Chromium (III+VI)	4	4	22	126
Copper	6	6	6	17

Analyte Name	Number of Analysis	Number of Detects	Minimum Concentration	Maximum Concentration
Lead	6	6	9	23
Molybdenum	2	1	<2	2
Nickel	6	6	8	28
Zinc	6	6	10	39

Other Compounds

As part of the analytical suite for the extended analysis for sediment samples only, the following compounds reported detection levels below the laboratory LOR for:

- Semivolatile Organic Compounds;
- Volatile organic compounds;
- PAH and phenols;
- PCB;
- BTEX;
- Total MAH;
- Mercury; and
- Cyanide total.

Fluoride was detected in 2 out of 2 samples, ranging from 14 to 160mg/kg.

Leachability results

Selected sediment samples were analysed for leachability, the results are presented in Table 4-8 with the laboratory reports presented in Appendix F.

Table 4-8: ASLP - Sediment Results (µg/L)

Analyte Name	D4SI/ 0.1	D4SK/0.1	D4SE/0.1	D4SD/0.1
PFOS	6.4	6.77	1.76	0.21
PFOA	0.16	0.05	0.05	<0.02
6:2 FtS	0.7	<0.1	0.6	<0.1

PFCs reported above the Laboratory LOR for most samples analysed for leachability. Only one of the samples reported above the Laboratory LOR for zinc leachability.

In addition to the above sample D4SH /0.1 reported a leachable zinc concentration of 0.1mg/L. The following analytes were analysed for leachability in 2 samples (D4SD/0.1 and D4SH/0.1) but reported below the Laboratory LOR:

- Arsenic
- Cadmium
- Chromium (III+VI)
- Copper
- Lead
- Mercury
- Nickel.

4.3 Dam Water Summary

As discussed in Section 3.4.1, dam surface water samples were collected from the main dam located at the north western corner of the site, as shown in Figure 5, Appendix A. The analytical schedule for PFCs was only for PFOS, PFOA and 6:2 FtS. Table 4-9 summarizes results for the main dam.

Table 4-9: Dam Water – Results

Analyte Name	Number of Analysis	Number of Detects	Minimum Concentration	Maximum Concentration
PFOS (µg/L)	7	7	3.47	33.9
PFOA (µg/L)	7	7	0.57	2.28
6:2 FtS (µg/L)	7	7	3	32.6
Turbidity (NTU)	2	2	10.5	97
TDS (mg/L)	2	2	370	462

The main dam at the site is subdivided into to two sections. The dam water samples collected for the northern section (i.e. D4WG, D4WH and D4WI) has a much higher concentration of PFCs than the south portion of the main dam. Table 4-10 provides a summary of the averages for the PFCs analysed.

Table 4-10: Average Concentration for PFCs – Dam Water Samples

	6:2 FtS (µg/L)	PFOA (µg/L)	PFOS (µg/L)
North Portion	25.6	1.9	27.6
South Portion	4.1	0.68	3.8

4.4 Rain Water Storage Tanks Results Summary

As discussed in Section 3.4.1, the water samples collected from the rain water storage tanks at the site. All of the water samples analysed for extended PFCs did not report any results above the laboratory LOR.

4.5 Grass Summary

4.5.1 Field Observations – Grass

As discussed in Section 3.6.1, grass samples were collected from six locations in flood plain area, and nine locations in the paddock area.

4.5.2 Grass Results – Floodplain

The laboratory analytical results for the grass samples have been summarised and presented in Table 4-11.

Table 4-11: Perfluorinated Compounds – Floodplain (dry sample - ng/g)

Analyte Name	Number of Analysis	Number of Detects	Minimum Concentration	Maximum Concentration
PFOS	6	5	<0.5	36
PFOA	6	0	<1	-
6:2 FTS	6	0	<1	-
PFHxA	6	1	<20	70

Perfluorinated compounds detected in the grass samples were primarily PFOS and it is most likely due to the proximity to the Beremboke Creek and this area is believed to be subject to flooding.

4.5.3 Grass Results – Paddock Area

The laboratory analytical results for PFCs for the grass samples in the paddock area have been summarised and presented in Table 4-12 .

Table 4-12: Perfluorinated Compounds - Paddock Grass Results (dry sample - ng/g)

Analyte Name	Number of Analysis	Number of Detects	Minimum Concentration	Maximum Concentration
PFOS	9	2	1	10
PFOA	9	0	<1	<1
6:2 FTS	9	0	<1	<5

The only PFCs reported in the grass samples from the paddock area was PFOS. This was reported at sample locations AF10G, near the northern boundary of the site, and AF33G, east of the main dam. The remainder of the grass sample locations in the grid of samples from the paddock (i.e. AF20G, AF30G, AF42G, AF46G, AF69G, AF67G and AF71G) did not report any PFC results above the laboratory LOR.

5 CONCLUSIONS

5.1 Soil Contamination

The results of testing surface soils from the area adjoining the creek (floodplain) and the main dam show elevated concentrations of PFCs, predominantly PFOS (Maximum 0.218 mg/kg). The concentrations were substantially greater than those in surface soil in the paddock area (Maximum PFOS 0.0035 mg/kg) and near the residence (Maximum PFOS 0.0016 mg/kg). This indicates the PFCs near the Beremboke Creek are from flood events on the creek which derives most of its flow from overflow of Lake Fiskville. PFOS in surface soil in the paddocks and near the residence are potentially from airborne fall out, from the CFA site.

The other PFC compounds detected in the paddock area were Perfluorobutane sulfonate, Perfluorohexanoate, Perfluorohexane sulfonate, Perfluoroheptanoate and Perfluorononanoate. The PFCs reported near the residence, in addition to PFOS, was Perfluorohexane sulfonate (Maximum 0.0005 mg/kg) and Perfluorononanoate (Maximum 0.0006 mg/kg).

5.2 Sediment Contamination

The sediments result from the dam indicate the presence of PFCs, predominantly PFOS (Maximum 0.178 mg/kg) derived from the CFA site via Beremboke Creek. Low concentrations of petroleum hydrocarbons may or may not be from the CFA site although it is the most likely source. Metals are present in the sediment although at concentrations considered to be similar to background.

5.3 Dam Water Contamination

The dam water result indicates the presence of PFCs (i.e. PFOS, PFOA and 6:2 FtS) derived from the CFA site via the Beremboke Creek. The PFC concentrations were noticeably higher in the water samples from the northern half of the dam compared to the water samples in the southern half of the dam. This is evident with PFOS, where the samples from the northern half reported concentrations ranging from 21.8 to 33.9 µg/L, and samples collected from the southern half reported concentrations of PFOS ranging from 3.47 to 4.34 µg/L.

5.4 Rain Water Storage Tanks Contamination

The water in the rainwater tanks located at the residence is used for drinking water by the residents and also supplies drinking water to horses in a paddock near the house. Concentrations of PFCs were reported below the laboratory LOR for all four samples collected from the rain water storage tanks. It is evident that the potential airborne fall-out contributing to contamination of the surface soil near the boundary with the CFA site does not produce an unacceptable level of contamination in the rainwater collected at the residence.

5.5 Grass Contamination

Grass samples were collected at selected locations within the flood plain and paddock areas. The results of grass sampling investigations results of grass testing show some impacts by PFCs from the CFA site predominantly by PFOS and with highest concentrations in the vicinity of the creek, dam and associated flood plain area. Lower concentrations of PFOS were found

in samples from the paddock area; however, only in the immediate vicinity of the CFA boundary (reducing to below detection reporting limit approximately 110 m from the boundary).

Cardno Lane Piper
March 2104

Appendix A
8 Pages

Figures

Legend:

Site Boundary

Base image source: Google Earth (2005)

SCALE (m):

0 5000

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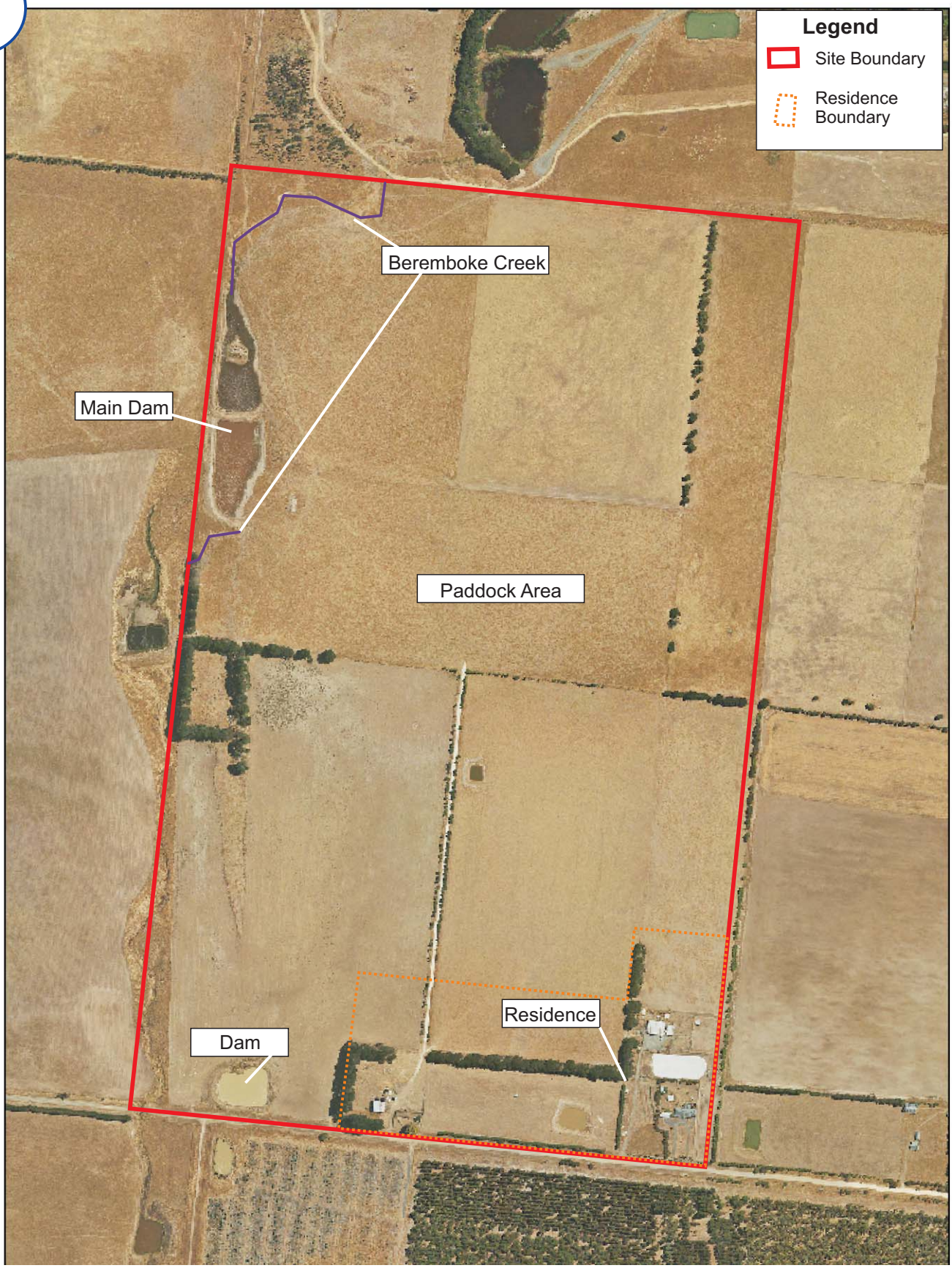
PROJECT:
Environmental Sampling and PFC Analysis Program
Adjacent Land
Ashurst

SCALE (A3): As Shown	DATE: Feb 2014	TITLE: Site Locality Plan	
JOB No: 212163.31	DRAWN: MCD		
REF: 212163.31Figure01.cdr	CHECKED: ACB	REV: 1	FIG: 1



SCALE (m):

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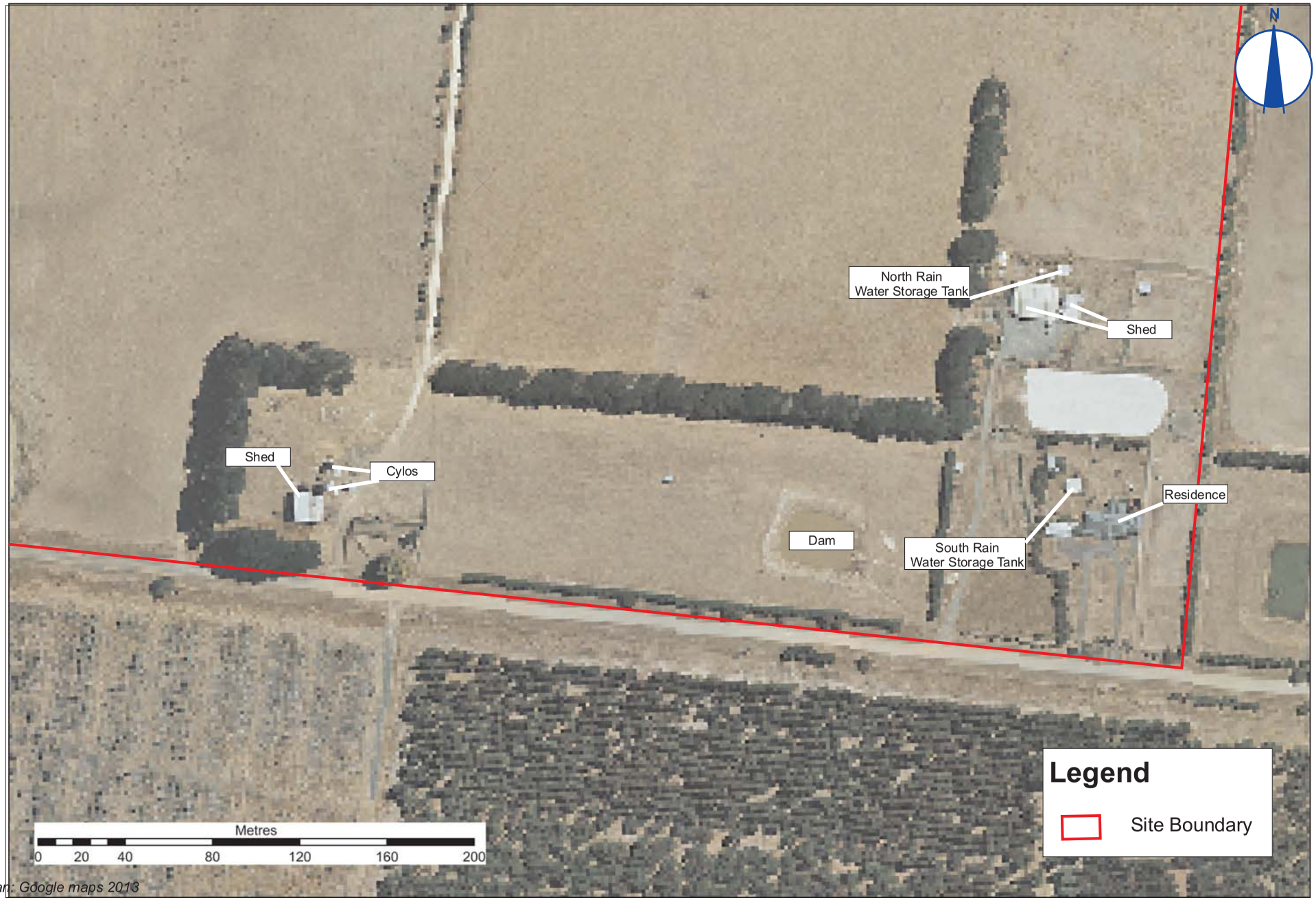
After DPI (September 2013)

Cardno LanePiper
Shaping the Future

PROJECT: Environmental Sampling and PFC Analysis Program Adjacent Land Ashurst		TITLE: Site Features	
SCALE: As Shown	DRAWN: MCD	DATE: December 2013	JOB No: 212163.31
REF: 212163.31Figure02.cdr	CHECKED: LJM	REV: 0	FIG: 2a



Base Plan: Google maps 2013

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PROJECT:
Environmental Sampling and PFC Analysis Program
Adjacent Land
Ashurst

SCALE (A3): As Shown	DATE: Feb 2014	TITLE: Site Features Residence	
JOB No: 212163.32	DRAWN: MCD		
REF: 212163.32Figure02b.cdr	CHECKED: ACB	REV: 1	FIG: 2b

Ashurst

Selected Analytical Soil Results

ENVIRONMENTAL SAMPLING AND PFC ANALYSIS PROGRAM
ADJACENT LAND, VIC

1:4,000 Scale at A3

Metres

0 200

FIGURE 3

N W E S

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Map Produced by Cardno Lane Piper Pty Ltd
Date: 27-02-2014
Coordinate System: GDA 1994 MGA Zone 55
Project: 212163.31
Map: 212163.31Figure03.1mxd
Drawn/Checked: PXT/LJM

Aerial imagery supplied by DPI (September 2013)

	D4SI	
Depth (m)	0.1	0.3
6:2 FTS	0.038	<0.005
PFOA	0.006	<0.0005
PFOS	0.178	<0.0005

	D4SM	
Depth (m)	0.1	0.4
6:2 FTS	0.01	<0.005
PFOA	0.0036	0.0022
PFOS	0.0653	0.03

	D4SH	
Depth (m)	0.1	0.3
6:2 FTS	0.011	<0.005
PFOA	0.0015	<0.0005
PFOS	0.062	<0.0005

	D4SG	
Depth (m)	0.1	0.3
6:2 FTS	0.011	<0.005
PFOA	0.0012	<0.0005
PFOS	0.0607	<0.0005

	D4SL	
Depth (m)	0.1	0.25
6:2 FTS	0.011	0.01
PFOA	0.0018	0.0014
PFOS	0.0592	0.0616

	D4SF	
Depth (m)	0.1	0.2
6:2 FTS	<0.005	<0.005
PFOA	<0.0005	<0.0005
PFOS	0.0078	<0.0005

	D4SK	
Depth (m)	0.1	0.3
6:2 FTS	0.012	0.008
PFOA	0.0015	0.0009
PFOS	0.0924	0.0464

	D4SE	
Depth (m)	0.1	0.5
6:2 FTS	0.009	<0.005
PFOA	0.0015	<0.0005
PFOS	0.0325	<0.0005

	D4SD	
Depth (m)	0.1	0.3
6:2 FTS	<0.005	<0.005
PFOA	0.0006	<0.0005
PFOS	0.0336	<0.0005

	D4SJ	
Depth (m)	0.1	0.3
6:2 FTS	<0.005	<0.005
PFOA	<0.0005	<0.0005
PFOS	0.0204	0.0037

Selected Analytical Sediment Results

Ashurst

ENVIRONMENTAL SAMPLING AND PFC ANALYSIS PROGRAM
ADJACENT LAND, VIC

FIGURE 4

1:1,000 Scale at A3

0 50 100

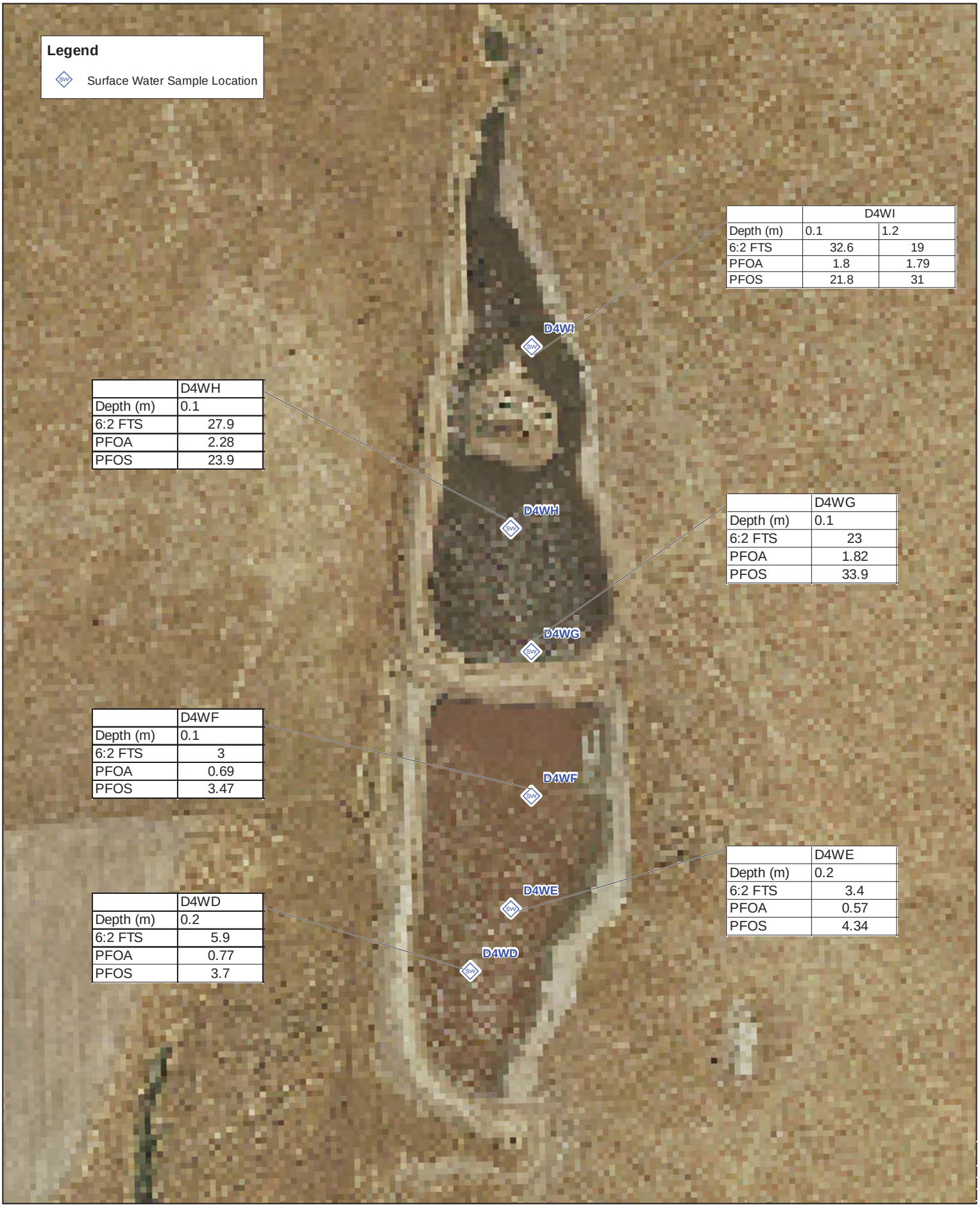
Metres

N W E S

Cardno LanePiper

Map Produced by Cardno Lane Piper Pty Ltd
Date: 2014-02-27
Coordinate System: GDA 1994 MGA Zone 55
Project: 212163.31
Map: 212163.31Figure04.1.mxd
Drawn/Checked: PXT/LJM

Aerial imagery supplied by DPI (September 2013)



Analytical Surface Water Results

Ashurst

1:1,000 Scale at A3

0 50 100
Metres

ENVIRONMENTAL SAMPLING AND
PFC ANALYSIS PROGRAM
ADJACENT LAND, VIC

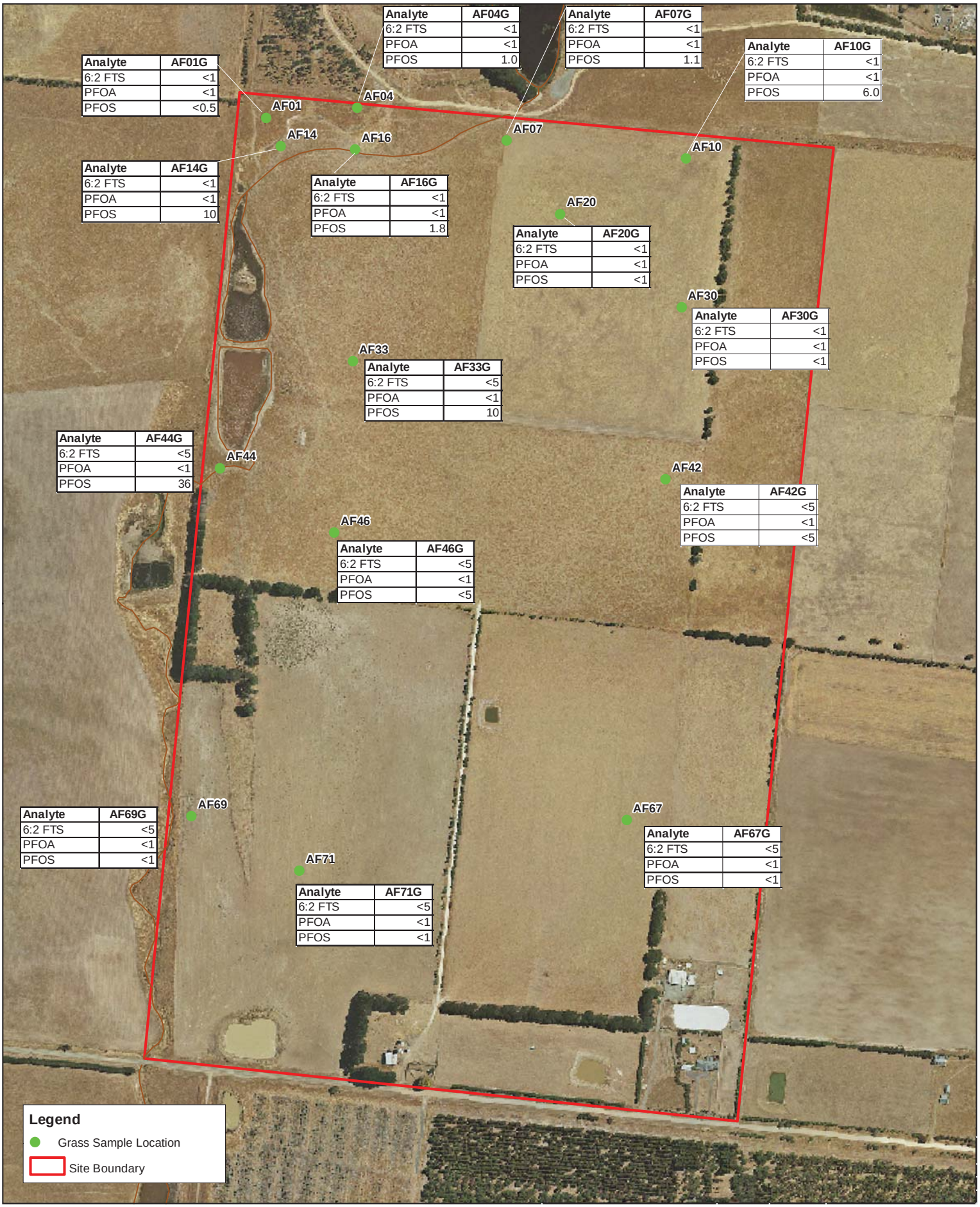
FIGURE 5

N W E S

Cardno LanePiper

Map Produced by Cardno Lane Piper Pty Ltd
Date: 2014-02-27
Coordinate System: GDA 1994 MGA Zone 55
Project: 212163.31
Map: 212163.31Figure05.1.mxd
Drawn/Checked: PXT/LJM

Aerial imagery supplied by DPI (September 2013)



Analyte	AF01G
6:2 FTS	<1
PFOA	<1
PFOS	<0.5

Analyte	AF04G
6:2 FTS	<1
PFOA	<1
PFOS	1.0

Analyte	AF07G
6:2 FTS	<1
PFOA	<1
PFOS	1.1

Analyte	AF10G
6:2 FTS	<1
PFOA	<1
PFOS	6.0

Analyte	AF14G
6:2 FTS	<1
PFOA	<1
PFOS	10

Analyte	AF16G
6:2 FTS	<1
PFOA	<1
PFOS	1.8

Analyte	AF20G
6:2 FTS	<1
PFOA	<1
PFOS	<1

Analyte	AF30G
6:2 FTS	<1
PFOA	<1
PFOS	<1

Analyte	AF33G
6:2 FTS	<5
PFOA	<1
PFOS	10

Analyte	AF44G
6:2 FTS	<5
PFOA	<1
PFOS	36

Analyte	AF42G
6:2 FTS	<5
PFOA	<1
PFOS	<5

Analyte	AF46G
6:2 FTS	<5
PFOA	<1
PFOS	<5

Analyte	AF69G
6:2 FTS	<5
PFOA	<1
PFOS	<1

Analyte	AF67G
6:2 FTS	<5
PFOA	<1
PFOS	<1

Analyte	AF71G
6:2 FTS	<5
PFOA	<1
PFOS	<1

Ashurst

1:4,000 Scale at A3

Metres

0 200

Grass Analytical Results

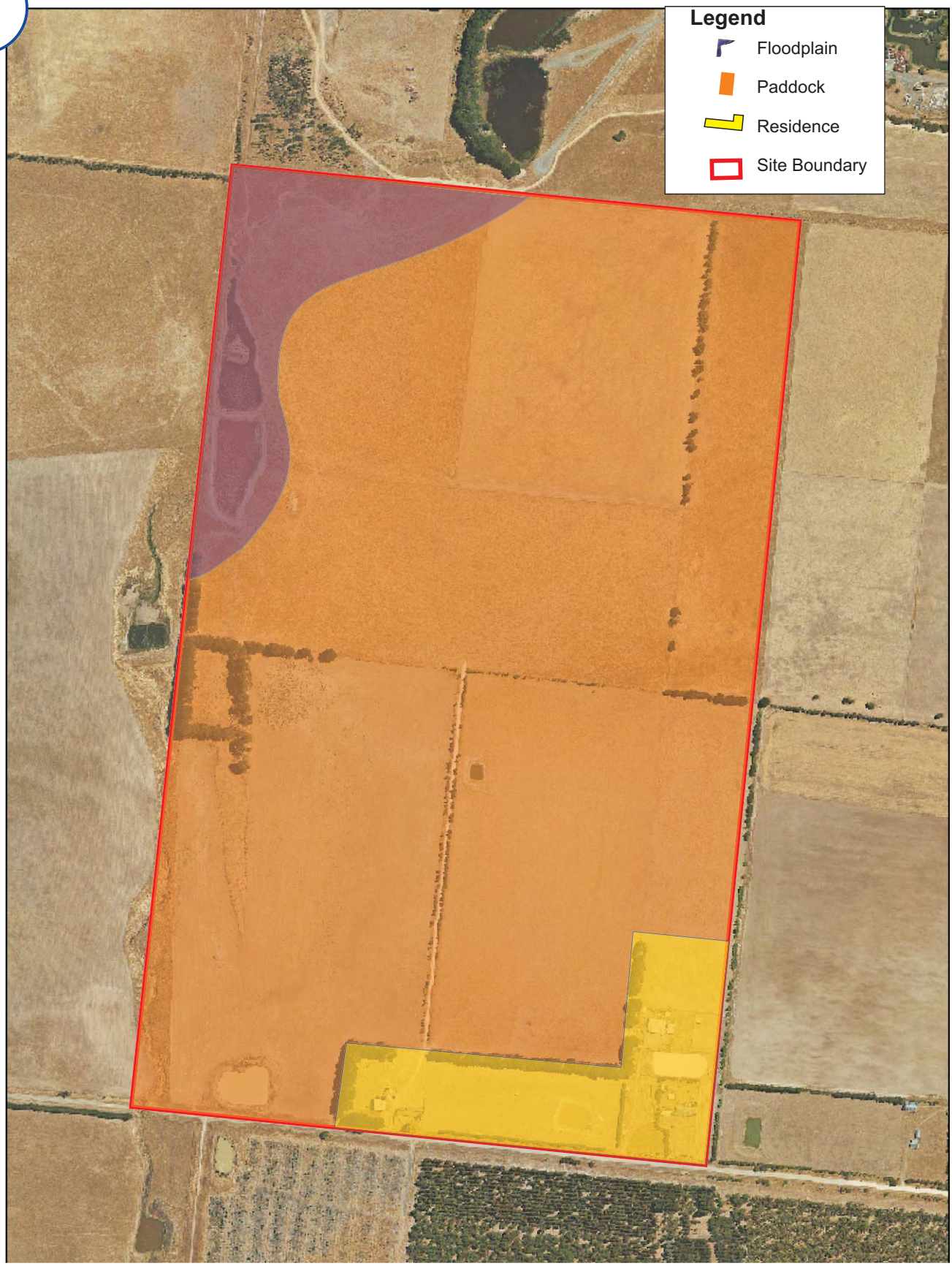
ENVIRONMENTAL SAMPLING AND PFC ANALYSIS PROGRAM, ADJACENT LAND

FIGURE 6

Cardno LanePiper

Map Produced by Cardno Lane Piper
Date: 16-12-2013
Coordinate System: GDA 1994 MGA Zone 55
Project: 212163.31
Map: 212163.31Figure06.mxd 01
Drawn/Checked: PXT/LJM

Aerial imagery supplied by DPI (September 2013)



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After DPI (September 2013)

Cardno LanePiper
Shaping the Future

PROJECT: Environmental Sampling and PFC Analysis Program Adjacent Land Ashurst		TITLE: Environmental Assessment Area	
SCALE: As Shown	DRAWN: MCD	DATE: December 2013	JOB No: 212163.31
REF: 212163.31Figure07.cdr	CHECKED: LJM	REV: 0	FIG: 7

Appendix B
22 Pages

Tables of Test Results

Table 1: Soil Results

Field_ID	AF01	AF02	AF03	AF04	AF05	AF06	AF07 (0.05)	AF07 (0.3)	AF08	AF09	AF10 (0.05)	AF10 (0.3)	AF11	AF12 (0.05)	AF12 (0.3)	AF13	AF14
LocCode	AF01	AF02	AF03	AF04	AF05	AF06	AF07	AF07	AF08	AF09	AF10	AF10	AF11	AF12	AF12	AF13	AF14
Sample_Depth_Range							0.05	0.3			0.05	0.3		0.05	0.3		
Sampled_Date-Time	9/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	9/10/2013	9/10/2013
Matrix_Description																	

Method_Type	ChemName	Units	EQL															
Perfluorinated Compounds by LCMSMS	8:2 Fluorotelomer sulfonate	mg/kg	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
	N-Et-FOSA	mg/kg	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
	N-Et-FOSE	mg/kg	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
	N-Me-FOSA	mg/kg	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
	N-Me-FOSE	mg/kg	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
	PFBS	mg/kg	0.0002	0.0003	0.0006	0.0002	0.0003	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0011
	PFDcA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFDcS	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFDoA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFHpA	mg/kg	0.0002	<0.0002	0.0003	0.0015	0.0002	0.0009	<0.0002	0.0007	0.0003	0.0003	0.0003	0.0004	<0.0002	0.001	0.0014	0.0006	<0.0002	0.0003
	PFHxA	mg/kg	0.0002	0.0003	0.0021	0.0007	0.0003	0.0023	<0.0002	0.0005	0.0003	<0.0002	<0.0002	0.0002	<0.0002	0.0008	0.0012	0.0006	<0.0002	0.0006
	PFHxS	mg/kg	0.0002	0.0016	0.0048	0.0014	0.0009	0.01	0.0005	0.0015	0.0011	0.0012	0.0012	0.0009	0.0005	0.0011	0.0022	0.0018	0.0008	0.0034
	PFNA	mg/kg	0.0002	<0.0002	0.0044	0.0005	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFOSA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFTeA	mg/kg	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
	PFTriA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFUnA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	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
	Perfluorooctanoate	mg/kg	0.0005	<0.0005	0.0011	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	PFOS	mg/kg	0.0005	0.0009	0.0243	0.0073	0.0068	0.0184	0.0018	0.0035	0.0015	0.0016	0.0023	0.0024	<0.0005	0.0013	0.0035	0.0021	0.0006	0.0151
Moisture Content	Moisture	%	1	21.4	19.9	23.4	25.3	25.4	18.2	22.5	15.3	20.3	19.6	22.4	25.8	15.5	21.6	21.8	17.9	25.7

Field_ID	AF15	AF16	AF17	AF18	AF19	AF20 (0.05)	AF20 (0.3)	AF21	AF22	AF23	AF24	AF25	AF26	AF27	AF28	AF29	AF30 (0.05)
LocCode	AF15	AF16	AF17	AF18	AF19	AF20	AF20	AF21	AF22	AF23	AF24	AF25	AF26	AF27	AF28	AF29	AF30
Sample_Depth_Range						0.05	0.3										0.05
Sampled_Date-Time	9/10/2013	9/10/2013	9/10/2013	9/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013	10/10/2013	10/10/2013
Matrix_Description																	

Method_Type	ChemName	Units	EQL															
Perfluorinated Compounds by LCMSMS	8:2 Fluorotelomer sulfonate	mg/kg	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
	N-Et-FOSA	mg/kg	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
	N-Et-FOSE	mg/kg	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
	N-Me-FOSA	mg/kg	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
	N-Me-FOSE	mg/kg	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
	PFBS	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0056	0.0003	<0.0002	<0.0002	<0.0002	<0.0002
	PFDcA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFDcS	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFDoA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFHpA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	0.0002	<0.0002	0.0003	0.0004	0.0003	0.0005	0.0044	0.0009	<0.0002	<0.0002	0.0003	0.0003
	PFHxA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	0.0003	0.0004	0.0005	0.0057	0.001	0.0002	<0.0002	0.0005	0.0002
	PFHxS	mg/kg	0.0002	0.0003	0.0007	0.0004	0.0012	0.001	0.0015	0.001	0.0012	0.0016	0.0006	0.0014	0.0098	0.0022	0.0022	0.0007	0.0022	0.0014
	PFNA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0018	0.0009	0.0002	<0.0002	0.0003	<0.0002
	PFOSA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFTeA	mg/kg	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
	PFTriA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFUnA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0011	0.0003	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	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
	Perfluorooctanoate	mg/kg	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0026	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	PFOS	mg/kg	0.0005	0.0011	0.002	0.0009	0.0024	0.0013	0.0021	0.0013	0.0016	0.002	0.0006	0.0006	0.0561	0.0059	0.0018	0.0016	0.0022	0.0019
Moisture Content	Moisture	%	1	20.5	16.8	17.8	17.6	25.3	18.7	12.2	19.8	22.6	10.7	18.2	36.1	28.7	18.2	25.6	22.6	20.7

Table 1: Soil Results

Field_ID	AF30 (0.3)	AF31	AF32	AF33 (0.05)	AF33(0.3)	AF34	AF35	AF36	AF37	AF38	AF39	AF40	AF41	AF42 (0.05)	AF42(0.3)	AF43	AF44
LocCode	AF30	AF31	AF32	AF33	AF33	AF34	AF35	AF36	AF37	AF38	AF39	AF40	AF41	AF42	AF42	AF43	AF44
Sample_Depth_Range	0.3			0.05	0.3									0.05	0.3		
Sampled_Date-Time	10/10/2013	10/10/2013	10/10/2013	10/10/2013	9/10/2013	9/10/2013	10/10/2013	10/10/2013	10/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013	10/10/2013	9/10/2013	10/10/2013	9/10/2013
Matrix_Description																	

Method_Type	ChemName	Units	EQL															
Perfluorinated Compounds by LCMSMS	8:2 Fluorotelomer sulfonate	mg/kg	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	-
	N-Et-FOSA	mg/kg	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	-
	N-Et-FOSE	mg/kg	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	-
	N-Me-FOSA	mg/kg	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	-
	N-Me-FOSE	mg/kg	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	-
	PFBS	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	0.0014	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
	PFDcA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
	PFDcS	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
	PFDoA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
	PFHpA	mg/kg	0.0002	<0.0002	0.0011	0.0026	0.0003	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	0.0043	<0.0002	0.0002	0.0012	0.0012	<0.0002	<0.0002	-
	PFHxA	mg/kg	0.0002	0.0003	0.0011	0.0028	0.0003	<0.0002	0.0002	<0.0002	0.0003	<0.0002	0.005	<0.0002	0.0002	0.001	0.0009	<0.0002	<0.0002	-
	PFHxS	mg/kg	0.0002	0.0016	0.001	0.0032	0.0013	0.0004	0.0008	0.0008	0.0018	0.0005	0.0131	0.0006	0.0009	0.0017	0.0011	0.0003	0.0004	-
	PFNA	mg/kg	0.0002	<0.0002	<0.0002	0.0009	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0014	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
	PFOSA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
	PFTeA	mg/kg	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	-
	PFTriA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
	PFUnA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.014	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006
	Perfluorooctanoate	mg/kg	0.0005	<0.0005	<0.0005	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0016	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0028
	PFOS	mg/kg	0.0005	0.0008	0.0009	0.024	0.0024	0.0006	0.0007	0.0012	0.0014	<0.0005	0.054	0.0008	<0.0005	0.0021	0.0014	<0.0005	<0.0005	0.218
Moisture Content	Moisture	%	1	16	19.3	22.7	20.4	15.9	17.2	19.2	11.3	19.2	28.1	13.4	16.4	22.8	23.4	21.1	17.8	39.5

Field_ID	AF45	AF46 (0.05)	AF46(0.3)	AF47	AF48	AF49	AF50	AF51	AF52	AF53	AF54	AF55	AF56	AF57	AF58	AF59	AF60
LocCode	AF45	AF46	AF46	AF47	AF48	AF49	AF50	AF51	AF52	AF53	AF54	AF55	AF56	AF57	AF58	AF59	AF60
Sample_Depth_Range		0.05	0.3														
Sampled_Date-Time	9/10/2013	10/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013
Matrix_Description																	

Method_Type	ChemName	Units	EQL																
Perfluorinated Compounds by LCMSMS	8:2 Fluorotelomer sulfonate	mg/kg	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
	N-Et-FOSA	mg/kg	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
	N-Et-FOSE	mg/kg	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
	N-Me-FOSA	mg/kg	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
	N-Me-FOSE	mg/kg	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
	PFBS	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFDcA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFDcS	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFDoA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFHpA	mg/kg	0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	0.0003	0.0004	<0.0002	0.0018	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002
	PFHxA	mg/kg	0.0002	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	0.0005	<0.0002	<0.0002	0.0018	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFHxS	mg/kg	0.0002	0.0009	0.0005	0.0012	0.001	0.0005	0.0019	0.0009	0.0005	0.0014	0.0004	0.0003	0.0003	0.0004	0.0002	0.0002	0.0004	0.0004
	PFNA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFOSA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFTeA	mg/kg	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
	PFTriA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFUnA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	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
	Perfluorooctanoate	mg/kg	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	PFOS	mg/kg	0.0005	0.0022	<0.0005	0.0021	0.0018	0.0013	0.0012	0.0009	0.0006	0.0015	0.0006	<0.0005	<0.0005	0.0009	<0.0005	0.0006	0.0007	<0.0005
Moisture Content	Moisture	%	1	29.2	21	19.4	19.7	18.2	23.9	19	21.7	20.4	22.2	26.2	21.4	23.1	24.7	12.7	19.9	16.8

Table 1: Soil Results

Field_ID	AF61	AF62	AF63	AF64	AF65	AF66	AF67 (0.05)	AF67 (0.3)	AF68	AF69	AF70	AF71 (0.05)	AF71 (0.3)	AF72	AF73	AF74	AF75
LocCode	AF61	AF62	AF63	AF64	AF65	AF66	AF67	AF67	AF68	AF69	AF70	AF71	AF71	AF72	AF73	AF74	AF75
Sample_Depth_Range							0.05	0.3				0.05	0.3				
Sampled_Date-Time	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013
Matrix_Description																	

Method_Type	ChemName	Units	EQL															
Perfluorinated Compounds by LCMSMS	8:2 Fluorotelomer sulfonate	mg/kg	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
	N-Et-FOSA	mg/kg	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
	N-Et-FOSE	mg/kg	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
	N-Me-FOSA	mg/kg	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
	N-Me-FOSE	mg/kg	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
	PFBS	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFDcA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFDcS	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFDoA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFHpA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFHxA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFHxS	mg/kg	0.0002	0.0002	0.0006	0.0003	0.0004	0.0004	<0.0002	0.0003	<0.0002	0.0003	<0.0002	0.0002	0.0002	<0.0002	0.0003	0.0002	0.0003	0.0005
	PFNA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	<0.0002
	PFOSA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFTeA	mg/kg	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
	PFTriA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFUnA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	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
	Perfluorooctanoate	mg/kg	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	PFOS	mg/kg	0.0005	<0.0005	<0.0005	0.001	<0.0005	0.0006	0.0005	0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.0005	0.0009
Moisture Content	Moisture	%	1	16.3	21.6	14	17.6	17.6	16.2	15.6	15.2	17.3	19.5	18.8	13.5	12.6	18.1	18.5	18.2	20.1

Table 1: Soil Results

Field_ID	AF76	AF77	AF78	AF79	AF80	AF81	AF82	AF83	AF84	AF85	AF86	AF87
LocCode	AF76	AF77	AF78	AF79	AF80	AF81	AF82	AF83	AF84	AF85	AF86	AF87
Sample_Depth_Range												
Sampled_Date-Time	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	9/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	9/10/2013
Matrix_Description												

Method_Type	ChemName	Units	EQL											
Perfluorinated Compounds by LCMSMS	8:2 Fluorotelomer sulfonate	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	-
	N-Et-FOSA	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	-
	N-Et-FOSE	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	-
	N-Me-FOSA	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	-
	N-Me-FOSE	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	-
	PFBS	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
	PFDcA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
	PFDcS	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
	PFDoA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
	PFHpA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
	PFHxA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
	PFHxS	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	-
	PFNA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
	PFOSA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
	PFTeA	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	-
	PFTriA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
	PFUnA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	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
	Perfluorooctanoate	mg/kg	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	PFOS	mg/kg	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0016	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Moisture Content	Moisture	%	1	18.2	19.6	16.3	16.6	17.9	36.7	16.8	16.1	19.9	17.2	18.5	27.2

Field_ID	D4SD 0.1/081013	D4SD 0.3/081013	D4SE 0.1/081013	D4SE 05/081013	D4SF 0.1/081013	D4SF 0.2/081013	D4SG 0.1/081013	D4SG 0.3/081013	D4SH 0.1/081013	D4SH 0.3/081013	D4SI 0.1/081013	D4SI 0.3/081013	D4SJ(0.1)_091013
LocCode	D4SD	D4SD	D4SE	D4SE	D4SF	D4SF	D4SG	D4SG	D4SH	D4SH	D4SI	D4SI	D4SJ
Sample_Depth_Range	0.1	0.3	0.1	0.5	0.1	0.2	0.1	0.3	0.1	0.3	0.1	0.3	0.1
Sampled_Date-Time	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	9/10/2013
Matrix_Description													

Method_Type	ChemName	Units	EQL												
Perfluorinated Compounds by LCMSMS	8:2 Fluorotelomer sulfonate	mg/kg	0.001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	N-Et-FOSA	mg/kg	0.001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	N-Et-FOSE	mg/kg	0.001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	N-Me-FOSA	mg/kg	0.001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	N-Me-FOSE	mg/kg	0.001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	PFBS	mg/kg	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	0.0002
	PFDcA	mg/kg	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002
	PFDcS	mg/kg	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002
	PFDoA	mg/kg	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002
	PFHpA	mg/kg	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	0.0006
	PFHxA	mg/kg	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	0.0027
	PFHxS	mg/kg	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	0.0028
	PFNA	mg/kg	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002
	PFOSA	mg/kg	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002
	PFTeA	mg/kg	0.001	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
	PFTriA	mg/kg	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002
	PFUnA	mg/kg	0.0002	-	-	-	-	-	-	-	-	-	-	-	-	<0.0002
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	0.011	<0.005	0.011	<0.005	0.038	<0.005	<0.005
	Perfluorooctanoate	mg/kg	0.0005	0.0006	<0.0005	0.0015	<0.0005	<0.0005	<0.0005	0.0012	<0.0005	0.0015	<0.0005	0.006	<0.0005	<0.0005
	PFOS	mg/kg	0.0005	0.0336	<0.0005	0.0325	<0.0005	0.0078	<0.0005	0.0607	<0.0005	0.062	<0.0005	0.178	<0.0005	0.0204
SVOC - Waste Classification (Sums)	Sum of organochlorine pesticides	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	Sum of other organochlorine pesticides	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	Sum of Phenols (halogenated)	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	Sum of Phenols (non-halogenated)	mg/kg	1	-	-	<1	-	-	-	<1	-	-	-	-	-	-
	Sum of polycyclic aromatic hydrocarbons	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
Volatile Organic Compounds - Ultra-trace - Summ	Sum of other chlorinated hydrocarbons	mg/kg	0.01	-	-	<0.01	-	-	-	<0.01	-	-	-	-	-	-
	Sum of volatile chlorinated hydrocarbons	mg/kg	0.01	-	-	<0.01	-	-	-	<0.01	-	-	-	-	-	-
ESDAT Combined Compounds	Xylene Total	mg/kg		<1	-	<1	-	<1	-	<1	-	<1	-	<1	-	-
Volatile Organic Compounds	Benzene	mg/kg	0.2	<0.2	-	-	-	<0.2	-	-	-	<0.2	-	<0.2	-	-
	Ethylbenzene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Toluene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Xylene (m & p)	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Xylene (o)	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
Volatile Organic Compounds - Ultra-trace	Benzene	mg/kg	0.2	-	-	<0.2	-	-	-	<0.2	-	-	-	-	-	-
	Ethylbenzene	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Toluene	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Xylene (m & p)	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Xylene (o)	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Xylene Total	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	1,1,1,2-tetrachloroethane	mg/kg	0.01	-	-	<0.01	-	-	-	<0.01	-	-	-	-	-	-
	1,1,1-trichloroethane	mg/kg	0.01	-	-	<0.01	-	-	-	<0.01	-	-	-	-	-	-
	1,1,2,2-tetrachloroethane	mg/kg	0.02	-	-	<0.02	-	-	-	<0.02	-	-	-	-	-	-
	1,1,2-trichloroethane	mg/kg	0.04	-	-	<0.04	-	-	-	<0.04	-	-	-	-	-	-
	1,1-dichloroethene	mg/kg	0.01	-	-	<0.01	-	-	-	<0.01	-	-	-	-	-	-
	1,2-dichloroethane	mg/kg	0.02	-	-	<0.02	-	-	-	<0.02	-	-	-	-	-	-
	Carbon tetrachloride	mg/kg	0.01	-	-	<0.01	-	-	-	<0.01	-	-	-	-	-	-
	Chloroform	mg/kg	0.02	-	-	<0.02	-	-	-	<0.02	-	-	-	-	-	-
	cis-1,2-dichloroethene	mg/kg	0.01	-	-	<0.01	-	-	-	<0.01	-	-	-	-	-	-
	Dichloromethane	mg/kg	0.4	-	-	<0.4	-	-	-	<0.4	-	-	-	-	-	-
	Hexachlorobutadiene	mg/kg	0.02	-	-	<0.02	-	-	-	<0.02	-	-	-	-	-	-
	Trichloroethene	mg/kg	0.02	-	-	<0.02	-	-	-	<0.02	-	-	-	-	-	-
	Tetrachloroethene	mg/kg	0.02	-	-	<0.02	-	-	-	<0.02	-	-	-	-	-	-
	trans-1,2-dichloroethene	mg/kg	0.02	-	-	<0.02	-	-	-	<0.02	-	-	-	-	-	-
	Vinyl chloride	mg/kg	0.02	-	-	<0.02	-	-	-	<0.02	-	-	-	-	-	-
Semivolatile Organic Compounds - Waste Classifi	Hexachlorobenzene	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
Volatile Organic Compounds - Ultra-trace	1,2,4-trichlorobenzene	mg/kg	0.01	-	-	<0.01	-	-	-	<0.01	-	-	-	-	-	-
	1,2-dichlorobenzene	mg/kg	0.02	-	-	<0.02	-	-	-	<0.02	-	-	-	-	-	-
	1,4-dichlorobenzene	mg/kg	0.02	-	-	<0.02	-	-	-	<0.02	-	-	-	-	-	-
	Chlorobenzene	mg/kg	0.02	-	-	<0.02	-	-	-	<0.02	-	-	-	-	-	-
Semivolatile Organic Compounds - Waste Classifi	2,3,5,6-Tetrachlorophenol	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	2,4,5-trichlorophenol	mg/kg	0.05	-	-	<0.05	-	-	-	<0.05	-	-	-	-	-	-
	2,4,6-trichlorophenol	mg/kg	0.05	-	-	<0.05	-	-	-	<0.05	-	-	-	-	-	-
	2,4-dichlorophenol	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	2,6-dichlorophenol	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	2.3.4.5 & 2.3.4.6-Tetrachlorophenol	mg/kg	0.05	-	-	<0.05	-	-	-	<0.07	-	-	-	-	-	-
	2-chlorophenol	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	Pentachlorophenol	mg/kg	0.2	-	-	<0.2	-	-	-	<0.2	-	-	-	-	-	-
	Dinoseb	mg/kg	5	-	-	<5	-	-	-	<5	-	-	-	-	-	-
Moisture Content	Moisture	%	1	44.9	5.3	49	6.1	39.7	19.2	4.8	4.8	3.8	5.4	36.8	6.2	22.8
Total Cyanide by Segmented Flow Analyser	Cyanide Total	mg/kg	1	-	-	<1	-	-	-	<1	-	-	-	-	-	-
Total Fluoride	Fluoride	mg/kg	40	-	-	160	-	-	-	140	-	-	-	-	-	-
Volatile Organic Compounds	1,2,4-trimethylbenzene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	1,3,5-trimethylbenzene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Isopropylbenzene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	n-butylbenzene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	n-propylbenzene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	p-isopropyltoluene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	sec-butylbenzene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Styrene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	tert-butylbenzene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
Volatile Organic Compounds - Ultra-trace	Styrene	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
Volatile Organic Compounds - Ultra-trace - Summ	Total MAH	mg/kg	0.2	-	-	<0.2	-	-	-	<0.2	-	-	-	-	-	-
Total Hexavalent Chromium by Alkaline Digestion	Chromium (hexavalent)	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
Total Mercury by FIMS	Mercury	mg/kg	0.1	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	-
Total Metals by ICP-AES	Arsenic	mg/kg	5	18	-	<5	-	<5	-	<5	-	<5	-	<5	-	-
	Cadmium	mg/kg	1	2	-	<1	-	<1	-	<1	-	<1	-	<1	-	-

Field_ID	D4SD 0.1/081013	D4SD 0.3/081013	D4SE 0.1/081013	D4SE 05/081013	D4SF 0.1/081013	D4SF 0.2/081013	D4SG 0.1/081013	D4SG 0.3/081013	D4SH 0.1/081013	D4SH 0.3/081013	D4SI 0.1/081013	D4SI 0.3/081013	D4SJ(0.1)_091013
LocCode	D4SD	D4SD	D4SE	D4SE	D4SF	D4SF	D4SG	D4SG	D4SH	D4SH	D4SI	D4SI	D4SJ
Sample_Depth_Range	0.1	0.3	0.1	0.5	0.1	0.2	0.1	0.3	0.1	0.3	0.1	0.3	0.1
Sampled_Date-Time	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	9/10/2013
Matrix_Description													

Method_Type	ChemName	Units	EQL													
	Chromium (III+VI)	mg/kg	2	126	-	-	-	49	-	-	-	50	-	22	-	-
	Copper	mg/kg	5	15	-	10	-	10	-	17	-	16	-	6	-	-
	Lead	mg/kg	5	23	-	10	-	9	-	11	-	12	-	10	-	-
	Molybdenum	mg/kg	2	-	-	<2	-	-	-	2	-	-	-	-	-	-
	Nickel	mg/kg	2	28	-	18	-	15	-	26	-	23	-	8	-	-
	Selenium	mg/kg	5	-	-	<5	-	-	-	<5	-	-	-	-	-	-
	Silver	mg/kg	2	-	-	<2	-	-	-	<2	-	-	-	-	-	-
	Tin	mg/kg	5	-	-	<5	-	-	-	<5	-	-	-	-	-	-
	Zinc	mg/kg	5	16	-	16	-	14	-	39	-	38	-	10	-	-
ESDAT Combined Compounds	Aldrin + Dieldrin	mg/kg		-	-	<0.06	-	-	-	<0.06	-	-	-	-	-	-
	DDT+DDE+DDD	mg/kg		-	-	<0.15	-	-	-	<0.15	-	-	-	-	-	-
Semivolatile Organic Compounds - Waste Classific	4,4-DDE	mg/kg	0.05	-	-	<0.05	-	-	-	<0.05	-	-	-	-	-	-
	a-BHC	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	Aldrin	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	b-BHC	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	Chlordane (cis)	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	Chlordane (trans)	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	d-BHC	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	DDD	mg/kg	0.05	-	-	<0.05	-	-	-	<0.05	-	-	-	-	-	-
	DDT	mg/kg	0.05	-	-	<0.05	-	-	-	<0.05	-	-	-	-	-	-
	Dieldrin	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	Endosulfan I	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	Endosulfan II	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	Endosulfan sulphate	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	Endrin	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	Endrin aldehyde	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	g-BHC (Lindane)	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	Heptachlor	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	Heptachlor epoxide	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	Methoxychlor	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
SVOC - Waste Classification (Sums)	Aldrin + Dieldrin	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	chlordane	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	DDT+DDE+DDD	mg/kg	0.05	-	-	<0.05	-	-	-	<0.05	-	-	-	-	-	-
PAH/Phenols (SIM)	Carcinogenic PAHs as B(a)P TPE	mg/kg		<1.16	-	<1.16	-	<1.16	-	<1.16	-	<1.16	-	<1.16	-	-
	Carcinogenic PAHs (as B(a)P TPE, PEFx3)	mg/kg		<3.48	-	<3.48	-	<3.48	-	<3.48	-	<3.48	-	<3.48	-	-
	Benzo(a)pyrene TEQ (half LOR)	mg/kg	0.5	0.6	-	-	-	0.6	-	-	-	0.6	-	0.6	-	-
	Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5	1.2	-	-	-	1.2	-	-	-	1.2	-	1.2	-	-
	Benzo(a)pyrene TEQ (zero)	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Benzo(a)pyrene TEQ (half LOR)	mg/kg	0.5	-	-	0.6	-	-	-	0.6	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5	-	-	1.2	-	-	-	1.2	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (zero)	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Acenaphthene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Acenaphthylene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Anthracene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Benz(a)anthracene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Benzo(a) pyrene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Benzo(b)fluoranthene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Chrysene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Fluoranthene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Fluorene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Naphthalene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Phenanthrene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Pyrene	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
	Sum of polycyclic aromatic hydrocarbons	mg/kg	0.5	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	<0.5	-	-
Semivolatile Organic Compounds - Waste Classific	2,4-dimethylphenol	mg/kg	1	-	-	<1	-	-	-	<1	-	-	-	-	-	-
	2,4-dinitrophenol	mg/kg	5	-	-	<5	-	-	-	<5	-	-	-	-	-	-
	2-methylphenol	mg/kg	1	-	-	<1	-	-	-	<1	-	-	-	-	-	-
	2-nitrophenol	mg/kg	1	-	-	<1	-	-	-	<1	-	-	-	-	-	-
	3-&4-methylphenol	mg/kg	1	-	-	<1	-	-	-	<1	-	-	-	-	-	-
	4,6-Dinitro-2-methylphenol	mg/kg	5	-	-	<5	-	-	-	<5	-	-	-	-	-	-
	4-chloro-3-methylphenol	mg/kg	0.03	-	-	<0.03	-	-	-	<0.03	-	-	-	-	-	-
	4-nitrophenol	mg/kg	5	-	-	<5	-	-	-	<5	-	-	-	-	-	-
	Acenaphthene	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Acenaphthylene	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Anthracene	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Benz(a)anthracene	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Benzo(a) pyrene	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Benzo(b)&(k)fluoranthene	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Benzo(g,h,i)perylene	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Chrysene	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Dibenz(a,h)anthracene	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Fluoranthene	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Fluorene	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Naphthalene	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Phenanthrene	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	Phenol	mg/kg	1	-	-	<1	-	-	-	<1	-	-	-	-	-	-
	Pyrene	mg/kg	0.5	-	-	<0.5	-	-	-	<0.5	-	-	-	-	-	-
	4,6-Dinitro-o-cyclohexyl phenol	mg/kg	5	-	-	<5	-	-	-	<5	-	-	-	-	-	-
PCB - VIC EPA 448.3 Screen	PCBs (Sum of total)	mg/kg	0.1	-	-	<0.1	-	-	-	<0.3	-	-	-	-	-	-
ESDAT Combined Compounds	+C10 - C36 (Sum of total)	mg/kg		<250	-	<250	-	<250	-	<250	-	195	-	<250	-	-
TPH - Semivolatile Fraction	C10-C16	mg/kg	50	<50	-	<50	-	<50	-	<50	-	<50	-	<50	-	-

Field_ID	D4SD 0.1/081013	D4SD 0.3/081013	D4SE 0.1/081013	D4SE 05/081013	D4SF 0.1/081013	D4SF 0.2/081013	D4SG 0.1/081013	D4SG 0.3/081013	D4SH 0.1/081013	D4SH 0.3/081013	D4SI 0.1/081013	D4SI 0.3/081013	D4SJ(0.1)_091013
LocCode	D4SD	D4SD	D4SE	D4SE	D4SF	D4SF	D4SG	D4SG	D4SH	D4SH	D4SI	D4SI	D4SJ
Sample_Depth_Range	0.1	0.3	0.1	0.5	0.1	0.2	0.1	0.3	0.1	0.3	0.1	0.3	0.1
Sampled_Date-Time	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	9/10/2013
Matrix_Description													

Method_Type	ChemName	Units	EQL													
	C16-C34	mg/kg	100	<100	-	<100	-	<100	-	130	-	150	-	<100	-	-
	C34-C40	mg/kg	100	<100	-	<100	-	<100	-	<100	-	<100	-	<100	-	-
	F2-NAPHTHALENE	mg/kg	50	<50	-	-	-	<50	-	-	-	<50	-	<50	-	-
	C10 - C14	mg/kg	50	<50	-	<50	-	<50	-	<50	-	<50	-	<50	-	-
	C15 - C28	mg/kg	100	<100	-	<100	-	<100	-	<100	-	<100	-	<100	-	-
	C29-C36	mg/kg	100	<100	-	<100	-	<100	-	<100	-	120	-	<100	-	-
	+C10 - C36 (Sum of total)	mg/kg	50	<50	-	<50	-	<50	-	<50	-	120	-	<50	-	-
	C10 - C40 (Sum of total)	mg/kg	50	<50	-	<50	-	<50	-	130	-	150	-	<50	-	-
TPH Volatiles/BTEX	C6 - C9	mg/kg	10	<10	-	<10	-	<10	-	<10	-	<10	-	<10	-	-
	C6-C10	mg/kg	10	<10	-	<10	-	<10	-	<10	-	<10	-	<10	-	-

Table 2: Sediment Results

Field_ID	D4SJ(0.3)_091013	D4SK(0.1)_091013	D4SK(0.3)_091013	D4SL(0.1)_091013	D4SL(0.25)_091013	D4SM(0.1)_091013	D4SM(0.4)_091013
LocCode	D4SJ	D4SK	D4SK	D4SL	D4SL	D4SM	D4SM
Sample_Depth_Range	0.3	0.1	0.3	0.1	0.25	0.1	0.4
Sampled_Date-Time	9/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013
Matrix_Description							

Method_Type	ChemName	Units	EQL							
Perfluorinated Compounds by LCMSMS	8:2 Fluorotelomer sulfonate	mg/kg	0.001	<0.001	0.004	<0.001	0.002	0.004	<0.001	<0.001
	N-Et-FOSA	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	N-Et-FOSE	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	N-Me-FOSA	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	N-Me-FOSE	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PFBS	mg/kg	0.0002	0.0002	0.0007	0.0004	0.0011	0.001	0.0026	0.0009
	PFDcA	mg/kg	0.0002	<0.0002	0.0019	<0.0002	<0.0002	0.0003	0.0003	<0.0002
	PFDcS	mg/kg	0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFDoA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFHpA	mg/kg	0.0002	0.0002	0.0016	0.0009	0.0028	0.0025	0.0063	0.0019
	PFHxA	mg/kg	0.0002	0.0016	0.0047	0.0026	0.0073	0.0068	0.0181	0.0054
	PFHxS	mg/kg	0.0002	0.0013	0.0165	0.0086	0.0182	0.0121	0.0305	0.0154
	PFNA	mg/kg	0.0002	<0.0002	0.0011	0.0005	0.0006	0.0007	0.001	0.0002
	PFOSA	mg/kg	0.0002	<0.0002	0.0011	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFTeA	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PFTriA	mg/kg	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	PFUnA	mg/kg	0.0002	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.005	<0.005	0.012	0.008	0.011	0.01	0.01	<0.005
	Perfluorooctanoate	mg/kg	0.0005	<0.0005	0.0015	0.0009	0.0018	0.0014	0.0036	0.0022
	PFOS	mg/kg	0.0005	0.0037	0.0924	0.0464	0.0592	0.0616	0.0653	0.03
SVOC - Waste Classification (Sums)	Sum of organochlorine pesticides	mg/kg	0.03	-	-	-	-	-	-	-
	Sum of other organochlorine pesticides	mg/kg	0.03	-	-	-	-	-	-	-
	Sum of Phenols (halogenated)	mg/kg	0.03	-	-	-	-	-	-	-
	Sum of Phenols (non-halogenated)	mg/kg	1	-	-	-	-	-	-	-
	Sum of polycyclic aromatic hydrocarbons	mg/kg	0.5	-	-	-	-	-	-	-
Volatile Organic Compounds - Ultra-trace - Summ	Sum of other chlorinated hydrocarbons	mg/kg	0.01	-	-	-	-	-	-	-
	Sum of volatile chlorinated hydrocarbons	mg/kg	0.01	-	-	-	-	-	-	-
ESDAT Combined Compounds	Xylene Total	mg/kg		-	-	-	-	-	-	-
Volatile Organic Compounds	Benzene	mg/kg	0.2	-	-	-	-	-	-	-
	Ethylbenzene	mg/kg	0.5	-	-	-	-	-	-	-
	Toluene	mg/kg	0.5	-	-	-	-	-	-	-
	Xylene (m & p)	mg/kg	0.5	-	-	-	-	-	-	-
	Xylene (o)	mg/kg	0.5	-	-	-	-	-	-	-
Volatile Organic Compounds - Ultra-trace	Benzene	mg/kg	0.2	-	-	-	-	-	-	-
	Ethylbenzene	mg/kg	0.5	-	-	-	-	-	-	-
	Toluene	mg/kg	0.5	-	-	-	-	-	-	-
	Xylene (m & p)	mg/kg	0.5	-	-	-	-	-	-	-
	Xylene (o)	mg/kg	0.5	-	-	-	-	-	-	-
	Xylene Total	mg/kg	0.5	-	-	-	-	-	-	-
	1,1,1,2-tetrachloroethane	mg/kg	0.01	-	-	-	-	-	-	-
	1,1,1-trichloroethane	mg/kg	0.01	-	-	-	-	-	-	-
	1,1,2,2-tetrachloroethane	mg/kg	0.02	-	-	-	-	-	-	-
	1,1,2-trichloroethane	mg/kg	0.04	-	-	-	-	-	-	-
	1,1-dichloroethene	mg/kg	0.01	-	-	-	-	-	-	-
	1,2-dichloroethane	mg/kg	0.02	-	-	-	-	-	-	-
	Carbon tetrachloride	mg/kg	0.01	-	-	-	-	-	-	-
	Chloroform	mg/kg	0.02	-	-	-	-	-	-	-
	cis-1,2-dichloroethene	mg/kg	0.01	-	-	-	-	-	-	-
	Dichloromethane	mg/kg	0.4	-	-	-	-	-	-	-
	Hexachlorobutadiene	mg/kg	0.02	-	-	-	-	-	-	-
	Trichloroethene	mg/kg	0.02	-	-	-	-	-	-	-
	Tetrachloroethene	mg/kg	0.02	-	-	-	-	-	-	-
	trans-1,2-dichloroethene	mg/kg	0.02	-	-	-	-	-	-	-
	Vinyl chloride	mg/kg	0.02	-	-	-	-	-	-	-
Semivolatile Organic Compounds - Waste Classifi	Hexachlorobenzene	mg/kg	0.03	-	-	-	-	-	-	-
Volatile Organic Compounds - Ultra-trace	1,2,4-trichlorobenzene	mg/kg	0.01	-	-	-	-	-	-	-
	1,2-dichlorobenzene	mg/kg	0.02	-	-	-	-	-	-	-
	1,4-dichlorobenzene	mg/kg	0.02	-	-	-	-	-	-	-
	Chlorobenzene	mg/kg	0.02	-	-	-	-	-	-	-
Semivolatile Organic Compounds - Waste Classifi	2,3,5,6-Tetrachlorophenol	mg/kg	0.03	-	-	-	-	-	-	-
	2,4,5-trichlorophenol	mg/kg	0.05	-	-	-	-	-	-	-
	2,4,6-trichlorophenol	mg/kg	0.05	-	-	-	-	-	-	-
	2,4-dichlorophenol	mg/kg	0.03	-	-	-	-	-	-	-
	2,6-dichlorophenol	mg/kg	0.03	-	-	-	-	-	-	-
	2.3.4.5 & 2.3.4.6-Tetrachlorophenol	mg/kg	0.05	-	-	-	-	-	-	-
	2-chlorophenol	mg/kg	0.03	-	-	-	-	-	-	-
	Pentachlorophenol	mg/kg	0.2	-	-	-	-	-	-	-
	Dinoseb	mg/kg	5	-	-	-	-	-	-	-
Moisture Content	Moisture	%	1	24.8	41.2	35.3	19.1	17.8	25.9	22.8
Total Cyanide by Segmented Flow Analyser	Cyanide Total	mg/kg	1	-	-	-	-	-	-	-
Total Fluoride	Fluoride	mg/kg	40	-	-	-	-	-	-	-
Volatile Organic Compounds	1,2,4-trimethylbenzene	mg/kg	0.5	-	-	-	-	-	-	-
	1,3,5-trimethylbenzene	mg/kg	0.5	-	-	-	-	-	-	-
	Isopropylbenzene	mg/kg	0.5	-	-	-	-	-	-	-
	n-butylbenzene	mg/kg	0.5	-	-	-	-	-	-	-
	n-propylbenzene	mg/kg	0.5	-	-	-	-	-	-	-
	p-isopropyltoluene	mg/kg	0.5	-	-	-	-	-	-	-
	sec-butylbenzene	mg/kg	0.5	-	-	-	-	-	-	-
	Styrene	mg/kg	0.5	-	-	-	-	-	-	-
	tert-butylbenzene	mg/kg	0.5	-	-	-	-	-	-	-
Volatile Organic Compounds - Ultra-trace	Styrene	mg/kg	0.5	-	-	-	-	-	-	-
Volatile Organic Compounds - Ultra-trace - Summ	Total MAH	mg/kg	0.2	-	-	-	-	-	-	-
Total Hexavalent Chromium by Alkaline Digestion	Chromium (hexavalent)	mg/kg	0.5	-	-	-	-	-	-	-
Total Mercury by FIMS	Mercury	mg/kg	0.1	-	-	-	-	-	-	-
Total Metals by ICP-AES	Arsenic	mg/kg	5	-	-	-	-	-	-	-
	Cadmium	mg/kg	1	-	-	-	-	-	-	-

Table 2: Sediment Results

Field_ID	D4SJ(0.3)_091013	D4SK(0.1)_091013	D4SK(0.3)_091013	D4SL(0.1)_091013	D4SL(0.25)_091013	D4SM(0.1)_091013	D4SM(0.4)_091013
LocCode	D4SJ	D4SK	D4SK	D4SL	D4SL	D4SM	D4SM
Sample_Depth_Range	0.3	0.1	0.3	0.1	0.25	0.1	0.4
Sampled_Date-Time	9/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013
Matrix_Description							

Method_Type	ChemName	Units	EQL							
	Chromium (III+VI)	mg/kg	2	-	-	-	-	-	-	-
	Copper	mg/kg	5	-	-	-	-	-	-	-
	Lead	mg/kg	5	-	-	-	-	-	-	-
	Molybdenum	mg/kg	2	-	-	-	-	-	-	-
	Nickel	mg/kg	2	-	-	-	-	-	-	-
	Selenium	mg/kg	5	-	-	-	-	-	-	-
	Silver	mg/kg	2	-	-	-	-	-	-	-
	Tin	mg/kg	5	-	-	-	-	-	-	-
	Zinc	mg/kg	5	-	-	-	-	-	-	-
ESDAT Combined Compounds	Aldrin + Dieldrin	mg/kg		-	-	-	-	-	-	-
	DDT+DDE+DDD	mg/kg		-	-	-	-	-	-	-
Semivolatile Organic Compounds - Waste Classifi	4,4-DDE	mg/kg	0.05	-	-	-	-	-	-	-
	a-BHC	mg/kg	0.03	-	-	-	-	-	-	-
	Aldrin	mg/kg	0.03	-	-	-	-	-	-	-
	b-BHC	mg/kg	0.03	-	-	-	-	-	-	-
	Chlordane (cis)	mg/kg	0.03	-	-	-	-	-	-	-
	Chlordane (trans)	mg/kg	0.03	-	-	-	-	-	-	-
	d-BHC	mg/kg	0.03	-	-	-	-	-	-	-
	DDD	mg/kg	0.05	-	-	-	-	-	-	-
	DDT	mg/kg	0.05	-	-	-	-	-	-	-
	Dieldrin	mg/kg	0.03	-	-	-	-	-	-	-
	Endosulfan I	mg/kg	0.03	-	-	-	-	-	-	-
	Endosulfan II	mg/kg	0.03	-	-	-	-	-	-	-
	Endosulfan sulphate	mg/kg	0.03	-	-	-	-	-	-	-
	Endrin	mg/kg	0.03	-	-	-	-	-	-	-
	Endrin aldehyde	mg/kg	0.03	-	-	-	-	-	-	-
	g-BHC (Lindane)	mg/kg	0.03	-	-	-	-	-	-	-
	Heptachlor	mg/kg	0.03	-	-	-	-	-	-	-
	Heptachlor epoxide	mg/kg	0.03	-	-	-	-	-	-	-
	Methoxychlor	mg/kg	0.03	-	-	-	-	-	-	-
SVOC - Waste Classification (Sums)	Aldrin + Dieldrin	mg/kg	0.03	-	-	-	-	-	-	-
	chlordane	mg/kg	0.03	-	-	-	-	-	-	-
	DDT+DDE+DDD	mg/kg	0.05	-	-	-	-	-	-	-
PAH/Phenols (SIM)	Carcinogenic PAHs as B(a)P TPE	mg/kg		-	-	-	-	-	-	-
	Carcinogenic PAHs (as B(a)P TPE, PEFx3)	mg/kg		-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (half LOR)	mg/kg	0.5	-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5	-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (zero)	mg/kg	0.5	-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (half LOR)	mg/kg	0.5	-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5	-	-	-	-	-	-	-
	Benzo(a)pyrene TEQ (zero)	mg/kg	0.5	-	-	-	-	-	-	-
	Acenaphthene	mg/kg	0.5	-	-	-	-	-	-	-
	Acenaphthylene	mg/kg	0.5	-	-	-	-	-	-	-
	Anthracene	mg/kg	0.5	-	-	-	-	-	-	-
	Benz(a)anthracene	mg/kg	0.5	-	-	-	-	-	-	-
	Benzo(a) pyrene	mg/kg	0.5	-	-	-	-	-	-	-
	Benzo(b)fluoranthene	mg/kg	0.5	-	-	-	-	-	-	-
	Benzo(g,h,i)perylene	mg/kg	0.5	-	-	-	-	-	-	-
	Benzo(k)fluoranthene	mg/kg	0.5	-	-	-	-	-	-	-
	Chrysene	mg/kg	0.5	-	-	-	-	-	-	-
	Dibenz(a,h)anthracene	mg/kg	0.5	-	-	-	-	-	-	-
	Fluoranthene	mg/kg	0.5	-	-	-	-	-	-	-
	Fluorene	mg/kg	0.5	-	-	-	-	-	-	-
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	-	-	-	-	-	-	-
	Naphthalene	mg/kg	0.5	-	-	-	-	-	-	-
	Phenanthrene	mg/kg	0.5	-	-	-	-	-	-	-
	Pyrene	mg/kg	0.5	-	-	-	-	-	-	-
	Sum of polycyclic aromatic hydrocarbons	mg/kg	0.5	-	-	-	-	-	-	-
Semivolatile Organic Compounds - Waste Classifi	2,4-dimethylphenol	mg/kg	1	-	-	-	-	-	-	-
	2,4-dinitrophenol	mg/kg	5	-	-	-	-	-	-	-
	2-methylphenol	mg/kg	1	-	-	-	-	-	-	-
	2-nitrophenol	mg/kg	1	-	-	-	-	-	-	-
	3-&4-methylphenol	mg/kg	1	-	-	-	-	-	-	-
	4,6-Dinitro-2-methylphenol	mg/kg	5	-	-	-	-	-	-	-
	4-chloro-3-methylphenol	mg/kg	0.03	-	-	-	-	-	-	-
	4-nitrophenol	mg/kg	5	-	-	-	-	-	-	-
	Acenaphthene	mg/kg	0.5	-	-	-	-	-	-	-
	Acenaphthylene	mg/kg	0.5	-	-	-	-	-	-	-
	Anthracene	mg/kg	0.5	-	-	-	-	-	-	-
	Benz(a)anthracene	mg/kg	0.5	-	-	-	-	-	-	-
	Benzo(a) pyrene	mg/kg	0.5	-	-	-	-	-	-	-
	Benzo(b)&(k)fluoranthene	mg/kg	0.5	-	-	-	-	-	-	-
	Benzo(g,h,i)perylene	mg/kg	0.5	-	-	-	-	-	-	-
	Chrysene	mg/kg	0.5	-	-	-	-	-	-	-
	Dibenz(a,h)anthracene	mg/kg	0.5	-	-	-	-	-	-	-
	Fluoranthene	mg/kg	0.5	-	-	-	-	-	-	-
	Fluorene	mg/kg	0.5	-	-	-	-	-	-	-
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	-	-	-	-	-	-	-
	Naphthalene	mg/kg	0.5	-	-	-	-	-	-	-
	Phenanthrene	mg/kg	0.5	-	-	-	-	-	-	-
	Phenol	mg/kg	1	-	-	-	-	-	-	-
	Pyrene	mg/kg	0.5	-	-	-	-	-	-	-
	4,6-Dinitro-o-cyclohexyl phenol	mg/kg	5	-	-	-	-	-	-	-
PCB - VIC EPA 448.3 Screen	PCBs (Sum of total)	mg/kg	0.1	-	-	-	-	-	-	-
ESDAT Combined Compounds	+C10 - C36 (Sum of total)	mg/kg		-	-	-	-	-	-	-
TPH - Semivolatile Fraction	C10-C16	mg/kg	50	-	-	-	-	-	-	-

Table 2: Sediment Results

Field_ID	D4SJ(0.3)_091013	D4SK(0.1)_091013	D4SK(0.3)_091013	D4SL(0.1)_091013	D4SL(0.25)_091013	D4SM(0.1)_091013	D4SM(0.4)_091013
LocCode	D4SJ	D4SK	D4SK	D4SL	D4SL	D4SM	D4SM
Sample_Depth_Range	0.3	0.1	0.3	0.1	0.25	0.1	0.4
Sampled_Date-Time	9/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013
Matrix_Description							

Method_Type	ChemName	Units	EQL							
	C16-C34	mg/kg	100	-	-	-	-	-	-	-
	C34-C40	mg/kg	100	-	-	-	-	-	-	-
	F2-NAPHTHALENE	mg/kg	50	-	-	-	-	-	-	-
	C10 - C14	mg/kg	50	-	-	-	-	-	-	-
	C15 - C28	mg/kg	100	-	-	-	-	-	-	-
	C29-C36	mg/kg	100	-	-	-	-	-	-	-
	+C10 - C36 (Sum of total)	mg/kg	50	-	-	-	-	-	-	-
	C10 - C40 (Sum of total)	mg/kg	50	-	-	-	-	-	-	-
TPH Volatiles/BTEX	C6 - C9	mg/kg	10	-	-	-	-	-	-	-
	C6-C10	mg/kg	10	-	-	-	-	-	-	-

D4WD 0.2/081013	D4WE0.2/081013	D4WF 0.1/081013	D4WG 0.1/081013	D4WH 0.1/081013	D4WI 0.1/081013	D4WI 1.2/081013
D4WD	D4WE	D4WF	D4WG	D4WH	D4WI	D4WI
8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013	8/10/2013
EM1310628	EM1310628	EM1310628	EM1310628	EM1310628	EM1310628	EM1310628
EM1310628	EM1310628	EM1310628	EM1310628	EM1310628	EM1310628	EM1310628

Chem_Group	ChemName	Units	EQL							
PFCs	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.1	5.9	3.4	3	23	27.9	32.6	19
	Perfluorooctanoate	µg/L	0.02	0.77	0.57	0.69	1.82	2.28	1.8	1.79
	PFOS	µg/L	0.02	3.7	4.34	3.47	33.9	23.9	21.8	31
Field	Turbidity	ntu	0.1	97	-	-	10.5	-	-	-
Inorganics	Alkalinity (Bicarbonate as CaCO3)	mg/L	1	73	-	-	76	-	-	-
	Alkalinity (Carbonate as CaCO3)	mg/L	1	<1	-	-	<1	-	-	-
	Alkalinity (Hydroxide) as CaCO3	µg/L	1000	<1000	-	-	<1000	-	-	-
	Alkalinity (total) as CaCO3	mg/L	1	73	-	-	76	-	-	-
	TDS	mg/L	10	462	-	-	370	-	-	-
	TSS	mg/L	5	<5	-	-	<5	-	-	-

Table 4: Rain Water Storage Tank Results

Field_ID	WT01_091013	WT02_091013	WT03_091013	WT04_091013
LocCode	WT01	WT02	WT03	WT04
Sampled_Date	9/10/2013	9/10/2013	9/10/2013	9/10/2013
SDG	EM1310688	EM1310688	EM1310688	EM1310688
Lab_Report_Number	EM1310688	EM1310688	EM1310688	EM1310688

Chem_Group	ChemName	Units	EQL				
	Sulfate as SO4 - Turbidimetric (Filtered)	mg/L	1	-	-	-	-
PFCs	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
	Perfluorooctanoate	µg/L	0.02	<0.02	<0.02	<0.02	<0.02
	PFOS	µg/L	0.02	<0.02	<0.02	<0.02	<0.02
	8:2 Fluorotelomer sulfonate	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	N-Et-FOSA	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	N-Et-FOSE	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	N-Me-FOSA	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	N-Me-FOSE	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	PFBS	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFDcA	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFDcS	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFDoA	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	PFHpA	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFHxA	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFHxS	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFNA	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFOSA	mg/L	0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFTeA	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	PFTriA	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	PFUnA	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005

Table 5: Grass Results

Field_ID	AF01G	AF04G	AF07G	AF10G	AF14G	AF16G	AF20G	AF30G	AF33G	AF42G	AF44G	AF46G	AF67G	AF69G	AF71G
LocCode	AF01G	AF04G	AF07G	AF10G	AF14G	AF16G	AF20G	AF30G	AF33G	AF42G	AF44G	AF46G	AF67G	AF69G	AF71G
Sampled_Date-Time	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013
Matrix_Description	Grass	Grass	Grass	Grass	Grass	Grass	Grass	Grass	Grass	Grass	Grass	Grass	Grass	Grass	Grass

ChemName	Units															
PFHxA	ng/g	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	70	<20	<20	<20	<20
PFHpA	ng/g	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10	<5	<5	<5	<5
PFOA	ng/g	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
PFNA	ng/g	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1
PFDA	ng/g	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1
PFUdA	ng/g	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
PFDoA	ng/g	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1
PFOS	ng/g	<0.5	1.0	6	1.0	10	1.8	<1	<1	10	<5	36	<5	<5	<5	<5
6:2 FTS	ng/g	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<5	<5	<5	<5

		SDG	EM1310688	396098		EM1310688	EM1310688		EM1310688	396098		EM1310769	EM1310769		EM1310769	396098	
		Field_ID	AF48	QC12_091013	RPD	AF02	QC13	RPD	AF02	QC14_101013	RPD	AF07 (0.05)	QC15_101013	RPD	AF07 (0.05)	QC16_101013	RPD
		Sampled_Date-Time	10/10/2013 15:00	10/10/2013 15:00		9/10/2013 15:00	9/10/2013 15:00		9/10/2013 15:00	9/10/2013 15:00		10/10/2013 15:00	10/10/2013 15:00		10/10/2013 15:00	10/10/2013 15:00	
ChemName	**Units**	**EQL**															
8:2 Fluorotelomer sulfonate	mg/kg	0.001	<0.001	-	-	<0.001	<0.001	0	<0.001	-		<0.001	<0.001	0	-	-	
N-Et-FOSA	mg/kg	0.001	<0.001	-	-	<0.001	<0.001	0	<0.001	-		<0.001	<0.001	0	-	-	
N-Et-FOSE	mg/kg	0.001	<0.001	-	-	<0.001	<0.001	0	<0.001	-		<0.001	<0.001	0	-	-	
N-Me-FOSA	mg/kg	0.001	<0.001	-	-	<0.001	<0.001	0	<0.001	-		<0.001	<0.001	0	-	-	
N-Me-FOSE	mg/kg	0.001	<0.001	-	-	<0.001	<0.001	0	<0.001	-		<0.001	<0.001	0	-	-	
6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.005	<0.005	<0.0035	0	<0.005	<0.005	0	<0.005	<0.0034	0	<0.005	<0.005	0	<0.005	<0.0031	0
Perfluorooctanoate	mg/kg	0.0005	<0.0005	<0.0023	0	**0.0011**	**<0.0005**	**75**	**0.0011**	<0.0022	**66.7**	<0.0005	<0.0005	0	<0.0005	<0.002	0
												-	-	-	-	-	-
PFBS	mg/kg	0.0002	<0.0002	<0.0035	0	**0.0006**	**0.0003**	**67**	**0.0006**	<0.0034	**140**	<0.0002	<0.0002	0	<0.0002	<0.003	0
PFDcA	mg/kg	0.0002	<0.0002	<0.0023	0	<0.0002	<0.0002	0	<0.0002	<0.0022	0	<0.0002	<0.0002	0	<0.0002	<0.002	0
PFDcS	mg/kg	0.0002	<0.0002			<0.0002	<0.0002	0	<0.0002			<0.0002	<0.0002	0	<0.0002	-	-
PFDoA	mg/kg	0.0002	<0.0002			<0.0002	<0.0002	0	<0.0002			<0.0002	<0.0002	0	<0.0002	-	-
PFHpA	mg/kg	0.0002	<0.0002	<0.0023	0	0.0003	0.0004	29	0.0003	<0.0022	**152**	**0.0007**	**0.0004**	**55**	**0.0007**	**<0.002**	**96**
PFHxA	mg/kg	0.0002	<0.0002	<0.0023	0	0.0021	0.0028	29	0.0021	0.0038	**57.6**	0.0005	0.0004	22	0.0005	<0.002	**120**
PFHxS	mg/kg	0.0002	0.0005	<0.0035	**150**	0.0048	0.0063	27	0.0048	0.0086	**56.7**	0.0015	0.0013	14	0.0015	<0.0031	**70**
PFNA	mg/kg	0.0002	<0.0002	<0.0023	0	0.0044	0.003	38	0.0044	0.008	**58.1**	<0.0002	<0.0002	0	<0.0002	<0.002	0
PFOS	mg/kg	0.0005	0.0013	<0.0023	**56**	0.0243	0.0216	12	0.0243	0.0478	**65.2**	**0.0035**	**0.0018**	**64**	**0.0035**	**<0.0027**	26
PFOSA	mg/kg	0.0002	<0.0002		-	<0.0002	<0.0002	0	<0.0002		-	<0.0002	<0.0002	0	<0.0002	-	-
PFTeA	mg/kg	0.001	<0.001		-	<0.001	<0.001	0	<0.001		-	<0.001	<0.001	0	<0.001	-	-
PFTriA	mg/kg	0.0002	<0.0002		-	<0.0002	<0.0002	0	<0.0002		-	<0.0002	<0.0002	0	<0.0002	-	-
PFUnA	mg/kg	0.0002	<0.0002		-	<0.0002	<0.0002	0	<0.0002		-	<0.0002	<0.0002	0	<0.0002	-	
PFBA				<0.0023	-					<0.0022	-	-	-	-	-	<0.002	
PFPEA				<0.0023	-					<0.0022	-	-	-	-	-	<0.002	

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (1-10 x EQL); 50 (10-30 x EQL); 50 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

EM1310769 AF82 10/10/2013 15:00	EM1310769 QC17_101013 10/10/2013 15:00	RPD	EM1310769 AF82 10/10/2013 15:00	396098 QC18_101013 10/10/2013 15:00	RPD	EM1310769 AF86 10/10/2013 15:00	396098 QC20_101013 10/10/2013 15:00	RPD	EM1310769 AF86 10/10/2013 15:00	EM1310769 QC21_101013 10/10/2013 15:00	RPD
<0.001	<0.001	0	<0.001		-	-	-		<0.001	<0.001	0
<0.001	<0.001	0	<0.001		-	-	-		<0.001	<0.001	0
<0.001	<0.001	0	<0.001		-	-	-		<0.001	<0.001	0
<0.001	<0.001	0	<0.001		-	-	-		<0.001	<0.001	0
<0.001	<0.001	0	<0.001		-	-	-		<0.001	<0.001	0
<0.005	<0.005	0	<0.005	<0.003	0	<0.005	<0.002	0	<0.005	<0.005	0
<0.0005	<0.0005	0	<0.0005	<0.002	0	<0.0005	<0.002	0	<0.0005	<0.0005	0
						-	-		-	-	
<0.0002	<0.0002	0	<0.0002	<0.003	0	<0.0002	<0.003	0	<0.0002	<0.0002	0
<0.0002	<0.0002	0	<0.0002	<0.002	0	<0.0002	<0.002	0	<0.0002	<0.0002	0
<0.0002	<0.0002	0	<0.0002		-	<0.0002	-	-	<0.0002	<0.0002	0
<0.0002	<0.0002	0	<0.0002		-	<0.0002	-	-	<0.0002	<0.0002	0
<0.0002	<0.0002	0	<0.0002	<0.002	0	<0.0002	<0.002	0	<0.0002	<0.0002	0
<0.0002	<0.0002	0	<0.0002	<0.002	0	<0.0002	<0.002	0	<0.0002	<0.0002	0
<0.0002	<0.0002	0	<0.0002	<0.003	0	0.0002	<0.003	0	0.0002	<0.0002	0
<0.0002	<0.0002	0	<0.0002	<0.002	0	<0.0002	<0.002	0	<0.0002	<0.0002	0
<0.0005	<0.0005	0	<0.0005	<0.002	0	<0.0005	<0.002	0	<0.0005	<0.0005	0
<0.0002	<0.0002	0	<0.0002		-	<0.0002	-	-	<0.0002	<0.0002	0
<0.001	<0.001	0	<0.001		-	<0.001	-	-	<0.001	<0.001	0
<0.0002	<0.0002	0	<0.0002		-	<0.0002	-	-	<0.0002	<0.0002	0
<0.0002	<0.0002	0	<0.0002		-	<0.0002	-	-	<0.0002	<0.0002	0
				<0.002	-	-	<0.002	-	-	-	
				<0.002	-	-	<0.002	-	-	-	

SDG	EM1310688	EM1310688		EM1310688	395933	
Field_ID	D4SL(0.25)_091013	QC09_091013	RPD	D4SL(0.25)_091013	QC10_091013	RPD
Sampled_Date-Time	9/10/2013 15:00	9/10/2013 15:00		9/10/2013 15:00	9/10/2013 15:00	
ChemName	**Units**	**EQL**						
8:2 Fluorotelomer sulfonate	mg/kg	0.001	**0.004**	**0.002**	**67**	-	-	
N-Et-FOSA	mg/kg	0.001	<0.001	<0.001	0	-	-	
N-Et-FOSE	mg/kg	0.001	<0.001	<0.001	0	-	-	
N-Me-FOSA	mg/kg	0.001	<0.001	<0.001	0	-	-	
N-Me-FOSE	mg/kg	0.001	<0.001	<0.001	0	-	-	
6:2 Fluorotelomer Sulfonate (6:2 FtS	mg/kg	0.005	0.01	0.009	11	0.01	0.0141	34
Perfluorooctanoate	mg/kg	0.0005	0.0014	0.0016	13	0.0014	0.0026	**60**
			-	-	-	-	-	
PFBS	mg/kg	0.0002	0.001	0.001	0	0.001	<0.0025	**86**
PFDcA	mg/kg	0.0002	0.0003	<0.0002	40	0.0003	<0.0016	**137**
PFDcS	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
PFDoA	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
PFHpA	mg/kg	0.0002	0.0025	0.0027	8	0.0025	<0.0016	44
PFHxA	mg/kg	0.0002	0.0068	0.0076	11	0.0068	0.0049	32
PFHxS	mg/kg	0.0002	0.0121	0.0166	31	0.0121	0.0087	33
PFNA	mg/kg	0.0002	0.0007	0.0005	33	0.0007	<0.0016	**78**
PFOS	mg/kg	0.0005	0.0616	0.0564	9	0.0616	0.0824	29
PFOSA	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
PFTeA	mg/kg	0.001	<0.001	<0.001	0	<0.001	-	-
PFTriA	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
PFUnA	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
PFBA			-	-	-	-	<0.0016	-
PFPEA			-	-	-	-	<0.0023	-

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (1-10 x EQL); 50 (10-30 x EQL); 50 (> 30 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Field Duplicates (WATER)
Filter: [Sampled_Date-Time] >= #01 Oct 2013# and [Sampled_Date-

SDG	EM1310628	EM1310628		EM1310628	395583	
Field_ID	D4WI 1.2/081013	QC03_081013	RPD	D4WI 1.2/081013	QC04_081013	RPD
Sampled_Date-Time	8/10/2013 16:30	8/10/2013 16:30		8/10/2013 16:30	8/10/2013 16:30	

Chem_Group	ChemName	Units	EQL						
	8:2 Fluorotelomer sulfonate	mg/l	0.0005						
	N-Et-FOSA	mg/l	0.00005						
	N-Et-FOSE	mg/l	0.0005						
	N-Me-FOSA	mg/l	0.0005						
	N-Me-FOSE	mg/l	0.0005						
	PFBS	mg/l	0.00002					0.00148	-
	PFDcA	mg/l	0.00002					<0.0001	-
	PFDcS	mg/l	0.00002						
	PFDoA	mg/l	0.00005						
	PFHpA	mg/l	0.00002					0.0014	-
	PFHxA	mg/l	0.00002					0.00826	-
	PFHxS	mg/l	0.00002					0.0088	-
	PFNA	mg/l	0.00002					0.000158	-
	PFOSA	mg/l	0.00002						
	PFTeA	mg/l	0.0005						
	PFTriA	mg/l	0.00005						
	PFUnA	mg/l	0.00005						
PFCs	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.1	19	26.8	34	19	32.6	53
	Perfluorooctanoate	µg/L	0.02	1.79	1.41	24	1.79	1.59	12
	PFOS	µg/L	0.02	**31**	**15.3**	**68**	**31**	**13.1**	**81**

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (1-10 x EQL); 50 (10-30 x EQL); 50 (> 30 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Field Duplicates (WATER)
Filter: [Sampled_Date-Time] >= #01 Oct 2013# and [Sampled_Date-

SDG	EM1310688	EM1310688		EM1310688	395933	
Field_ID	WT04_091013	QC05_091013	RPD	WT04_091013	QC06_091013	RPD
Sampled_Date-Time	9/10/2013 15:00	9/10/2013 15:00		9/10/2013 15:00	9/10/2013 15:00	

Chem_Group	ChemName	Units	EQL						
	8:2 Fluorotelomer sulfonate	mg/l	0.0005	<0.0005	<0.0005	0	<0.0005		
	N-Et-FOSA	mg/l	0.00005	<0.0001	<0.0001	0	<0.0001		
	N-Et-FOSE	mg/l	0.0005	<0.0005	<0.0005	0	<0.0005		
	N-Me-FOSA	mg/l	0.0005	<0.0005	<0.0005	0	<0.0005		
	N-Me-FOSE	mg/l	0.0005	<0.0005	<0.0005	0	<0.0005		
	PFBS	mg/l	0.00002	<0.0	<0.0	0	<0.0	<0.0000075	0
	PFDcA	mg/l	0.00002	<0.0	<0.0	0	<0.0	<0.000005	0
	PFDcS	mg/l	0.00002	<0.0	<0.0	0	<0.0		
	PFDoA	mg/l	0.00005	<0.0001	<0.0001	0	<0.0001		
	PFHpA	mg/l	0.00002	<0.0	<0.0	0	<0.0	<0.000005	0
	PFHxA	mg/l	0.00002	<0.0	<0.0	0	<0.0	<0.000005	0
	PFHxS	mg/l	0.00002	<0.0	<0.0	0	<0.0	<0.0000075	0
	PFNA	mg/l	0.00002	<0.0	<0.0	0	<0.0	<0.000005	0
	PFOSA	mg/l	0.00002	<0.0	<0.0	0	<0.0		
	PFTeA	mg/l	0.0005	<0.0005	<0.0005	0	<0.0005		
	PFTriA	mg/l	0.00005	<0.0001	<0.0001	0	<0.0001		
	PFUnA	mg/l	0.00005	<0.0001	<0.0001	0	<0.0001		
PFCs	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.1	<0.1	<0.1	0	<0.1	<0.0075	0
	Perfluorooctanoate	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.005	0
	PFOS	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.005	0

**High RPDs are in bold (Ac **High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (1-10 x EQL); 50 (10-30 x EQL); 50 (> 30 x EQL))
***Interlab Duplicates are n ***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Field Duplicates (WATER)
Filter: [Sampled_Date-Time] >= #01 Oct 2013# and [Sampled_Date-

SDG	EM1310628	EM1310628	
Field_ID	D4WI 1.2/081013	QC03_081013	RPD
Sampled_Date-Time	8/10/2013 16:30	8/10/2013 16:30	

Chem_Group	ChemName	Units	EQL			
	PFHxA conc	mg/l	0.0005	<20	<20	0
	PFHpA conc	mg/l	0.00005	<5	<5	0
	PFOA conc	mg/l	0.0005	<1	<1	0
	PFNA conc	mg/l	0.0005	<1	<1	0
	PFDA conc	mg/l	0.0005	<1	<1	0
	PFUdA conc	mg/l	0.00002	<1	<1	0
	PFDoA conc	mg/l	0.00002	<1	<1	0
	PFOS conc	mg/l	0.00002	<1	<1	0
	6:2 FTS conc	mg/l	0.00005	<5	<5	0

Field Blanks (WATER)
Filter: [Sampled_Date-Time] >= #01 Oct 2013# and [Sampl

SDG	EM1310769	EM1310769	EM1310769	EM1310769	EM1310769
Field_ID	QC07	QC22_101013	QC24_101013	QC23_101013	QC25_101013
Sampled_Date-Time	9/10/2013	10/10/2013	10/10/2013	10/10/2013	10/10/2013
Sample_Type	Rinsate	Rinsate	Trip_B	Trip_B	Trip_B

Chem_Group	ChemName	Units	EQL					
	8:2 Fluorotelomer sulfonate	mg/l	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	N-Et-FOSA	mg/l	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	N-Et-FOSE	mg/l	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	N-Me-FOSA	mg/l	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	N-Me-FOSE	mg/l	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	PFBS	mg/l	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFDcA	mg/l	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFDcS	mg/l	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFDoA	mg/l	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	PFHpA	mg/l	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFHxA	mg/l	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFHxS	mg/l	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFNA	mg/l	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFOSA	mg/l	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFTeA	mg/l	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	PFTriA	mg/l	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	PFUnA	mg/l	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
PFCs	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Perfluorooctanoate	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	PFOS	µg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Appendix C
18 Pages

Bore Construction Details

Soil Sample Description: AF01-AF87

Sediment Sample Description: D4SD-D4SM

Cardno Lane Piper UCS

QF3.03 – Soil Sample Descriptions

Project Details	
Project Name: Environmental Sampling and PFC Analysis Program, Adjacent Lan, Vic	Job Number: 212163.31
Site Address: Adjacent Land, Vic	PP/PM: APL/ LMM
Client Company/Contact: Ashurts	Date: 9/10/13-10/10/13
Persons Present: Maria Delos Reyes and Marcus Boyd	Notes By: MCD

Sample No.	Depth Interval	Soil Type	Description (Include fill/natural, texture, moisture, plasticity, colour, odours noted, inclusions)
AF01	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF02	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter and medium grained gravel (highly weathered Basalt)
AF03	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Red Brown, Stiff, Slightly Moist, with some Root Matter and medium grained gravel (highly weathered Basalt)
AF04	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF05	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF06	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF07	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF07	0.30	Clayey Silt	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist

AF08	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF09	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF10	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF10	0.30	Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Very Stiff, Slightly Moist
AF11	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF12	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Very Stiff, Slightly Moist, with some Root Matter
AF12	0.30	Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Very Stiff, Slightly Moist
AF13	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF14	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter and fine grained gravel (highly weathered Basalt)
AF15	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Brown, Stiff, Slightly Moist, with some fine grained gravel (highly weathered Basalt
AF16	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter and fine grained gravel (highly weathered Basalt)
AF17	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF18	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Very Stiff, Slightly Moist, with some Root Matter
AF19	0.05	Top Soil	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter

		Clayey SILT	
AF20	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF20	0.30	Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist
AF21	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF22	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF23	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Very Stiff, Slightly Moist, with some Root Matter
AF24	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Very Stiff, Slightly Moist, with some Root Matter
AF25	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF26	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF27	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist., with some Root Matter
AF28	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist., with some Root Matter
AF29	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF30	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF30	0.30	Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist

AF31	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF32	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF33	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist., with some Root Matter
AF33	0.30	Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist
AF34	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist., with some Root Matter
AF35	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF36	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Very Stiff, Slightly Moist, with some Root Matter
AF37	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Very Stiff, Slightly Moist, with some Root Matter
AF38	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF39	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF40	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF41	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF42	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter

AF42	0.30	Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist
AF43	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Very Stiff, Slightly Moist, with some Root Matter
AF44	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF45	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF46	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Dark Grey Brown, Very Stiff, Slightly Moist, with some Root Matter
AF46	0.30	Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Dark Brown, Very Stiff, Slightly Moist.
AF47	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF48	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF49	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF50	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF51	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF52	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF53	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF54	0.05	Top Soil	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter

		Clayey SILT	
AF55	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF56	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF57	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF58	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF59	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF60	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF61	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF62	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF63	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF64	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF65	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF66	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter

AF67	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF67	0.30	Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Very Stiff, Slightly Moist
AF68	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF69	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF70	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF71	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF71	0.30	Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Very Stiff, Slightly Moist, with traces of Root Matter
AF72	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF73	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF74	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF75	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF76	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF77	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF78	0.05	Top Soil	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter

		Clayey SILT	
AF79	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF80	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF81	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF82	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF83	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF84	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF85	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF86	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF87	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF88	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF89	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF01	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter

AF02	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF03	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF04	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF05	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF06	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF07	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF08	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF09	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF10	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF11	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF12	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF13	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF14	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter

AF15	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF16	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF17	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF18	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF19	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF20	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF21	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF22	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF23	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF24	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF25	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF26	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF27	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter

AF28	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF29	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF30	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF31	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF32	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF33	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF34	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF35	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF36	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF37	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF38	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF39	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF40	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter

AF41	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF42	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF43	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF44	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF45	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF46	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF47	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF48	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF49	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF50	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF51	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF52	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF53	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter

AF54	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF55	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF56	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF57	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF58	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF59	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF60	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF61	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF62	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF63	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF64	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF65	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF66	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter

AF67	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF68	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF69	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF70	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF71	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF72	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF73	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF74	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF75	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF76	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF77	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF78	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF79	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter

AF80	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF81	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF82	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF83	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF84	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF85	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF86	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF87	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Grey Brown, Stiff, Slightly Moist, with some Root Matter
AF88	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter
AF89	0.05	Top Soil Clayey SILT	Clayey SILT (MH) High Plasticity, Dark Brown, Stiff, Slightly Moist, with some Root Matter

QF3.03 – Sediment Sample Descriptions

Project Details	
Project Name: Environmental Sampling and PFC Analysis Program, Adjacent Land, Vic	Job Number: 212163.31
Site Address: Adjacent Land, Vic	PP/PM: APL/ LMM
Client Company/Contact: Ashurts	Date: 9/10/13-10/10/13
Persons Present: Maria Delos Reyes and Marcus Boyd	Notes By: MCD

Sample No.	Depth Interval	Soil Type	Description (Include fill/natural, texture, moisture, plasticity, colour, odours noted, inclusions)
D4SD	0.1	Sandy Silty CLAY	Sandy Silty CLAY (CH) High Plasticity, Dark Brown, firm, wet
D4SD	0.3	Sandy Silty CLAY	Sandy Silty CLAY (CH) High Plasticity, Dark Brown, firm, wet, with some fine grained gravels
D4SE	0.1	Sandy SILT	Sandy SILT (MH) Low plasticity, dark grey, firm, wet
D4SE	0.5	Sandy SILT	Sandy SILT (MH) Low plasticity, dark grey, firm, wet
D4SF	0.1	Sandy SILT	Sandy SILT (MH) Low plasticity, dark grey, firm, wet
D4SF	0.2	Sandy SILT	Sandy SILT (MH) Low plasticity, dark grey, firm, wet
D4SG	0.1	Sandy SILT	Sandy SILT (MH) Low plasticity, dark grey, firm, wet
D4SG	0.3	Sandy SILT	Sandy SILT (MH) Low plasticity, dark grey, firm, wet
D4SH	0.1	Sandy SILT	Sandy SILT (MH) Low plasticity, dark grey, firm, wet

D4SH	0.3	Sandy SILT	Sandy SILT (MH) Low plasticity, dark grey, firm, wet
D4SI	0.1	Sandy SILT	Sandy SILT (MH) Low plasticity, dark grey, firm, wet
D4SI	0.3	Sandy SILT	Sandy SILT (MH) Low plasticity, dark grey, firm, wet
D4SJ	0.1	Gravelly SILT	Gravelly SILT (MH) Low plasticity, dark grey, firm, wet, with some fine grained gravels
D4SJ	0.3	SILT	SILT (MH) Low plasticity, dark grey, firm, wet, with some fine grained gravels
D4SK	0.1	Gravelly SILT	Gravelly SILT (MH) Low plasticity, dark grey, firm, wet, with some fine grained gravels
D4SK	0.3	SILT	SILT (MH) Low plasticity, dark grey, firm, wet, with some fine grained gravels, and root matter
D4SL	0.1	Gravelly SILT	Gravelly SILT (MH) Low plasticity, dark grey, firm, wet, with some fine grained gravels
D4SL	0.25	SILT	SILT (MH) Low plasticity, dark grey, firm, wet, with some fine grained gravels
D4SM	0.1	Gravelly SILT	Gravelly SILT (MH) Low plasticity, dark grey, firm, wet, with some fine grained gravels and root matter
D4SM	0.4	Sandy SILT	SILT (MH) Low plasticity, dark grey, firm, wet, with some fine grained gravels

Unified Classification System (Environmental)

(in accordance with AS1726)

PARTICLE SIZES

TERM	SIZE (mm)
BOULDER	>200
COBBLE	60 to 200
GRAVEL	
Coarse	20 to 60
Medium	6 to 20
Fine	2 to 6
SAND	
Coarse	0.6 to 2
Medium	0.2 to 0.6
Fine	0.06 to 0.2
SILT	0.002 to 0.06
CLAY	< 0.002

COHESIVE SOILS

TERM	UNDRAINED SHEAR STRENGTH (kPa)
Very Soft	0 to 12.5
Soft	12.5 to 25
Firm	25 to 50
Stiff	50 to 100
Very Stiff	100 to 200
Hard	≥ 200

COHESIONLESS SOILS

TERM	'N' (SPT) VALUE (blows / 300mm)	RELATIVE DENSITY (%)	ANGLE SHEAR RESISTANCE (degrees)
Very Loose	0 to 4	< 15	25 to 30
Loose	4 to 10	15 to 35	27 to 32
Medium Dense	10 to 30	35 to 65	30 to 35
Dense	30 to 50	65 to 85	35 to 40
Very Dense	> 50	≥ 85	38 to 43

STRUCTURE

TERM	SIZE OF BLOCKS (mm)
Blocky	> 60
Cloddy	20 to 60
Nutty	6 to 20
Granular	0.6 to 6
Prismatic	Stated
Shattered	< 10

SAMPLES

BS = Bulk sample
D = Disturbed sample
$U_{(n)}$ = Undisturbed tube sample ('n' denotes internal dia in mm)
BH3/1.0 = Environmental Soil Sample (Borehole No./Depth)
■ = Undisturbed tube recovery
▨ = Undisturbed tube non-recovery
H = Headspace vial

CONTAMINATION RANKING

V = Visual evidence of contamination
O = Olfactory evidence of contamination

0 = No odour or visual evidence of contamination
1 = Slight odour or visual evidence of contamination
2 = Odour or visual evidence of contamination
3 = Obvious visual evidence/strong odour of contamination

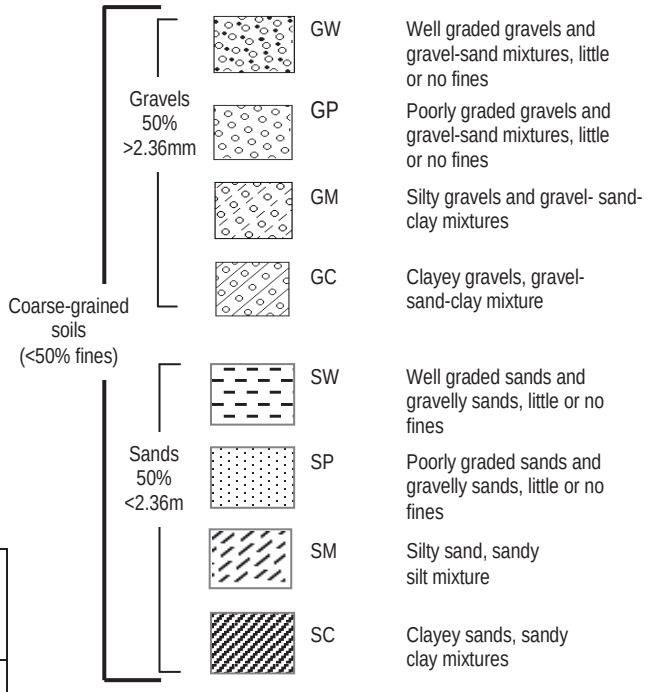
FIELD EQUIPMENT

PID = Photo ionization detector
CGD = Combustible gas detector

IDENTIFICATION OF SOILS

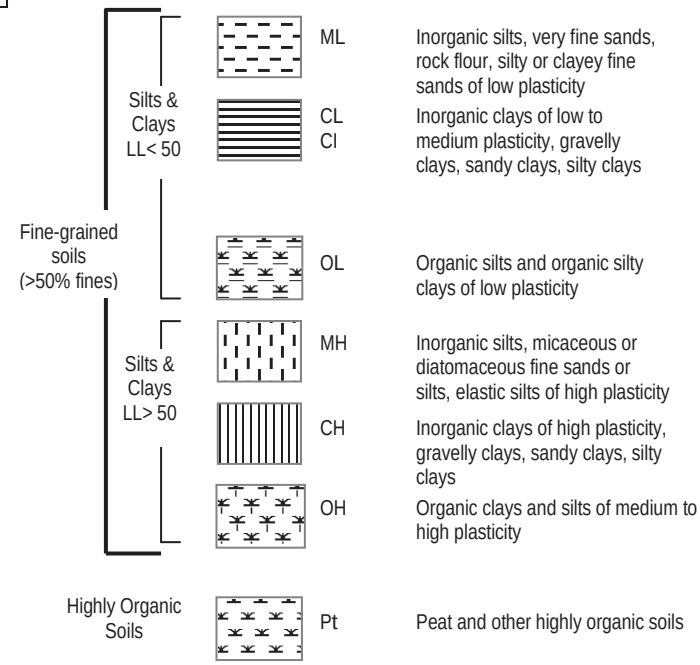
FILL

COARSE GRAINED SOILS



GW — Well graded gravels and gravel-sand mixtures, little or no fines
GP — Poorly graded gravels and gravel-sand mixtures, little or no fines
GM — Silty gravels and gravel- sand-clay mixtures
GC — Clayey gravels, gravel-sand-clay mixture
SW — Well graded sands and gravelly sands, little or no fines
SP — Poorly graded sands and gravelly sands, little or no fines
SM — Silty sand, sandy silt mixture
SC — Clayey sands, sandy clay mixtures

FINE GRAINED SOILS



ML — Inorganic silts, very fine sands, rock flour, silty or clayey fine sands of low plasticity
CL / CI — Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays
OL — Organic silts and organic silty clays of low plasticity
MH — Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts of high plasticity
CH — Inorganic clays of high plasticity, gravelly clays, sandy clays, silty clays
OH — Organic clays and silts of medium to high plasticity
Pt — Peat and other highly organic soils

GROUNDWATER

GW = Groundwater depth (m) or level (RL)
bgl = Below ground level
swl = Standing water level

Appendix D
13 Pages

Plates/Photographs

PLATE 1 South Western Paddocks facing North

PLATE 2 Western paddock (centre) facing North West

PLATE 3 Western Paddock (centre) near dam located offsite facing west

PLATE 4 South Eastern Paddock near residence area facing north

PLATE 5 South Eastern Paddock near residence area facing west

PLATE 6 Dam on site facing North

PLATE 7 Ponar Sampler and Sediment samples from Dam

PLATE 8 Northern Paddock (Floodplains) Facing north east

PLATE 9 Rain Water Storage Tanks (South tank) (WT01, WT02, WT03)

PLATE 10 Tap outside residence (WT02)

PLATE 11 Tap outside residence (WT03)

PLATE 12 Rain Water Storage Tanks (North tank). (Source of WT04)

PLATE 13 Tap located north of the residence property (WT04)

Environmental Sampling and PFC Analysis Program
Adjacent Land, Vic

PLATE 1 South Western Paddocks facing North

PLATE 2 Western paddock (centre) facing North West

PLATE 3 Western Paddock (centre) near dam located offsite facing west

PLATE 4 South Eastern Paddock near residential area facing north

PLATE 5 South Eastern Paddock near residential area facing west

PLATE 6 Dam on site facing North

PLATE 7 Ponar Sampler and Sediment samples from Dam

PLATE 8 Northern Paddock (Floodplains) Facing north east

PLATE 9 Rain Water Storage Tanks (South tank) (Source of WT01, WT02, WT03)

PLATE 10 Tap outside residence (WT02)

PLATE 11 Tap outside residence (WT03)

PLATE 12 Rain Water Storage Tanks (North tank). (Source of WT04)

PLATE 9 Tap located north of the residential dwellings (WT04)

Appendix E
5 Pages

Property Report

Property Report from **www.land.vic.gov.au** on 14 November 2013 05:02 PM

Address:

Lot and Plan Number: This site has 2 parcels. See table below.

Standard Parcel Identifier (SPI): See table below.

Local Government (Council): MOORABOOL **Council Property Number:** 127690

Directory Reference: VicRoads 77 E5

This property is in a designated bushfire prone area.
Special bushfire construction requirements apply. Planning provisions may apply.

Further information about the building control system and building in bushfire prone areas can be found in the Building Commission section of the Victorian Building Authority website www.vba.vic.gov.au

Parcel Details

Lot/Plan or Crown Description	SPI
PARISH OF YALOAK Allot. 13 Sec. 16	13~16\PP3939
Allot. 18 Sec. 16	18~16\PP3939

State Electorates

Legislative Council: WESTERN VICTORIA (2005)

Legislative Assembly: BALLARAT EAST (2001)

Utilities

Regional Urban Water Business: Central Highlands Water

Rural Water Business: Southern Rural Water

Melbourne Water: outside drainage boundary

Power Distributor: POWERCOR (Information about choosing an electricity retailer)

Planning Zone Summary

Planning Zone: FARMING ZONE (FZ)
SCHEDULE TO THE FARMING ZONE

Planning Overlays: DESIGN AND DEVELOPMENT OVERLAY (DDO)
DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 2 (DDO2)
ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)
ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)

Planning scheme data last updated on 14 November 2013.

A **planning scheme** sets out policies and requirements for the use, development and protection of land. This report provides information about the zone and overlay provisions that apply to the selected land. Information about the State, local, particular and general provisions of the local planning scheme that may affect the use of this land can be obtained by contacting the local council or by visiting Planning Schemes Online

This report is NOT a **Planning Certificate** issued pursuant to Section 199 of the Planning & Environment Act 1987. It does not include information about exhibited planning scheme amendments, or zonings that may abut the land. To obtain a Planning Certificate go to Titles and Property Certificates

The Planning Property Report includes separate maps of zones and overlays

For details of surrounding properties, use this service to get the Reports for properties of interest

To view planning zones, overlay and heritage information in an interactive format visit Planning Maps Online

For other information about planning in Victoria visit www.dpcd.vic.gov.au/planning

Area Map

Planning Property Report

from **www.dtpli.vic.gov.au/planning** on 14 November 2013 05:03 PM

Address:

Crown Description: Allot. 13 Sec. 16 PARISH OF YALOAK

This property has a total of 2 parcels.

For full parcel details get the free Basic Property report at Property Reports

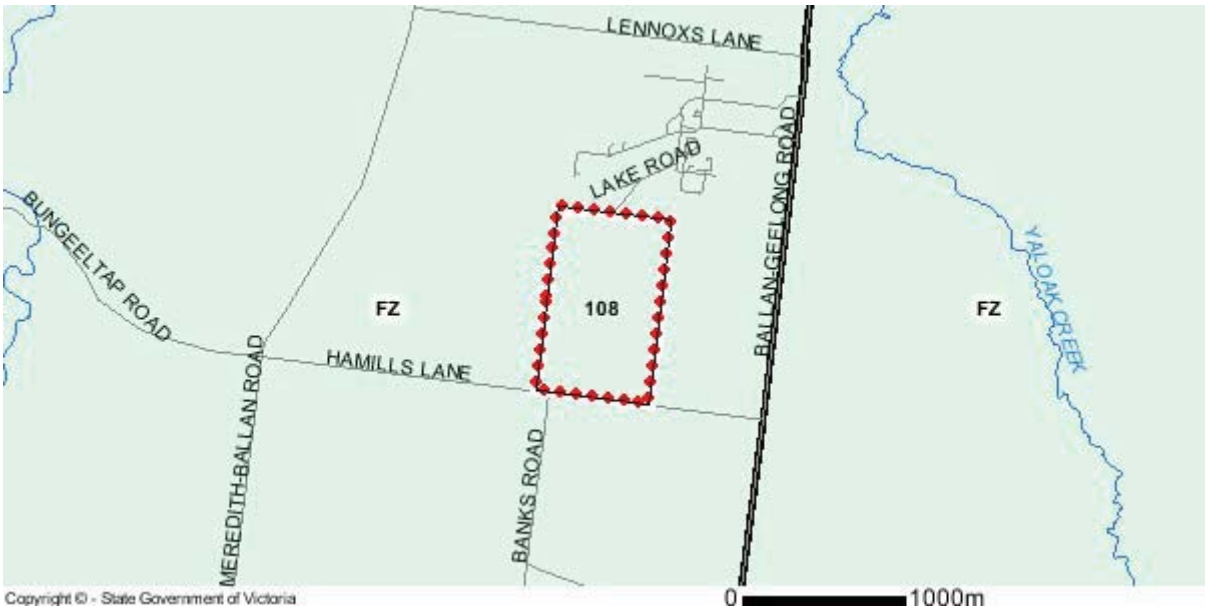
Local Government (Council): MOORABOOL **Council Property Number:** 127690

Directory Reference: VicRoads 77 E5

Planning Zone

FARMING ZONE (FZ)

SCHEDULE TO THE FARMING ZONE



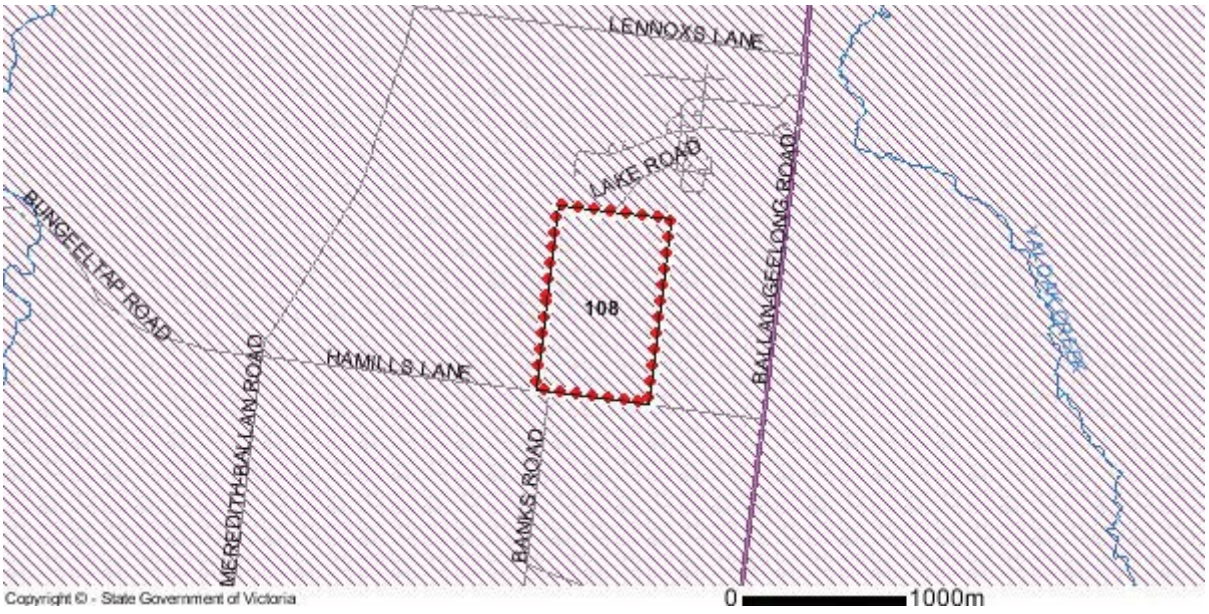
Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

Zones Legend

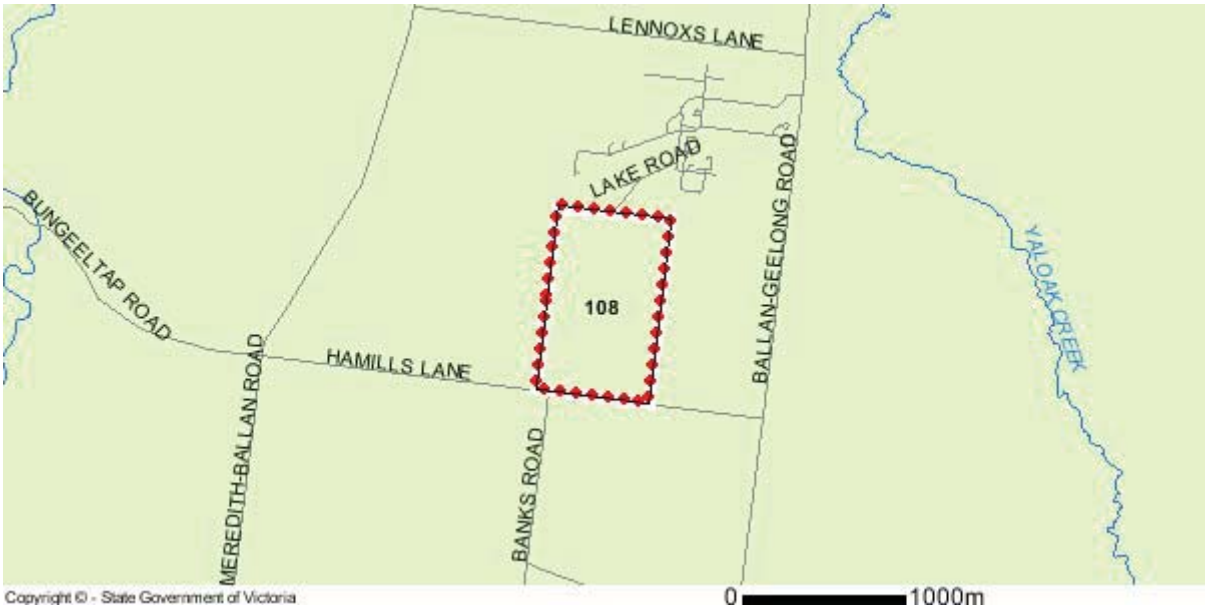
- ACZ - Activity Centre
- B1Z - Commercial 1
- B2Z - Commercial 1
- B3Z - Commercial 2
- B4Z - Commercial 2
- B5Z - Commercial 1
- C1Z - Commercial 1
- C2Z - Commercial 2
- CA - Commonwealth Land
- CCZ - Capital City
- CDZ - Comprehensive Development
- DZ - Dockland
- ERZ - Environmental Rural
- FZ - Farming
- GRZ - General Residential
- GWAZ - Green Wedge A
- GWZ - Green Wedge
- IN1Z - Industrial 1
- IN2Z - Industrial 2
- IN3Z - Industrial 3
- LDRZ - Low Density Residential
- MUZ - Mixed Use
- NRZ - Neighbourhood Residential
- PCRZ - Public Conservation & Resource
- PDZ - Priority Development
- PPRZ - Public Park & Recreation
- PUZ1 - Public Use - Service & Utility
- PUZ2 - Public Use - Education
- PUZ3 - Public Use - Health Community
- PUZ4 - Public Use - Transport
- PUZ5 - Public Use - Cemetery/Crematorium
- PUZ6 - Public Use - Local Government
- PUZ7 - Public Use - Other Public Use
- R1Z - Residential 1
- R2Z - Residential 2
- R3Z - Residential 3
- RAZ - Rural Activity
- RCZ - Rural Conservation
- RDZ1 - Road - Category 1
- RDZ2 - Road - Category 2
- RGZ - Residential Growth
- RLZ - Rural Living
- RUZ - Rural
- SUZ - Special Use
- TZ - Township
- UFZ - Urban Floodway
- UGZ - Urban Growth
- Urban Growth Boundary

Planning Overlays

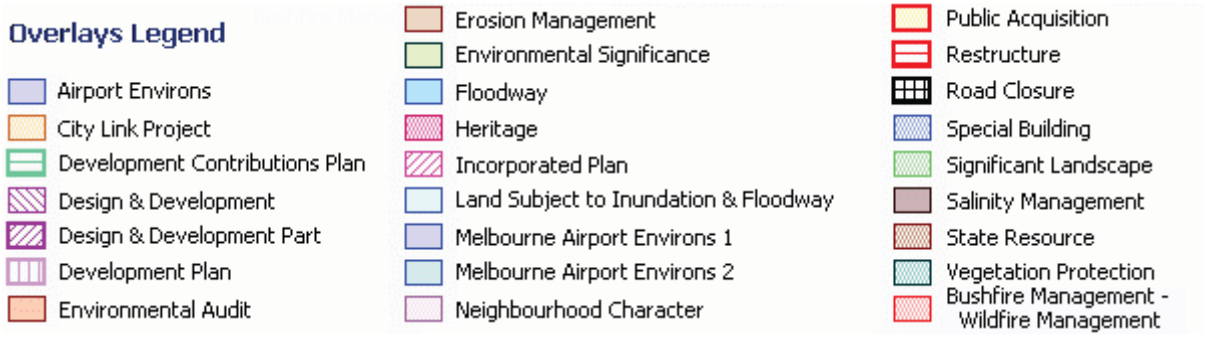
DESIGN AND DEVELOPMENT OVERLAY (DDO)
DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 2 (DDO2)



ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)
ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)



Planning Overlays Legend



Note: due to overlaps some colours on the maps may not match those in the legend.

Further Planning Information

Planning scheme data last updated on 14 November 2013.

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To view planning zones, overlay and heritage information in an interactive format visit Planning Maps Online

For other information about planning in Victoria visit www.dpcd.vic.gov.au/planning

Appendix F
308 Pages

Laboratory Reports & Chain of Custody Records

EM1310628

EM1310629

EM1310688

EM1310769

EM1310980

395583

395933

396098

DAU13_225

DAU13_229

Data Quality Validation Report

Cardno LanePiper

Surface Water

PM Name: Leigh McDonald Field Staff: Maria Delos Reyes

Phone: 03 9888 0100 Fax: 03 9808 3511 Mobile: 0424278497

Address: Building 2, 154 Highbury Rd, Burwood, Vic, 3125

PM Email: Leigh.Mcdonald@cardno.com.au, Maria.delosreyes@cardno.com.au

Project Number: 212163.31 Site: Fiskville

Laboratory (name, phone,fax no & contact person) ALS

	Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Sample Matrix: Water	Sample preservation: Ice bricks	NaOH	HNO3	H2SO4	Na2S2O3	Analysis: PFOS 4PFOS PFOA, 6:2 FTS + EFE EP231X	* metals total	BTEX	TPH	Nutrients	PFOS, PFOA 6:2FTS
1	D4WD 0.2 / 081013		GREEN, Cyanide metals presered metals unpresered 24 vials, amber PFOS.	8/10	11:30	X	X	X	X	X	X					X	X
2	D4WD 1.2 / 081013			↓	11:30	↓	↓	↓	↓	↓	↓						
missing 3	D4WE 0.2 / 081013			↓	1:00	↓	↓	↓	↓	↓	↓						X
3 4	D4WE ~~0.7~~ 2.7 / 081013			↓	1:00	↓	↓	↓	↓	↓	↓						
4 5	D4WF 0.1 / 081013			↓	2:00	↓	↓	↓	↓	↓	↓						X
5 6	D4WF 2.1 / 081013			↓	2:00	↓	↓	↓	↓	↓	↓						
6 7	D4WG 0.1 / 081013			↓	3:30	↓	↓	↓	↓	↓	↓					X	X
7 8	D4WG 1.8 / 081013			↓	3:30	↓	↓	↓	↓	↓	↓						
8 9	D4WH 0.1 / 081013			↓	4:00	↓	↓	↓	↓	↓	↓						X
9 10	D4WH 2.1 / 081013			↓	4:00	↓	↓	↓	↓	↓	↓						
10 11	D4WI 0.1 / 081013			↓	4:30	↓	↓	↓	↓	↓	↓						X
11 12	D4WI 1.2 / 081013			↓	4:30	↓	↓	↓	↓	↓	↓						X

Sampler: I attest that the proper field sampling proceedures were used during the collection of these samples.

Sampler name: (print and signature) Maria Delos Reyes Date: 8/10/13

Relinquished by (Sampler): (print and signature) Maria Delos Reyes [signature] Date 8/10/13 Time 10.20 W. Herdany 623 Date 9.10.13

Relinquished by: (print and signature) Date Time Date 9/10 11:30 (ALS)

Relinquished by: (print and signature) Date Time Date

Environmental Division Melbourne
Work Order
EM1310628

Telephone : +61-3-8549 9600

Nutrients = TDS, Alkalinity, Turbity, TDS, TSS, STD ievel

Please supply results electronically in spreadsheet and ESDAT files

Turn around time: (24 hour/48 hour/3 days/(5 days)) Please circle

metals = As, Cd, Cr, Cu, Ni, Pb, Zn, Hg, Ca, Mg, Na, K.

Cardno LanePiper

SURFACE H2O

PM Name: Leigh McDonald **Field Staff:** Maria Delos Reyes	
Phone: 03 9888 0100 **Fax:** 03 9808 3511 **Mobile:** 0424278497	
Address: Building 2, 154 Highbury Rd, Burwood, Vic, 3125	
PM Email: Leigh.Mcdonald@cardno.com.au, Maria.delosreyes@cardno.com.au	
Project Number: 212163.31 **Site:** Fiskville	
Laboratory (name, phone,fax no & contact person) ALS	

	Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Sample Matrix: Water	Sample preservation: Ice bricks	NaOH	HNO3	H2SO4	Na2S2O3	Analysis: PFCs: PFOS, PFOA, 6:2FTS ~~AFFF EP231X~~	* Metals (total metals, not filtered)	BTEX	TPH	** Nutrients
12	QC03_081013		Nutrients, Cyanide, Metals preserved, Metals none preserved, 2x vials, Amber, PFOS Bottle	08/10/13		x						X				
~~13~~	~~[redacted]~~															
13	QC02_081013											X				
14 ~~13~~	QC08_081013															
			vials													
missing	QC61_081013		vials													

Sampler: I attest that the proper field sampling proceedures were used during the collection of these samples. **Sampler name:** (print and signature) **Date:**

Relinquished by (Sampler): (print and signature)	Date	Time		Date	
Relinquished by: (print and signature)	Date	Time	Robert (ALS)	Date 9/10	11:30
Relinquished by: (print and signature)	Date	Time		Date	

*Metals= (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg, Ca, Mg, Na, K)
Please supply results electronically in spreadsheet and ESDAT files.
Turn around time: (24 hour/48 hour/3 days/5 days)

**Nutrients= TDS, Alkalinity, Turbidity, std. level TDS, TSS

Please circle

Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: **EM1310628**		
Client	: **CARDNO LANE PIPER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31	Page	: 1 of 2
Order number	: ----		
C-O-C number	: ----	Quote number	: EM2013LANECON0039 (MEBQ/115/13)
Site	: Fiskville		
Sampler	: MDR	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 09-OCT-2013	Issue Date	: 10-OCT-2013 14:15
Client Requested Due Date	: 16-OCT-2013	Scheduled Reporting Date	: **18-OCT-2013**

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 11.5-15.6 - Ice present
No. of coolers/boxes	: 3	No. of samples received	: 16
Security Seal	: N/A	No. of samples analysed	: 8

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
- **Samples received in appropriately pretreated and preserved containers.**
- **The scheduled reporting date has been extended due to analytical testing conducted by ALS interstate laboratories. Please refer to your quotation for further information.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Please direct any queries related to sample condition / numbering / breakages to Peter Ravlic.**
- **Analytical work for this work order will be conducted at ALS Springvale and ALS Sydney.**
- **The first two eskies were received on 9/10/13, 11.30am at 11.5-12.8°C. The third esky was received on 9/10/13, 3:58pm at 12.1-15.6°C.**
- Sample Disposal - Aqueous (14 days), Solid (60 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.

- **No sample container / preservation non-compliance exist.**

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: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER No analysis requested	WATER - EA015H Total Dissolved Solids - High Level	WATER - EA025H Suspended Solids (High Level)	WATER - EA045 Turbidity	WATER - ED037-P Alkalinity as CaCO3 (PCT)	WATER - EP231 Perfluorooctyl Acids and Sulfonates by LC/MS/MS	WATER - EP231-PFC Perfluorinated Compounds by LC/MS/MS -Extended
EM1310628-001	08-OCT-2013 11:30	D4WD 0.2/081013		✓	✓	✓	✓	✓	
EM1310628-002	08-OCT-2013 11:30	D4WD 1.2/081013	✓						
EM1310628-003	08-OCT-2013 13:00	D4WE 2.7/081013	✓						
EM1310628-004	08-OCT-2013 14:00	D4WF 0.1/081013						✓	
EM1310628-005	08-OCT-2013 14:00	D4WF 2.1/081013	✓						
EM1310628-006	08-OCT-2013 13:30	D4WG 0.1/081013		✓	✓	✓	✓	✓	
EM1310628-007	08-OCT-2013 13:30	D4WG 1.8/081013	✓						
EM1310628-008	08-OCT-2013 16:00	D4WH 0.1/081013						✓	
EM1310628-009	08-OCT-2013 16:00	D4WH 2.1/081013	✓						
EM1310628-010	08-OCT-2013 16:30	D4WI 0.1/081013						✓	
EM1310628-011	08-OCT-2013 16:30	D4WI 1.2/081013						✓	
EM1310628-012	08-OCT-2013 15:00	QC03_081013							✓
EM1310628-013	08-OCT-2013 15:00	QC02_081013	✓						
EM1310628-014	08-OCT-2013 15:00	QC08_081013	✓						
EM1310628-015	08-OCT-2013 13:00	D4WE0.2/081013						✓	
EM1310628-016	08-OCT-2013 15:00	QC01_081013	✓						

Proactive Holding Time Report

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

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	payables@lanepiper.com.au

LEIGH MCDONALD

- *AU Certificate of Analysis - NATA	Email	Leigh.Mcdonald@cardno.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep)	Email	Leigh.Mcdonald@cardno.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA	Email	Leigh.Mcdonald@cardno.com.au
- A4 - AU Sample Receipt Notification - Environmental HT	Email	Leigh.Mcdonald@cardno.com.au
- Chain of Custody (CoC)	Email	Leigh.Mcdonald@cardno.com.au
- EDI Format - ESDAT	Email	Leigh.Mcdonald@cardno.com.au

MS MARIA DE LOS REYES

- *AU Certificate of Analysis - NATA (COA)	Email	maria.delosreyes@cardno.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	maria.delosreyes@cardno.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	maria.delosreyes@cardno.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	maria.delosreyes@cardno.com.au
- Chain of Custody (CoC) (COC)	Email	maria.delosreyes@cardno.com.au
- EDI Format - ESDAT (ESDAT)	Email	maria.delosreyes@cardno.com.au

CERTIFICATE OF ANALYSIS

Work Order	: **EM1310628**	Page	: 1 of 4
Client	: **CARDNO LANE PIPER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 09-OCT-2013
Sampler	: MDR	Issue Date	: 17-OCT-2013
Site	: Fiskville		
		No. of samples received	: 16
Quote number	: MEBQ/115/13	No. of samples analysed	: 8

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*
Gaston Allende	R&D Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics
Varsha Ho Wing	Non-Metals Team Leader	Melbourne 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.

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

- **EP231: PFOA and PFOS results are reported as an aggregate of linear and branched isomers.**
- **PFOS/PFOA/PFCs (EP231) conducted by ALS Sydney, NATA accreditation no. 825, site no 10911.**
- **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: SURFACE WATER (Matrix: WATER)				Client sample ID	D4WD 0.2/081013	D4WF 0.1/081013	D4WG 0.1/081013	D4WH 0.1/081013	D4WI 0.1/081013
				Client sampling date / time	08-OCT-2013 11:30	08-OCT-2013 14:00	08-OCT-2013 13:30	08-OCT-2013 16:00	08-OCT-2013 16:30
Compound	CAS Number	LOR	Unit		EM1310628-001	EM1310628-004	EM1310628-006	EM1310628-008	EM1310628-010
EA015: Total Dissolved Solids									
Total Dissolved Solids @180°C	----	10	mg/L		462	----	370	----	----
EA025: Suspended Solids									
Suspended Solids (SS)	----	5	mg/L		<5	----	<5	----	----
EA045: Turbidity									
Turbidity	----	0.1	NTU		97.0	----	10.5	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		73	----	76	----	----
Total Alkalinity as CaCO3	----	1	mg/L		73	----	76	----	----
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.02	µg/L		3.70	3.47	33.9	23.9	21.8
PFOA	335-67-1	0.02	µg/L		0.77	0.69	1.82	2.28	1.80
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L		5.9	3.0	23.0	27.9	32.6

Analytical Results

Sub-Matrix: **SURFACE WATER** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Client sample ID	D4WI 1.2/081013	QC03_081013	D4WE0.2/081013	----	----
				Client sampling date / time	08-OCT-2013 16:30	08-OCT-2013 15:00	08-OCT-2013 13:00	----	----
					EM1310628-011	EM1310628-012	EM1310628-015	----	----
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.02	µg/L		**31.0**	**15.3**	**4.34**	----	----
PFOA	335-67-1	0.02	µg/L		**1.79**	----	**0.57**	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L		**19.0**	----	**3.4**	----	----
PFOA	335-67-1	0.02	µg/L		----	**1.41**	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L		----	**26.8**	----	----	----
8:2 Fluorotelomer sulfonate	39108-34-4	0.5	µg/L		----	<0.5	----	----	----
PFOSA	754-91-6	0.02	µg/L		----	<0.02	----	----	----
N-Me-FOSA	31506-32-8	0.5	µg/L		----	<0.5	----	----	----
N-Et-FOSA	4151-50-2	0.05	µg/L		----	<0.05	----	----	----
N-Me-FOSE	2448-09-7	0.5	µg/L		----	<0.5	----	----	----
N-Et-FOSE	1691-99-2	0.5	µg/L		----	<0.5	----	----	----
PFBS	375-73-5	0.02	µg/L		----	**2.00**	----	----	----
PFHxS	3871-99-6	0.02	µg/L		----	**9.10**	----	----	----
PFDcS	67906-42-7	0.02	µg/L		----	<0.02	----	----	----
PFHxA	307-24-4	0.02	µg/L		----	**8.30**	----	----	----
PFHpA	375-85-9	0.02	µg/L		----	**1.61**	----	----	----
PFNA	375-95-1	0.02	µg/L		----	**0.10**	----	----	----
PFDcA	335-76-2	0.02	µg/L		----	<0.02	----	----	----
PFUnA	2058-94-8	0.05	µg/L		----	**0.07**	----	----	----
PFDoA	307-55-1	0.05	µg/L		----	<0.05	----	----	----
PFTriA	72629-94-8	0.05	µg/L		----	<0.05	----	----	----
PFTeA	376-06-7	0.5	µg/L		----	<0.5	----	----	----

QUALITY CONTROL REPORT

Work Order	: **EM1310628**	Page	: 1 of 7
Client	: **CARDNO LANE PIPER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: Fiskville		
C-O-C number	: ----	Date Samples Received	: 09-OCT-2013
Sampler	: MDR	Issue Date	: 17-OCT-2013
Order number	: ----		
		No. of samples received	: 16
Quote number	: MEBQ/115/13	No. of samples analysed	: 8

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 ir compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Gaston Allende	R&D Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics
Varsha Ho Wing	Non-Metals Team Leader	Melbourne 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: **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: 3101989)									
EM1310628-001	D4WD 0.2/081013	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	462	470	1.7	0% - 20%
EM1310668-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1550	1510	2.1	0% - 20%
EA025: Suspended Solids (QC Lot: 3101991)									
EM1310628-001	D4WD 0.2/081013	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
EA045: Turbidity (QC Lot: 3099810)									
EM1310597-001	Anonymous	EA045: Turbidity	----	0.1	NTU	<0.1	<0.1	0.0	No Limit
EA045: Turbidity (QC Lot: 3100454)									
EM1310628-001	D4WD 0.2/081013	EA045: Turbidity	----	0.1	NTU	97.0	96.0	1.0	0% - 20%
EM1310668-002	Anonymous	EA045: Turbidity	----	0.1	NTU	3.1	3.0	0.0	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 3108533)									
EM1310628-001	D4WD 0.2/081013	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	73	72	1.9	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	73	72	1.9	No Limit
EM1310670-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	<1	0.0	No Limit
EP231: Perfluorinated Compounds (QC Lot: 3101790)									
EM1310628-001	D4WD 0.2/081013	EP231: PFOS	1763-23-1	0.02	µg/L	3.70	3.78	2.3	0% - 20%
		EP231: PFOA	335-67-1	0.02	µg/L	0.77	0.67	13.2	0% - 20%
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	5.9	5.3	10.9	0% - 20%
EP231: Perfluorinated Compounds (QC Lot: 3104235)									
EM1310688-001	Anonymous	EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231: PFOA	335-67-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231: Perfluorinated Compounds (QC Lot: 3104236)									
EM1310688-001	Anonymous	EP231-PFC: PFOSA	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231-PFC: PFBS	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231-PFC: PFHxS	3871-99-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231-PFC: PFDcS	67906-42-7	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231-PFC: PFHxA	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231-PFC: PFHpA	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231-PFC: PFNA	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231-PFC: PFDcA	335-76-2	0.02	µg/L	<0.02	<0.02	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 (%)*
EP231: Perfluorinated Compounds (QC Lot: 3104236) - continued									
EM1310688-001	Anonymous	EP231-PFC: N-Et-FOSA	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231-PFC: PFUnA	2058-94-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231-PFC: PFDoA	307-55-1	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231-PFC: PFTriA	72629-94-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231-PFC: 8:2 Fluorotelomer sulfonate	39108-34-4	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP231-PFC: N-Me-FOSA	31506-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP231-PFC: N-Me-FOSE	2448-09-7	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP231-PFC: N-Et-FOSE	1691-99-2	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP231-PFC: PFTeA	376-06-7	0.5	µg/L	<0.5	<0.5	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: **WATER**

				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
EA015: Total Dissolved Solids (QCLot: 3101989)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	102	97	105
EA025: Suspended Solids (QCLot: 3101991)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	99.3	92	114
EA045: Turbidity (QCLot: 3099810)								
EA045: Turbidity	----	0.1	NTU	<0.1	40.0 NTU	102	94	106
EA045: Turbidity (QCLot: 3100454)								
EA045: Turbidity	----	0.1	NTU	<0.1	40.0 NTU	102	94	106
ED037P: Alkalinity by PC Titrator (QCLot: 3108533)								
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	----	200 mg/L	100	91	105
EP231: Perfluorinated Compounds (QCLot: 3101790)								
EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	0.25 µg/L	114	70	136
EP231: PFOA	335-67-1	0.02	µg/L	<0.02	0.25 µg/L	124	72	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	1.25 µg/L	133	61	145
EP231: Perfluorinated Compounds (QCLot: 3104235)								
EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	0.5 µg/L	102	70	136
EP231: PFOA	335-67-1	0.02	µg/L	<0.02	0.5 µg/L	93.4	72	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	2.5 µg/L	112	61	145
EP231: Perfluorinated Compounds (QCLot: 3104236)								
EP231-PFC: 8:2 FtS	39108-34-4	0.5	µg/L	<0.5	2.5 µg/L	84.8	70	130
EP231-PFC: PFOSA	754-91-6	0.02	µg/L	<0.02	0.5 µg/L	127	70	130
EP231-PFC: N-Me-FOSA	31506-32-8	0.5	µg/L	<0.5	2.5 µg/L	118	70	130
EP231-PFC: N-Et-FOSA	4151-50-2	0.05	µg/L	<0.05	2.5 µg/L	76.8	70	130
EP231-PFC: N-Me-FOSE	2448-09-7	1	µg/L	<1.0	2.5 µg/L	104	70	130
EP231-PFC: N-Et-FOSE	1691-99-2	1	µg/L	<1.0	2.5 µg/L	74.0	70	130
EP231-PFC: PFBS	375-73-5	0.02	µg/L	<0.02	0.5 µg/L	121	70	130
EP231-PFC: PFHxS	3871-99-6	0.02	µg/L	<0.02	0.5 µg/L	98.0	70	130
EP231-PFC: PFDcS	67906-42-7	0.05	µg/L	<0.05	0.5 µg/L	71.2	70	130
EP231-PFC: PFHxA	307-24-4	0.02	µg/L	<0.02	0.5 µg/L	112	70	130
EP231-PFC: PFHpA	375-85-9	0.02	µg/L	<0.02	0.5 µg/L	106	70	130
EP231-PFC: PFNA	375-95-1	0.02	µg/L	<0.02	0.5 µg/L	97.6	70	130
EP231-PFC: PFDcA	335-76-2	0.02	µg/L	<0.02	0.5 µg/L	109	70	130
EP231-PFC: PFUnA	2058-94-8	0.05	µg/L	<0.05	0.5 µg/L	# 134	70	130
EP231-PFC: PFDoA	307-55-1	0.05	µg/L	<0.05	0.5 µg/L	106	70	130
EP231-PFC: PFTriA	72629-94-8	0.05	µg/L	<0.05	0.5 µg/L	75.4	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
EP231: Perfluorinated Compounds (QCLot: 3104236) - continued								
EP231-PFC: PFTeA	376-06-7	0.5	µg/L	<0.5	2.5 µg/L	76.0	70	130

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: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EP231: Perfluorinated Compounds (QCLot: 3101790)							
EM1310628-001	D4WD 0.2/081013	EP231: PFOS	1763-23-1	0.25 µg/L	# Not Determined	70	136
		EP231: PFOA	335-67-1	0.25 µg/L	122	72	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	1.25 µg/L	# Not Determined	61	145
EP231: Perfluorinated Compounds (QCLot: 3104235)							
EM1310688-001	Anonymous	EP231: PFOS	1763-23-1	0.5 µg/L	80.2	70	136
		EP231: PFOA	335-67-1	0.5 µg/L	72.8	72	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	2.5 µg/L	98.8	61	145
EP231: Perfluorinated Compounds (QCLot: 3104236)							
EM1310688-001	Anonymous	EP231-PFC: 8:2 Fluorotelomer sulfonate	39108-34-4	2.5 µg/L	74.4	----	----
		EP231-PFC: PFOSA	754-91-6	0.5 µg/L	109	----	----
		EP231-PFC: N-Me-FOSA	31506-32-8	2.5 µg/L	95.6	----	----
		EP231-PFC: N-Et-FOSA	4151-50-2	2.5 µg/L	72.0	----	----
		EP231-PFC: N-Me-FOSE	2448-09-7	2.5 µg/L	90.8	----	----
		EP231-PFC: N-Et-FOSE	1691-99-2	2.5 µg/L	72.0	----	----
		EP231-PFC: PFBS	375-73-5	0.5 µg/L	87.4	----	----
		EP231-PFC: PFHxS	3871-99-6	0.5 µg/L	82.4	----	----
		EP231-PFC: PFDcS	67906-42-7	0.5 µg/L	26.0	----	----
		EP231-PFC: PFHxA	307-24-4	0.5 µg/L	82.4	----	----
		EP231-PFC: PFHpA	375-85-9	0.5 µg/L	87.8	----	----
		EP231-PFC: PFNA	375-95-1	0.5 µg/L	76.4	----	----
		EP231-PFC: PFDcA	335-76-2	0.5 µg/L	78.2	----	----
		EP231-PFC: PFUnA	2058-94-8	0.5 µg/L	103	----	----
		EP231-PFC: PFDoA	307-55-1	0.5 µg/L	85.0	----	----
		EP231-PFC: PFTriA	72629-94-8	0.5 µg/L	72.8	----	----
		EP231-PFC: PFTeA	376-06-7	2.5 µg/L	72.8	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP231: Perfluorinated Compounds (QCLot: 3101790)										
EM1310628-001	D4WD 0.2/081013	EP231: PFOS	1763-23-1	0.25 µg/L	# Not Determined	----	70	136	----	----
		EP231: PFOA	335-67-1	0.25 µg/L	122	----	72	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	1.25 µg/L	# Not Determined	----	61	145	----	----
EP231: Perfluorinated Compounds (QCLot: 3104235)										
EM1310688-001	Anonymous	EP231: PFOS	1763-23-1	0.5 µg/L	80.2	----	70	136	----	----
		EP231: PFOA	335-67-1	0.5 µg/L	72.8	----	72	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	2.5 µg/L	98.8	----	61	145	----	----
EP231: Perfluorinated Compounds (QCLot: 3104236)										
EM1310688-001	Anonymous	EP231-PFC: 8:2 Fluorotelomer sulfonate	39108-34-4	2.5 µg/L	74.4	----	----	----	----	----
		EP231-PFC: PFOSA	754-91-6	0.5 µg/L	109	----	----	----	----	----
		EP231-PFC: N-Me-FOSA	31506-32-8	2.5 µg/L	95.6	----	----	----	----	----
		EP231-PFC: N-Et-FOSA	4151-50-2	2.5 µg/L	72.0	----	----	----	----	----
		EP231-PFC: N-Me-FOSE	2448-09-7	2.5 µg/L	90.8	----	----	----	----	----
		EP231-PFC: N-Et-FOSE	1691-99-2	2.5 µg/L	72.0	----	----	----	----	----
		EP231-PFC: PFBS	375-73-5	0.5 µg/L	87.4	----	----	----	----	----
		EP231-PFC: PFHxS	3871-99-6	0.5 µg/L	82.4	----	----	----	----	----
		EP231-PFC: PFDcS	67906-42-7	0.5 µg/L	26.0	----	----	----	----	----
		EP231-PFC: PFHxA	307-24-4	0.5 µg/L	82.4	----	----	----	----	----
		EP231-PFC: PFHpA	375-85-9	0.5 µg/L	87.8	----	----	----	----	----
		EP231-PFC: PFNA	375-95-1	0.5 µg/L	76.4	----	----	----	----	----
		EP231-PFC: PFDcA	335-76-2	0.5 µg/L	78.2	----	----	----	----	----
		EP231-PFC: PFUnA	2058-94-8	0.5 µg/L	103	----	----	----	----	----
		EP231-PFC: PFDoA	307-55-1	0.5 µg/L	85.0	----	----	----	----	----
		EP231-PFC: PFTriA	72629-94-8	0.5 µg/L	72.8	----	----	----	----	----
		EP231-PFC: PFTeA	376-06-7	2.5 µg/L	72.8	----	----	----	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **EM1310628**	Page	: 1 of 5
Client	: CARDNO LANE PIPER PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: Fiskville		
C-O-C number	: ----	Date Samples Received	: 09-OCT-2013
Sampler	: MDR	Issue Date	: 17-OCT-2013
Order number	: ----		
		No. of samples received	: 16
Quote number	: MEBQ/115/13	No. of samples analysed	: 8

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

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

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
EA015: Total Dissolved Solids							
Clear Plastic Bottle - Natural (EA015H)							
D4WD 0.2/081013, D4WG 0.1/081013	**08-OCT-2013**	---	15-OCT-2013	----	**11-OCT-2013**	15-OCT-2013	✓
EA025: Suspended Solids							
Clear Plastic Bottle - Natural (EA025H)							
D4WD 0.2/081013, D4WG 0.1/081013	**08-OCT-2013**	---	15-OCT-2013	----	**11-OCT-2013**	15-OCT-2013	✓
EA045: Turbidity							
Clear Plastic Bottle - Natural (EA045)							
D4WD 0.2/081013, D4WG 0.1/081013	**08-OCT-2013**	----	----	----	**10-OCT-2013**	10-OCT-2013	✓
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
D4WD 0.2/081013, D4WG 0.1/081013	**08-OCT-2013**	---	22-OCT-2013	----	**16-OCT-2013**	22-OCT-2013	✓
EP231: Perfluorinated Compounds							
HDPE (no PTFE) (EP231)							
D4WD 0.2/081013, D4WF 0.1/081013, D4WG 0.1/081013, D4WH 0.1/081013, D4WI 0.1/081013, D4WI 1.2/081013, QC03_081013, D4WE0.2/081013	**08-OCT-2013**	---	06-APR-2014	----	**14-OCT-2013**	06-APR-2014	✓
EP231: Perfluorinated Compounds							
HDPE (no PTFE) (EP231-PFC)							
QC03_081013	**08-OCT-2013**	---	06-APR-2014	----	**14-OCT-2013**	06-APR-2014	✓

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: **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)							
Alkalinity by PC Titrator	ED037-P	2	19	**10.5**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	6	**16.7**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	2	13	**15.4**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Suspended Solids (High Level)	EA025H	1	2	**50.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	2	20	**10.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Turbidity	EA045	3	22	**13.6**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	19	**5.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	6	**16.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	2	13	**15.4**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Suspended Solids (High Level)	EA025H	1	2	**50.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Turbidity	EA045	2	22	**9.1**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	6	**16.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	2	13	**15.4**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Suspended Solids (High Level)	EA025H	1	2	**50.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Turbidity	EA045	2	22	**9.1**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	6	**16.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	2	13	**15.4**	**5.0**	✓	NEPM 2013 Schedule B(3) and 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
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 (2013) Schedule B(3) (Appdx. 2)
Suspended Solids (High Level)	EA025H	WATER	In-House, APHA 21st ed., 2540D A gravimetric procedure employed to determine the amount of `non-filterable` residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Turbidity	EA045	WATER	APHA 21st ed., 2130 B. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Alkalinity by PC Titrator	ED037-P	WATER	APHA 21st ed., 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
PFOS and PFOA	EP231	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorped onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.
Perfluorinated Compounds by LCMSMS	EP231-PFC	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorped onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.

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 SW 846 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
Laboratory Control Spike (LCS) Recoveries							
EP231: Perfluorinated Compounds	3701616-002	---	**PFUnA**	2058-94-8	134 %	70-130%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
EP231: Perfluorinated Compounds	EM1310628-001	D4WD 0.2/081013	**PFOS**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231: Perfluorinated Compounds	EM1310628-001	D4WD 0.2/081013	**6:2 Fluorotelomer sulfonate (6:2 FtS)**	27619-97-2	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

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

- **No Analysis Holding Time Outliers exist.**

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.**

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **EM1310629**	Page	: 1 of 9
Client	: CARDNO LANE PIPER PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: Fiskville		
C-O-C number	: ----	Date Samples Received	: 09-OCT-2013
Sampler	: MDR	Issue Date	: 17-OCT-2013
Order number	: ----		
		No. of samples received	: 14
Quote number	: MEBQ/115/13	No. of samples analysed	: 14

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

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

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
EA001: pH in soil using 0.01M CaCl extract								
Soil Glass Jar - Unpreserved (EA001)								
D4SE 0.1/081013,	D4SG 0.1/081013	**08-OCT-2013**	**14-OCT-2013**	15-OCT-2013	✓	**14-OCT-2013**	14-OCT-2013	✓
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055-103)								
D4SD 0.1/081013,	D4SE 0.1/081013,	**08-OCT-2013**	**----**	----	----	**10-OCT-2013**	22-OCT-2013	✓
D4SF 0.1/081013,	D4SG 0.1/081013,							
D4SH 0.1/081013,	D4SI 0.1/081013,							
D4SG 0.1/081013 - Volatiles,	D4SH 0.1/081013 - Volatiles							
Soil Glass Jar - Unpreserved (EA055-103)								
D4SD 0.3/081013,	D4SE 05/081013,	**08-OCT-2013**	**----**	----	----	**14-OCT-2013**	22-OCT-2013	✓
D4SF 0.2/081013,	D4SG 0.3/081013,							
D4SH 0.3/081013,	D4SI 0.3/081013							
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
D4SD 0.1/081013,	D4SE 0.1/081013,	**08-OCT-2013**	**15-OCT-2013**	06-APR-2014	✓	**15-OCT-2013**	06-APR-2014	✓
D4SF 0.1/081013,	D4SG 0.1/081013,							
D4SH 0.1/081013,	D4SI 0.1/081013							
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
D4SD 0.1/081013,	D4SE 0.1/081013,	**08-OCT-2013**	**15-OCT-2013**	05-NOV-2013	✓	**15-OCT-2013**	05-NOV-2013	✓
D4SF 0.1/081013,	D4SG 0.1/081013,							
D4SH 0.1/081013,	D4SI 0.1/081013							
EG048: Hexavalent Chromium (Alkaline Digest)								
Soil Glass Jar - Unpreserved (EG048)								
D4SE 0.1/081013,	D4SG 0.1/081013	**08-OCT-2013**	**15-OCT-2013**	05-NOV-2013	✓	**17-OCT-2013**	22-OCT-2013	✓
EK026SF: Total CN by Segmented Flow Analyser								
Soil Glass Jar - Unpreserved (EK026SF)								
D4SE 0.1/081013,	D4SG 0.1/081013	**08-OCT-2013**	**14-OCT-2013**	22-OCT-2013	✓	**15-OCT-2013**	28-OCT-2013	✓
EK040T: Fluoride Total								
Soil Glass Jar - Unpreserved (EK040T)								
D4SE 0.1/081013,	D4SG 0.1/081013	**08-OCT-2013**	**10-OCT-2013**	05-NOV-2013	✓	**11-OCT-2013**	05-NOV-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
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
D4SE 0.1/081013, D4SG 0.1/081013	**08-OCT-2013**	**15-OCT-2013**	22-OCT-2013	✓	**16-OCT-2013**	24-NOV-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP071)							
D4SD 0.1/081013, D4SE 0.1/081013, D4SF 0.1/081013, D4SG 0.1/081013, D4SH 0.1/081013, D4SI 0.1/081013	**08-OCT-2013**	**16-OCT-2013**	22-OCT-2013	✓	**16-OCT-2013**	25-NOV-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074)							
D4SD 0.1/081013, D4SF 0.1/081013, D4SI 0.1/081013	**08-OCT-2013**	**10-OCT-2013**	15-OCT-2013	✓	**11-OCT-2013**	15-OCT-2013	✓
Soil Glass Jar - Unpreserved (EP074)							
D4SH 0.1/081013 - Volatiles	**08-OCT-2013**	**10-OCT-2013**	15-OCT-2013	✓	**14-OCT-2013**	15-OCT-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
D4SE 0.1/081013	**08-OCT-2013**	**10-OCT-2013**	15-OCT-2013	✓	**10-OCT-2013**	15-OCT-2013	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
D4SG 0.1/081013 - Volatiles	**08-OCT-2013**	**10-OCT-2013**	15-OCT-2013	✓	**11-OCT-2013**	15-OCT-2013	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
D4SE 0.1/081013	**08-OCT-2013**	**10-OCT-2013**	15-OCT-2013	✓	**10-OCT-2013**	15-OCT-2013	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
D4SG 0.1/081013 - Volatiles	**08-OCT-2013**	**10-OCT-2013**	15-OCT-2013	✓	**11-OCT-2013**	15-OCT-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
D4SE 0.1/081013	**08-OCT-2013**	**10-OCT-2013**	15-OCT-2013	✓	**10-OCT-2013**	15-OCT-2013	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
D4SG 0.1/081013 - Volatiles	**08-OCT-2013**	**10-OCT-2013**	15-OCT-2013	✓	**11-OCT-2013**	15-OCT-2013	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
D4SD 0.1/081013, D4SF 0.1/081013, D4SH 0.1/081013, D4SI 0.1/081013	**08-OCT-2013**	**16-OCT-2013**	22-OCT-2013	✓	**16-OCT-2013**	25-NOV-2013	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM)							
D4SE 0.1/081013, D4SG 0.1/081013	**08-OCT-2013**	**15-OCT-2013**	22-OCT-2013	✓	**16-OCT-2013**	24-NOV-2013	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
D4SE 0.1/081013, D4SG 0.1/081013	**08-OCT-2013**	**15-OCT-2013**	22-OCT-2013	✓	**16-OCT-2013**	24-NOV-2013	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
D4SE 0.1/081013, D4SG 0.1/081013	**08-OCT-2013**	**15-OCT-2013**	22-OCT-2013	✓	**16-OCT-2013**	24-NOV-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
EP075B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075-EM)								
D4SE 0.1/081013,	D4SG 0.1/081013	**08-OCT-2013**	**15-OCT-2013**	22-OCT-2013	✓	**16-OCT-2013**	24-NOV-2013	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
D4SD 0.1/081013, D4SI 0.1/081013	D4SF 0.1/081013,	**08-OCT-2013**	**10-OCT-2013**	22-OCT-2013	✓	**11-OCT-2013**	22-OCT-2013	✓
Soil Glass Jar - Unpreserved (EP080)								
D4SH 0.1/081013 - Volatiles		**08-OCT-2013**	**10-OCT-2013**	22-OCT-2013	✓	**14-OCT-2013**	22-OCT-2013	✓
EP231: Perfluorinated Compounds								
Soil Glass Jar - Unpreserved (EP231)								
D4SD 0.1/081013,	D4SD 0.3/081013,	**08-OCT-2013**	**14-OCT-2013**	06-APR-2014	✓	**14-OCT-2013**	23-NOV-2013	✓
D4SE 0.1/081013,	D4SE 05/081013,							
D4SF 0.1/081013,	D4SF 0.2/081013,							
D4SG 0.1/081013,	D4SG 0.3/081013,							
D4SH 0.1/081013,	D4SH 0.3/081013,							
D4SI 0.1/081013,	D4SI 0.3/081013							

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)							
Moisture Content	EA055-103	6	58	**10.3**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	13	**15.4**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PCB - VIC EPA 448.3 Screen	EP066-EM	2	8	**25.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	12	**16.7**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	9	**22.2**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	**10.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Fluoride	EK040T	1	6	**16.7**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Hexavalent Chromium by Alkaline Digestion	EG048	2	20	**10.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	19	**10.5**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	19	**10.5**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	15	**13.3**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	36	**11.1**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	12	**16.7**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	5	**20.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	13	**7.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PCB - VIC EPA 448.3 Screen	EP066-EM	1	8	**12.5**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	12	**8.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	9	**11.1**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Fluoride	EK040T	1	6	**16.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Hexavalent Chromium by Alkaline Digestion	EG048	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	**5.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	**5.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	**6.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	37	**8.1**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	13	**15.4**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	6	**33.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	13	**7.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PCB - VIC EPA 448.3 Screen	EP066-EM	1	8	**12.5**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	12	**8.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	9	**11.1**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Fluoride	EK040T	1	6	**16.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

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*	
Method Blanks (MB) - Continued							
Total Hexavalent Chromium by Alkaline Digestion	EG048	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	**5.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	**5.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	**6.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	37	**8.1**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	13	**15.4**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	6	**33.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	13	**7.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PCB - VIC EPA 448.3 Screen	EP066-EM	1	8	**12.5**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	12	**8.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	9	**11.1**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Hexavalent Chromium by Alkaline Digestion	EG048	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	**5.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	**5.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	**6.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	36	**5.6**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	**8.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	5	**20.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and 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 in soil using a 0.01M CaCl2 extract	EA001	SOIL	Rayment and Higginson 4B1 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
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 (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	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. Mercury in solids are determined following an appropriate acid digestion. 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 (2013) Schedule B(3)
Total Hexavalent Chromium by Alkaline Digestion	EG048	SOIL	USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by UV-VIS spectrophotometer following pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	APHA 4500-CN-O. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In-house, APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	Rayment and Higginson 4B1 (mod.), 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	(In-house) Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17A-EM	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na2SO4 and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.

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 SW 846 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: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231: Perfluorinated Compounds	EM1310629-001	D4SD 0.1/081013	**PFOS**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

- **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.

- **No Analysis Holding Time Outliers exist.**

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.**

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **EM1310688**	Page	: 1 of 7
Client	: CARDNO LANE PIPER PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: Fiskville		
C-O-C number	: ----	Date Samples Received	: 10-OCT-2013
Sampler	: MDR	Issue Date	: 22-OCT-2013
Order number	: ----		
		No. of samples received	: 47
Quote number	: MEBQ/115/13	No. of samples analysed	: 43

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

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

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 (EA055-103)							
AF01, AF02, AF03, AF04, AF05, AF06, AF13, AF14, AF15, AF16, AF17, AF18, AF25, AF26, AF27, AF28, AF33, AF34, AF38, AF39, AF40, AF41, AF42, AF45, AF46, AF47, AF48, AF49, QC13, D45J(0.1)_091013, D45J(0.3)_091013, D45K(0.1)_091013, D45K(0.3)_091013, D45L(0.1)_091013, D45L(0.25)_091013, D45m(0.1)_091013, D45m(0.4)_091013, QC09_091013	**09-OCT-2013**	**----**	----	----	**18-OCT-2013**	23-OCT-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
EP231: Perfluorinated Compounds							
Snap Lock Bag (EP231)							
AF01, AF02, AF03, AF04, AF05, AF06, AF13, AF14, AF15, AF16, AF17, AF18, AF25, AF26, AF27, AF28, AF33, AF34, AF38, AF39, AF40, AF41, AF42, AF45, AF46, AF47, AF48, AF49, QC13, D45J(0.1)_091013, D45J(0.3)_091013, D45K(0.1)_091013, D45K(0.3)_091013, D45L(0.1)_091013, D45L(0.25)_091013, D45m(0.1)_091013, D45m(0.4)_091013, QC09_091013	**09-OCT-2013**	**14-OCT-2013**	07-APR-2014	✓	**14-OCT-2013**	23-NOV-2013	✓
EP231: Perfluorinated Compounds							
Snap Lock Bag (EP231-PFC)							
AF01, AF02, AF03, AF04, AF05, AF06, AF13, AF14, AF15, AF16, AF17, AF18, AF25, AF26, AF27, AF28, AF33, AF34, AF38, AF39, AF40, AF41, AF42, AF45, AF46, AF47, AF48, AF49, QC13, D45J(0.1)_091013, D45J(0.3)_091013, D45K(0.1)_091013, D45K(0.3)_091013, D45L(0.1)_091013, D45L(0.25)_091013, D45m(0.1)_091013, D45m(0.4)_091013, QC09_091013	**09-OCT-2013**	**14-OCT-2013**	07-APR-2014	✓	**14-OCT-2013**	23-NOV-2013	✓

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
EP231: Perfluorinated Compounds							
HDPE (no PTFE) (EP231)							
WT01_091013, WT02_091013, WT03_091013, WT04_091013, QC05_091013	**09-OCT-2013**	---	07-APR-2014	----	**14-OCT-2013**	07-APR-2014	✓
EP231: Perfluorinated Compounds							
HDPE (no PTFE) (EP231-PFC)							
WT01_091013, WT02_091013, WT03_091013, WT04_091013, QC05_091013	**09-OCT-2013**	---	07-APR-2014	----	**14-OCT-2013**	07-APR-2014	✓

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)							
Moisture Content	EA055-103	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorinated Compounds by LCMSMS	EP231-PFC	4	38	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	4	38	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and 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	
Laboratory Duplicates (DUP)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	6	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	6	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and 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
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 (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
Perfluorinated Compounds by LCMSMS	EP231-PFC	SOIL	In-House. A portion of soil is extracted with MTBE. The extract is taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
PFOS and PFOA	EP231	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorped onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.
Perfluorinated Compounds by LCMSMS	EP231-PFC	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorped onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.

Preparation Methods	Method	Matrix	Method Descriptions
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House

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 SW 846 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: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231: Perfluorinated Compounds	EM1310688-030	AF40	**N-Me-FOSE**	2448-09-7	56.8 %	60-130%	**Recovery less than lower data quality objective**
EP231: Perfluorinated Compounds	EM1310688-030	AF40	**N-Et-FOSE**	1691-99-2	56.0 %	60-130%	**Recovery less than lower data quality objective**
EP231: Perfluorinated Compounds	EM1310688-010	AF01	**PFDcS**	67906-42-7	138 %	60-130%	**Recovery greater than upper data quality objective**
EP231: Perfluorinated Compounds	EM1310688-030	AF40	**PFHxA**	307-24-4	138 %	60-130%	**Recovery greater than upper data quality objective**
EP231: Perfluorinated Compounds	EM1310688-030	AF40	**PFDcA**	335-76-2	132 %	60-130%	**Recovery greater than upper data quality objective**
EP231: Perfluorinated Compounds	EM1310688-010	AF01	**PFTriA**	72629-94-8	135 %	60-130%	**Recovery greater than upper data quality objective**

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP231: Perfluorinated Compounds	3701616-002	---	**PFUnA**	2058-94-8	134 %	70-130%	**Recovery greater than upper control limit**

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

- **No Analysis Holding Time Outliers exist.**

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.**

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **EM131068s**	Page	: 1 of 10
Client	: CARDNO LANE PIPER PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: Fiskville		
C-O-C number	: ----	Date Samples Received	: 11-OCT-2013
Sampler	: MDR	Issue Date	: 23-OCT-2013
Order number	: ----		
		No. of samples received	: 76
Quote number	: MEBQ/115/13	No. of samples analysed	: 74

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

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **t OIL** 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
EA099: Morhunre Copuepu							
t pcB Loi k gc( )EA0995l1032							

Matrix: t OIL

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
EA099: Mor]unre Copuepu5Copupned							
AF07 (0.05), AF08, AF09, AF10 (0.05), AF11, AF12 (0.05), AF19, AF20 (0.05), AF21, AF22, AF23, AF24, AF29, AF30 (0.05), AF31, AF32, AF33 (0.05), AF35, AF36, AF37, AF42 (0.05), AF43, AF46 (0.05), AF50, AF51, AF52, AF53, AF54, AF55, AF56, AF57, AF58, AF59, AF60, AF61, AF62, AF63, AF64, AF65, AF66, AF67 (0.05), AF68, AF69, AF70, AF71 (0.05), AF72, AF73, AF74, AF75, AF76, AF77, AF78, AF79, AF80, AF82, AF83, AF84, AF85, AF86, AF07 (0.3), AF10 (0.3), AF12 (0.3), AF20 (0.3), AF30 (0.3), AF67 (0.3), AF71 (0.3), QC15_101013, QC17_101013, QC21_101013	105OCT5f013	5555	----	----	145OCT5f013	24-OCT-2013	✓

Matrix: t OIL

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
EPf 31: PerDhorrpcued Col Bonpd|							
t pcB Loi k gc( )EPf 312							
AF07 (0.05), AF08, AF09, AF10 (0.05), AF11, AF12 (0.05), AF19, AF20 (0.05), AF21, AF22, AF23, AF24, AF29, AF30 (0.05), AF31, AF32, AF33 (0.05), AF35, AF36, AF37, AF42 (0.05), AF43, AF46 (0.05), AF50, AF51, AF52, AF53, AF54, AF55, AF56, AF57, AF58, AF59, AF60, AF61, AF62, AF63, AF64, AF65, AF66, AF67 (0.05), AF68, AF69, AF70, AF71 (0.05), AF72, AF73, AF74, AF75, AF76, AF77, AF78, AF79, AF80, AF82, AF83, AF84, AF85, AF86, AF07 (0.3), AF10 (0.3), AF12 (0.3), AF20 (0.3), AF30 (0.3), AF67 (0.3), AF71 (0.3), QC15_101013, QC17_101013, QC21_101013	105OCT5f013	f f 5OCT5f013	08-APR-2014	✓	f f 5OCT5f013	01-DEC-2013	✓

Matrix: t OIL

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
EPf 31: PerDhorrpcued Col Bonpd|							
t pcB Loi k gc( )EPf 315PaC2							
AF07 (0.05), AF08, AF09, AF10 (0.05), AF11, AF12 (0.05), AF19, AF20 (0.05), AF21, AF22, AF23, AF24, AF29, AF30 (0.05), AF31, AF32, AF33 (0.05), AF35, AF36, AF37, AF42 (0.05), AF43, AF46 (0.05), AF50, AF51, AF52, AF53, AF54, AF55, AF56, AF57, AF58, AF59, AF60, AF61, AF62, AF63, AF64, AF65, AF66, AF67 (0.05), AF68, AF69, AF70, AF71 (0.05), AF72, AF73, AF74, AF75, AF76, AF77, AF78, AF79, AF80, AF82, AF83, AF84, AF85, AF86, AF07 (0.3), AF10 (0.3), AF12 (0.3), AF20 (0.3), AF30 (0.3), AF67 (0.3), AF71 (0.3), QC15_101013, QC17_101013, QC21_101013	105OCT5f013	f f 5OCT5f013	08-APR-2014	✓	f f 5OCT5f013	01-DEC-2013	✓

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

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
EPf 31: Per Dshorrpcued Col Bonpd|							
+. PE)po PTaE2)EPf 312							
QC07, QC24_101013, QC25_101013, QC22_101013, QC23_101013,	**105OCT5f013**	**555**	08-APR-2014	----	**ff 5OCT5f013**	08-APR-2014	✓
EPf 31: Per Dshorrpcued Col Bonpd|							
+. PE)po PTaE2)EPf 315PaC2							
QC07, QC24_101013, QC25_101013, QC22_101013, QC23_101013,	**105OCT5f013**	**555**	08-APR-2014	----	**ff 5OCT5f013**	08-APR-2014	✓

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: **t OIL**

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)							
Moisture Content	EA055-103	7	69	**10.1**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorinated Compounds by LCMSMS	EP231-PFC	7	69	**10.1**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	7	69	**10.1**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	4	69	**9.4**	**9.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	4	69	**9.4**	**9.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	4	69	**9.4**	**9.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	4	69	**9.4**	**9.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	4	69	**9.4**	**9.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	4	69	**9.4**	**9.0**	✓	NEPM 2013 Schedule B(3) and 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*	
Laboratory Duplicates (DUP)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	5	**f 0.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	5	**f 0.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	5	**f 0.0**	**9.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	5	**f 0.0**	**9.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	5	**f 0.0**	**9.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	5	**f 0.0**	**9.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	5	**f 0.0**	**9.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	5	**f 0.0**	**9.0**	✓	NEPM 2013 Schedule B(3) and 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
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 (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
Perfluorinated Compounds by LCMSMS	EP231-PFC	SOIL	In-House. A portion of soil is extracted with MTBE. The extract is taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
PFOS and PFOA	EP231	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorped onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.
Perfluorinated Compounds by LCMSMS	EP231-PFC	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorped onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.

Preparation Methods	Method	Matrix	Method Descriptions
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House

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 SW 846 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: t OIL

Compound Group Name	Laboratory Sample ID	Client Sample ID	ApcSyue	CAS Number	Data	Limits	Col l epu
Lcxorcuory CopuroSt Brhe)LCt 2Rei overra|							
EP231: Perfluorinated Compounds	3704926-002	---	PaOt A	754-91-6	135 %	60-130%	Rei overy (recuer uhcp nBBer i opuroS Shrra
EP231: Perfluorinated Compounds	3704926-002	---	N5Me5aOt A	31506-32-8	138 %	60-130%	Rei overy (recuer uhcp nBBer i opuroS Shrra
EP231: Perfluorinated Compounds	3704925-007	---	Pa+wA	307-24-4	130 %	60-130%	Rei overy (recuer uhcp nBBer i opuroS Shrra
Mcurnwt Brhe)Mt 2Rei overra|							
EP231: Perfluorinated Compounds	EM1310769-041	AF67 (0.05)	PaOt A	754-91-6	57.2 %	60-130%	Rei overy Se| | uhcp Sbqer dcuc bncSuy oxjei unve
EP231: Perfluorinated Compounds	EM1310769-041	AF67 (0.05)	N5Me5aOt E	2448-09-7	44.6 %	60-130%	Rei overy Se| | uhcp Sbqer dcuc bncSuy oxjei unve
EP231: Perfluorinated Compounds	EM1310769-041	AF67 (0.05)	N5Eu6aOt E	1691-99-2	52.0 %	60-130%	Rei overy Se| | uhcp Sbqer dcuc bncSuy oxjei unve
EP231: Perfluorinated Compounds	EM1310769-062	AF10 (0.3)	Pagt	375-73-5	132 %	60-130%	Rei overy (recuer uhcp nBBer dcuc bncSuy oxjei unve
EP231: Perfluorinated Compounds	EM1310769-001	AF07 (0.05)	PaNA	375-95-1	131 %	60-130%	Rei overy (recuer uhcp nBBer dcuc bncSuy oxjei unve
EP231: Perfluorinated Compounds	EM1310769-062	AF10 (0.3)	PaUpA	2058-94-8	52.0 %	60-130%	Rei overy Se| | uhcp Sbqer dcuc bncSuy oxjei unve
EP231: Perfluorinated Compounds	EM1310769-021	AF42 (0.05)	PaTrnA	72629-94-8	133 %	60-130%	Rei overy (recuer uhcp nBBer dcuc bncSuy oxjei unve
EP231: Perfluorinated Compounds	EM1310769-041	AF67 (0.05)	PaTeA	376-06-7	138 %	60-130%	Rei overy (recuer uhcp nBBer dcuc bncSuy oxjei unve

- **aor cSSl curnne\| , po Meuhod gSupk vcSne onuSar\| oi i nr7**
- **aor cSSl curnne\| , po . nBSincue onuSar\| oi i nr7**

Regular Sample Surrogates

- **aor cSSre(nSur | cl BSe l curnne\| , po | nrro(cue rei overy onuSar\| oi i nr7**

Outliers : Analysis Holding Time Compliance

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

- **No ApcSy\| rh + oSinp(Trh e OnuSar\| ewhu7**

Outliers : Frequency of Quality Control Samples

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

- **No QncSty CopuroSt cl BSe arebnepi y OnuSar| ewhu7**

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **EM1310980**	Page	: 1 of 5
Client	: CARDNO LANE PIPER PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31 REBATCH OF EM1310628 & EM1310688	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: Fiskville		
C-O-C number	: ----	Date Samples Received	: 17-OCT-2013
Sampler	: ----	Issue Date	: 28-OCT-2013
Order number	: ----		
		No. of samples received	: 4
Quote number	: MEBQ/115/13	No. of samples analysed	: 4

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

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

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 (EA055-103)							
AF81, AF87, AF44	**09-OCT-2013**	**----**	----	----	**22-OCT-2013**	23-OCT-2013	✓
EP231: Perfluorinated Compounds							
Snap Lock Bag (EP231)							
AF81, AF87, AF44	**09-OCT-2013**	**22-OCT-2013**	07-APR-2014	✓	**22-OCT-2013**	01-DEC-2013	✓

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
EP231: Perfluorinated Compounds							
HDPE (no PTFE) (EP231)							
D4WE2.7/081013	**08-OCT-2013**	**---**	06-APR-2014	----	**21-OCT-2013**	06-APR-2014	✓

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)							
Moisture Content	EA055-103	2	20	**10.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	3	**33.3**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	3	**33.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	3	**33.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	3	**33.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and 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*	
Laboratory Duplicates (DUP)							
PFOS and PFOA	EP231	1	7	**14.3**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PFOS and PFOA	EP231	1	7	**14.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PFOS and PFOA	EP231	1	7	**14.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PFOS and PFOA	EP231	1	7	**14.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and 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
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 (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
PFOS and PFOA	EP231	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorped onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.

Preparation Methods	Method	Matrix	Method Descriptions
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House

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 SW 846 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.

- **No Analysis Holding Time Outliers exist.**

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.**

Cardno LanePiper

Sediments

PM Name: Leigh McDonald **Field Staff:** Maria Delos Reyes

Phone: 03 9888 0100 **Fax:** 03 9808 3511 **Mobile:** 0424278497

Address: Building 2, 154 Highbury Rd, Burwood, Vic, 3125

PM Email: Leigh.Mcdonald@cardno.com.au, Maria.delosreyes@cardno.com.au

Project Number: 212163.31 **Site:** Fiskville

Laboratory (name, phone,fax no & contact person) ALS

	Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Sample Matrix: Water	Sediments / Soil			Sample preservation: Ice bricks	NaOH	HNO3	H2SO4	Na2S2O3	Analysis: PFCs: PFOS, PFOA, 6:2FTS AFFF EP231X	IWRG screen Water Screen	Metals	TRH	MAHs	PAH	PFOS, PFOA, 6:2 FTS				
1	D4SD 0-1/081013			08/10/13	11:30		X			X							X	X	X	X	X				
2	D4SD 0.3/081013		→ 1 Jar																		X				
3	D4SE 0-1/081013				1:00											X					X				
4	D4SE 0.5/081013		→ 1 Jar													[redacted]					X				
5	D4S F0-1/081013				2:00												X	X	X	X	X				
6	D4S F 0-2/081013		→ 1 Jar																		X				
7	D4SG 0-1/081013		2 Jars and 1 Bag		3:30											X					X				
8	D4S G 0.3/081013		→ 1 Jar																		X				
9	D4S H 0-1/081013				4:00												X	X	X	X	X				
10	D4S H 0.3/081013		→ 1 Jar																		X				
11	D4S 10-1/081013				4:30												X	X	X	X	X				
12	D4S 10-3/081013		→ 1 Jar																		X				

Sampler: I attest that the proper field sampling proceedures were used during the collection of these samples.

Sampler name: (print and signature) Maria Delos Reyes **Date:** 08/10/13

	Date	Time	Date
Relinquished by (Sampler): (print and signature) Maria Delos Reyes	8/10/13		
Relinquished by: (print and signature)		KHANH (ALS)	9/10 11:30
Relinquished by: (print and signature)			

Environmental Division
Melbourne
Work Order
EM1310629

Telephone : +61-3-8549 9600

Please supply results electronically in spreadsheet and ESDAT files.

Turn around time: (24 hour/48 hour/3 days/5 days) Please circle

Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: **EM1310629**		
Client	: **CARDNO LANE PIPER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31	Page	: 1 of 2
Order number	: ----		
C-O-C number	: ----	Quote number	: EM2013LANECON0039 (MEBQ/115/13)
Site	: Fiskville		
Sampler	: MDR	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 09-OCT-2013	Issue Date	: 10-OCT-2013 08:29
Client Requested Due Date	: 16-OCT-2013	Scheduled Reporting Date	: **18-OCT-2013**

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 12.0-13.0 - Ice present
No. of coolers/boxes	: 1	No. of samples received	: 12
Security Seal	: N/A	No. of samples analysed	: 12

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
- **Samples received in appropriately pretreated and preserved containers.**
- **The scheduled reporting date has been extended due to analytical testing conducted by ALS interstate laboratories. Please refer to your quotation for further information.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Please direct any queries related to sample condition / numbering / breakages to Peter Ravlic.**
- **Analytical work for this work order will be conducted at ALS Springvale and ALS Sydney.**
- Sample Disposal - Aqueous (14 days), Solid (60 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.

- **No sample container / preservation non-compliance exist.**

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 - EA055-103 Moisture Content	SOIL - EP231 Perfluorooctyl Acids and Sulfonates by LC/MS/MS	SOIL - P-16 IWRG 621	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-7 +MAH TRH/MAH/PAH
EM1310629-001	08-OCT-2013 11:30	D4SD 0.1/081013		✓		✓	✓
EM1310629-002	08-OCT-2013 11:30	D4SD 0.3/081013	✓	✓			
EM1310629-003	08-OCT-2013 13:00	D4SE 0.1/081013		✓	✓		
EM1310629-004	08-OCT-2013 13:00	D4SE 05/081013	✓	✓			
EM1310629-005	08-OCT-2013 14:00	D4SF 0.1/081013		✓		✓	✓
EM1310629-006	08-OCT-2013 14:00	D4SF 0.2/081013	✓	✓			
EM1310629-007	08-OCT-2013 15:30	D4SG 0.1/081013		✓	✓		
EM1310629-008	08-OCT-2013 15:30	D4SG 0.3/081013	✓	✓			
EM1310629-009	08-OCT-2013 16:00	D4SH 0.1/081013		✓		✓	✓
EM1310629-010	08-OCT-2013 16:00	D4SH 0.3/081013	✓	✓			
EM1310629-011	08-OCT-2013 16:30	D4SI 0.1/081013		✓		✓	✓
EM1310629-012	08-OCT-2013 16:30	D4SI 0.3/081013	✓	✓			

Proactive Holding Time Report

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

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	payables@lanepiper.com.au

LEIGH MCDONALD

- _AU Certificate of Analysis - NATA	Email	Leigh.Mcdonald@cardno.com.au
- _AU Interpretive QC Report - DEFAULT (Anon QCI Rep)	Email	Leigh.Mcdonald@cardno.com.au
- _AU QC Report - DEFAULT (Anon QC Rep) - NATA	Email	Leigh.Mcdonald@cardno.com.au
- A4 - AU Sample Receipt Notification - Environmental HT	Email	Leigh.Mcdonald@cardno.com.au
- AU IWRG 621 2009 Guideline Report (COA* GL* IWRG* 621)	Email	Leigh.Mcdonald@cardno.com.au
- Chain of Custody (CoC)	Email	Leigh.Mcdonald@cardno.com.au
- EDI Format - ESDAT	Email	Leigh.Mcdonald@cardno.com.au

MS MARIA DE LOS REYES

- _AU Certificate of Analysis - NATA (COA)	Email	maria.delosreyes@cardno.com.au
- _AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	maria.delosreyes@cardno.com.au
- _AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	maria.delosreyes@cardno.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	maria.delosreyes@cardno.com.au
- AU IWRG 621 2009 Guideline Report (COA* GL* IWRG* 621)	Email	maria.delosreyes@cardno.com.au
- Chain of Custody (CoC) (COC)	Email	maria.delosreyes@cardno.com.au
- EDI Format - ESDAT (ESDAT)	Email	maria.delosreyes@cardno.com.au

CERTIFICATE OF ANALYSIS

Work Order	: **EM1310629**	Page	: 1 of 19
Client	: **CARDNO LANE PIPER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 09-OCT-2013
Sampler	: MDR	Issue Date	: 17-OCT-2013
Site	: Fiskville		
		No. of samples received	: 14
Quote number	: MEBQ/115/13	No. of samples analysed	: 14

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
- Surrogate Control Limits

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

- **EP066-EM/EP075-EM: Particular sample EM1310629-007 required dilution prior to analysis due to matrix interferences. LOR values have been adjusted accordingly.**
- **EP231: PFOA & PFOS results are reported as an aggregate of linear and branched isomers.**
- **PFOS/PFOA (EP231) conducted by ALS Sydney, NATA accreditation no. 825, site no 10911.**

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*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics
Eric Chau	Metals Team Leader	Melbourne Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Inorganics
		Melbourne Organics
Nanthini Coilparampil	Laboratory Manager - Inorganics	Sydney Inorganics
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics
Xingbin Lin	Senior Organic Chemist	Melbourne Inorganics
		Melbourne Organics

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	D4SD 0.1/081013	D4SD 0.3/081013	D4SE 0.1/081013	D4SE 05/081013	D4SF 0.1/081013
				Client sampling date / time	08-OCT-2013 11:30	08-OCT-2013 11:30	08-OCT-2013 13:00	08-OCT-2013 13:00	08-OCT-2013 14:00
					EM1310629-001	EM1310629-002	EM1310629-003	EM1310629-004	EM1310629-005
EA001: pH in soil using 0.01M CaCl extract									
pH (CaCl2)	----	0.1	pH Unit		----	----	**5.3**	----	----
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		**44.9**	**5.3**	**49.0**	**6.1**	**39.7**
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		----	----	<5	----	----
Cadmium	7440-43-9	1	mg/kg		----	----	<1	----	----
Copper	7440-50-8	5	mg/kg		----	----	**10**	----	----
Lead	7439-92-1	5	mg/kg		----	----	**10**	----	----
Molybdenum	7439-98-7	2	mg/kg		----	----	<2	----	----
Nickel	7440-02-0	2	mg/kg		----	----	**18**	----	----
Selenium	7782-49-2	5	mg/kg		----	----	<5	----	----
Silver	7440-22-4	2	mg/kg		----	----	<2	----	----
Tin	7440-31-5	5	mg/kg		----	----	<5	----	----
Zinc	7440-66-6	5	mg/kg		----	----	**16**	----	----
Arsenic	7440-38-2	5	mg/kg		**18**	----	----	----	<5
Cadmium	7440-43-9	1	mg/kg		**2**	----	----	----	<1
Chromium	7440-47-3	2	mg/kg		**126**	----	----	----	**49**
Copper	7440-50-8	5	mg/kg		**15**	----	----	----	**10**
Lead	7439-92-1	5	mg/kg		**23**	----	----	----	**9**
Nickel	7440-02-0	2	mg/kg		**28**	----	----	----	**15**
Zinc	7440-66-6	5	mg/kg		**16**	----	----	----	**14**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	----	<0.1	----	<0.1
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		----	----	<0.5	----	----
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	1	mg/kg		----	----	<1	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		----	----	**160**	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	----	<0.1	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.2	mg/kg		----	----	<0.2	----	----

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	D4SD 0.1/081013	D4SD 0.3/081013	D4SE 0.1/081013	D4SE 05/081013	D4SF 0.1/081013
				Client sampling date / time	08-OCT-2013 11:30	08-OCT-2013 11:30	08-OCT-2013 13:00	08-OCT-2013 13:00	08-OCT-2013 14:00
					EM1310629-001	EM1310629-002	EM1310629-003	EM1310629-004	EM1310629-005
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg		----	----	<0.5	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	----	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	----	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	<0.5
Styrene	100-42-5	0.5	mg/kg		----	----	<0.5	----	----
Styrene	100-42-5	0.5	mg/kg		<0.5	----	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	----	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg		<0.5	----	----	----	<0.5
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg		----	----	<0.2	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg		<0.5	----	----	----	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		<0.5	----	----	----	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg		<0.5	----	----	----	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		<0.5	----	----	----	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg		<0.5	----	----	----	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg		<0.5	----	----	----	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg		<0.5	----	----	----	<0.5
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		----	----	<0.02	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		----	----	<0.01	----	----
Methylene chloride	75-09-2	0.4	mg/kg		----	----	<0.4	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		----	----	<0.02	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		----	----	<0.01	----	----
Chloroform	67-66-3	0.02	mg/kg		----	----	<0.02	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		----	----	<0.01	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		----	----	<0.01	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		----	----	<0.02	----	----
Trichloroethene	79-01-6	0.02	mg/kg		----	----	<0.02	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		----	----	<0.04	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		----	----	<0.02	----	----

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	D4SD 0.1/081013	D4SD 0.3/081013	D4SE 0.1/081013	D4SE 05/081013	D4SF 0.1/081013
				Client sampling date / time	08-OCT-2013 11:30	08-OCT-2013 11:30	08-OCT-2013 13:00	08-OCT-2013 13:00	08-OCT-2013 14:00
					EM1310629-001	EM1310629-002	EM1310629-003	EM1310629-004	EM1310629-005
EP074I: Volatile Halogenated Compounds - Continued									
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		----	----	<0.01	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		----	----	<0.02	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		----	----	<0.02	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		----	----	<0.02	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		----	----	<0.02	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		----	----	<0.02	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		----	----	<0.01	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		----	----	<0.01	----	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		----	----	<0.01	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		----	----	<0.5	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg		<0.5	----	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	**1.2**
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		----	----	<0.03	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		----	----	<0.03	----	----

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	D4SD 0.1/081013	D4SD 0.3/081013	D4SE 0.1/081013	D4SE 05/081013	D4SF 0.1/081013
				Client sampling date / time	08-OCT-2013 11:30	08-OCT-2013 11:30	08-OCT-2013 13:00	08-OCT-2013 13:00	08-OCT-2013 14:00
					EM1310629-001	EM1310629-002	EM1310629-003	EM1310629-004	EM1310629-005
EP075A: Phenolic Compounds (Halogenated) - Continued									
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		----	----	<0.03	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		----	----	<0.03	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		----	----	<0.05	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		----	----	<0.05	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		----	----	<0.03	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		----	----	<0.05	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg		----	----	<0.2	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		----	----	<0.03	----	----
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		----	----	<1	----	----
2-Methylphenol	95-48-7	1	mg/kg		----	----	<1	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	<1	----	----
2-Nitrophenol	88-75-5	1	mg/kg		----	----	<1	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		----	----	<1	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		----	----	<5	----	----
4-Nitrophenol	100-02-7	5	mg/kg		----	----	<5	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		----	----	<5	----	----
Dinoseb	88-85-7	5	mg/kg		----	----	<5	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		----	----	<5	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		----	----	<1	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		----	----	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		----	----	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		----	----	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		----	----	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		----	----	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		----	----	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		----	----	<0.5	----	----
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		----	----	<0.5	----	----

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	D4SD 0.1/081013	D4SD 0.3/081013	D4SE 0.1/081013	D4SE 05/081013	D4SF 0.1/081013
				Client sampling date / time	08-OCT-2013 11:30	08-OCT-2013 11:30	08-OCT-2013 13:00	08-OCT-2013 13:00	08-OCT-2013 14:00
					EM1310629-001	EM1310629-002	EM1310629-003	EM1310629-004	EM1310629-005
EP075B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	----	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	----	**1.2**	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		----	----	<0.03	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		----	----	<0.03	----	----
beta-BHC	319-85-7	0.03	mg/kg		----	----	<0.03	----	----
gamma-BHC	58-89-9	0.03	mg/kg		----	----	<0.03	----	----
delta-BHC	319-86-8	0.03	mg/kg		----	----	<0.03	----	----
Heptachlor	76-44-8	0.03	mg/kg		----	----	<0.03	----	----
Aldrin	309-00-2	0.03	mg/kg		----	----	<0.03	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		----	----	<0.03	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		----	----	<0.03	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		----	----	<0.03	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		----	----	<0.03	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	----	<0.05	----	----
Dieldrin	60-57-1	0.03	mg/kg		----	----	<0.03	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		----	----	<0.03	----	----
Endrin	72-20-8	0.03	mg/kg		----	----	<0.03	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		----	----	<0.03	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		----	----	<0.03	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		----	----	<0.05	----	----
Methoxychlor	72-43-5	0.03	mg/kg		----	----	<0.03	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		----	----	<0.03	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		----	----	<0.03	----	----
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg		----	----	<0.05	----	----
^ Chlordane	57-74-9	0.03	mg/kg		----	----	<0.03	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		----	----	<0.03	----	----

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	D4SD 0.1/081013	D4SD 0.3/081013	D4SE 0.1/081013	D4SE 05/081013	D4SF 0.1/081013
				Client sampling date / time	08-OCT-2013 11:30	08-OCT-2013 11:30	08-OCT-2013 13:00	08-OCT-2013 13:00	08-OCT-2013 14:00
					EM1310629-001	EM1310629-002	EM1310629-003	EM1310629-004	EM1310629-005
EP075I: Organochlorine Pesticides - Continued									
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	----	<10	----	----
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	<10
C10 - C14 Fraction	----	50	mg/kg		<50	----	<50	----	<50
C6 - C10 Fraction	C6_C10	10	mg/kg		----	----	<10	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	<100	----	<100
C29 - C36 Fraction	----	100	mg/kg		<100	----	<100	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	<50	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg		<50	----	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	----	<100	----	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	----	<100	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	<50	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	<50
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.0005	mg/kg		**0.0336**	<0.0005	**0.0325**	<0.0005	**0.0078**
PFOA	335-67-1	0.0005	mg/kg		**0.0006**	<0.0005	**0.0015**	<0.0005	<0.0005
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg		<0.005	<0.005	**0.009**	<0.005	<0.005
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	**76.6**	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		----	----	**67.4**	----	----
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**78.4**	----	----	----	**89.0**
Toluene-D8	2037-26-5	0.1	%		----	----	**71.2**	----	----
Toluene-D8	2037-26-5	0.1	%		**81.8**	----	----	----	**95.0**
4-Bromofluorobenzene	460-00-4	0.1	%		----	----	**70.8**	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**86.6**	----	----	----	**103**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		**80.9**	----	----	----	**81.3**
2-Chlorophenol-D4	93951-73-6	0.1	%		**83.6**	----	----	----	**85.6**
2.4.6-Tribromophenol	118-79-6	0.1	%		**67.8**	----	----	----	**75.5**

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	D4SD 0.1/081013	D4SD 0.3/081013	D4SE 0.1/081013	D4SE 05/081013	D4SF 0.1/081013
				Client sampling date / time	08-OCT-2013 11:30	08-OCT-2013 11:30	08-OCT-2013 13:00	08-OCT-2013 13:00	08-OCT-2013 14:00
					EM1310629-001	EM1310629-002	EM1310629-003	EM1310629-004	EM1310629-005
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		**92.5**	----	----	----	**95.2**
Anthracene-d10	1719-06-8	0.1	%		**96.4**	----	----	----	**98.3**
4-Terphenyl-d14	1718-51-0	0.1	%		**102**	----	----	----	**103**
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.1	%		----	----	**89.5**	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%		----	----	**85.2**	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%		----	----	**110**	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.1	%		----	----	**88.6**	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.1	%		----	----	**76.9**	----	----
2-Fluorobiphenyl	321-60-8	0.1	%		----	----	**86.8**	----	----
Anthracene-d10	1719-06-8	0.1	%		----	----	**95.2**	----	----
4-Terphenyl-d14	1718-51-0	0.1	%		----	----	**102**	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**74.8**	----	**54.6**	----	**84.6**
Toluene-D8	2037-26-5	0.1	%		**72.9**	----	**79.5**	----	**84.4**
4-Bromofluorobenzene	460-00-4	0.1	%		**85.2**	----	**69.1**	----	**99.7**

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	D4SF 0.2/081013	D4SG 0.1/081013	D4SG 0.3/081013	D4SH 0.1/081013	D4SH 0.3/081013
				Client sampling date / time	08-OCT-2013 14:00	08-OCT-2013 15:30	08-OCT-2013 15:30	08-OCT-2013 16:00	08-OCT-2013 16:00
					EM1310629-006	EM1310629-007	EM1310629-008	EM1310629-009	EM1310629-010
EA001: pH in soil using 0.01M CaCl extract									
pH (CaCl2)	----	0.1	pH Unit		----	6.0	----	----	----
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		19.2	4.8	4.8	3.8	5.4
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		----	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg		----	<1	----	----	----
Copper	7440-50-8	5	mg/kg		----	17	----	----	----
Lead	7439-92-1	5	mg/kg		----	11	----	----	----
Molybdenum	7439-98-7	2	mg/kg		----	2	----	----	----
Nickel	7440-02-0	2	mg/kg		----	26	----	----	----
Selenium	7782-49-2	5	mg/kg		----	<5	----	----	----
Silver	7440-22-4	2	mg/kg		----	<2	----	----	----
Tin	7440-31-5	5	mg/kg		----	<5	----	----	----
Zinc	7440-66-6	5	mg/kg		----	39	----	----	----
Arsenic	7440-38-2	5	mg/kg		----	----	----	<5	----
Cadmium	7440-43-9	1	mg/kg		----	----	----	<1	----
Chromium	7440-47-3	2	mg/kg		----	----	----	50	----
Copper	7440-50-8	5	mg/kg		----	----	----	16	----
Lead	7439-92-1	5	mg/kg		----	----	----	12	----
Nickel	7440-02-0	2	mg/kg		----	----	----	23	----
Zinc	7440-66-6	5	mg/kg		----	----	----	38	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		----	<0.1	----	<0.1	----
EG048: Hexavalent Chromium (Alkaline Digest)									
Hexavalent Chromium	18540-29-9	0.5	mg/kg		----	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	1	mg/kg		----	<1	----	----	----
EK040T: Fluoride Total									
Fluoride	16984-48-8	40	mg/kg		----	140	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	<0.3	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	----	<0.5	----

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	D4SF 0.2/081013	D4SG 0.1/081013	D4SG 0.3/081013	D4SH 0.1/081013	D4SH 0.3/081013
				Client sampling date / time	08-OCT-2013 14:00	08-OCT-2013 15:30	08-OCT-2013 15:30	08-OCT-2013 16:00	08-OCT-2013 16:00
					EM1310629-006	EM1310629-007	EM1310629-008	EM1310629-009	EM1310629-010
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg		----	----	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg		----	----	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		----	----	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg		----	----	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg		----	----	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg		----	----	----	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg		----	----	----	<0.5	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg		----	----	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	----	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	----	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	----	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	----	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	----	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	----	----	**0.6**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	----	----	**1.2**	----
EP075A: Phenolic Compounds (Halogenated)									
2-Chlorophenol	95-57-8	0.03	mg/kg		----	<0.03	----	----	----
2.4-Dichlorophenol	120-83-2	0.03	mg/kg		----	<0.03	----	----	----
2.6-Dichlorophenol	87-65-0	0.03	mg/kg		----	<0.03	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg		----	<0.03	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg		----	<0.05	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg		----	<0.05	----	----	----
2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg		----	<0.03	----	----	----
2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg		----	<0.07	----	----	----
Pentachlorophenol	87-86-5	0.2	mg/kg		----	<0.2	----	----	----
^ Sum of Phenols (halogenated)	----	0.03	mg/kg		----	<0.03	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)									
Phenol	108-95-2	1	mg/kg		----	<1	----	----	----
2-Methylphenol	95-48-7	1	mg/kg		----	<1	----	----	----

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	D4SF 0.2/081013	D4SG 0.1/081013	D4SG 0.3/081013	D4SH 0.1/081013	D4SH 0.3/081013
				Client sampling date / time	08-OCT-2013 14:00	08-OCT-2013 15:30	08-OCT-2013 15:30	08-OCT-2013 16:00	08-OCT-2013 16:00
					EM1310629-006	EM1310629-007	EM1310629-008	EM1310629-009	EM1310629-010
EP075A: Phenolic Compounds (Non-halogenated) - Continued									
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	----	----
2-Nitrophenol	88-75-5	1	mg/kg		----	<1	----	----	----
2.4-Dimethylphenol	105-67-9	1	mg/kg		----	<1	----	----	----
2.4-Dinitrophenol	51-28-5	5	mg/kg		----	<5	----	----	----
4-Nitrophenol	100-02-7	5	mg/kg		----	<5	----	----	----
2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg		----	<5	----	----	----
Dinoseb	88-85-7	5	mg/kg		----	<5	----	----	----
2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg		----	<5	----	----	----
^ Sum of Phenols (non-halogenated)	----	1	mg/kg		----	<1	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		----	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		----	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		----	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		----	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		----	<0.5	----	----	----
Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg		----	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**0.6**	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**1.2**	----	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	0.03	mg/kg		----	<0.03	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg		----	<0.03	----	----	----
beta-BHC	319-85-7	0.03	mg/kg		----	<0.03	----	----	----

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	D4SF 0.2/081013	D4SG 0.1/081013	D4SG 0.3/081013	D4SH 0.1/081013	D4SH 0.3/081013
				Client sampling date / time	08-OCT-2013 14:00	08-OCT-2013 15:30	08-OCT-2013 15:30	08-OCT-2013 16:00	08-OCT-2013 16:00
					EM1310629-006	EM1310629-007	EM1310629-008	EM1310629-009	EM1310629-010
EP075I: Organochlorine Pesticides - Continued									
gamma-BHC	58-89-9	0.03	mg/kg		----	<0.03	----	----	----
delta-BHC	319-86-8	0.03	mg/kg		----	<0.03	----	----	----
Heptachlor	76-44-8	0.03	mg/kg		----	<0.03	----	----	----
Aldrin	309-00-2	0.03	mg/kg		----	<0.03	----	----	----
Heptachlor epoxide	1024-57-3	0.03	mg/kg		----	<0.03	----	----	----
cis-Chlordane	5103-71-9	0.03	mg/kg		----	<0.03	----	----	----
trans-Chlordane	5103-74-2	0.03	mg/kg		----	<0.03	----	----	----
Endosulfan 1	959-98-8	0.03	mg/kg		----	<0.03	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	----	----
Dieldrin	60-57-1	0.03	mg/kg		----	<0.03	----	----	----
Endrin aldehyde	7421-93-4	0.03	mg/kg		----	<0.03	----	----	----
Endrin	72-20-8	0.03	mg/kg		----	<0.03	----	----	----
Endosulfan 2	33213-65-9	0.03	mg/kg		----	<0.03	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.03	mg/kg		----	<0.03	----	----	----
4.4`-DDT	50-29-3	0.05	mg/kg		----	<0.05	----	----	----
Methoxychlor	72-43-5	0.03	mg/kg		----	<0.03	----	----	----
^ Sum of organochlorine pesticides	----	0.03	mg/kg		----	<0.03	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.03	mg/kg		----	<0.03	----	----	----
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg		----	<0.05	----	----	----
^ Chlordane	57-74-9	0.03	mg/kg		----	<0.03	----	----	----
^ Sum of other organochlorine pesticides	----	0.03	mg/kg		----	<0.03	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C10 - C14 Fraction	----	50	mg/kg		----	<50	----	<50	----
C15 - C28 Fraction	----	100	mg/kg		----	<100	----	<100	----
C29 - C36 Fraction	----	100	mg/kg		----	<100	----	**120**	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	----	**120**	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013									
>C10 - C16 Fraction	>C10_C16	50	mg/kg		----	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg		----	**130**	----	**150**	----
>C34 - C40 Fraction	----	100	mg/kg		----	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	**130**	----	**150**	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	----	----	<50	----

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	D4SF 0.2/081013	D4SG 0.1/081013	D4SG 0.3/081013	D4SH 0.1/081013	D4SH 0.3/081013
				Client sampling date / time	08-OCT-2013 14:00	08-OCT-2013 15:30	08-OCT-2013 15:30	08-OCT-2013 16:00	08-OCT-2013 16:00
					EM1310629-006	EM1310629-007	EM1310629-008	EM1310629-009	EM1310629-010
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.0005	mg/kg		<0.0005	**0.0607**	<0.0005	**0.0620**	<0.0005
PFOA	335-67-1	0.0005	mg/kg		<0.0005	**0.0012**	<0.0005	**0.0015**	<0.0005
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg		<0.005	**0.011**	<0.005	**0.011**	<0.005
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	**67.0**	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		----	**71.9**	----	----	----
Toluene-D8	2037-26-5	0.1	%		----	**80.8**	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		----	**81.3**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		----	----	----	**82.4**	----
2-Chlorophenol-D4	93951-73-6	0.1	%		----	----	----	**83.2**	----
2.4.6-Tribromophenol	118-79-6	0.1	%		----	----	----	**78.9**	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		----	----	----	**96.4**	----
Anthracene-d10	1719-06-8	0.1	%		----	----	----	**97.6**	----
4-Terphenyl-d14	1718-51-0	0.1	%		----	----	----	**96.8**	----
EP075S: Acid Extractable Surrogates									
Phenol-d6	13127-88-3	0.1	%		----	**86.8**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%		----	**74.9**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%		----	**82.2**	----	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	0.1	%		----	**87.2**	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	0.1	%		----	**71.6**	----	----	----
2-Fluorobiphenyl	321-60-8	0.1	%		----	**88.7**	----	----	----
Anthracene-d10	1719-06-8	0.1	%		----	**86.3**	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%		----	**86.8**	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		----	**53.2**	----	----	----
Toluene-D8	2037-26-5	0.1	%		----	**75.9**	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		----	**69.2**	----	----	----

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	D4SI 0.1/081013	D4SI 0.3/081013	D4SG 0.1/081013 Volatiles	D4SH 0.1/081013 Volatiles	----
				Client sampling date / time	08-OCT-2013 16:30	08-OCT-2013 16:30	08-OCT-2013 15:30	08-OCT-2013 16:00	----
					EM1310629-011	EM1310629-012	EM1310629-013	EM1310629-014	----
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		36.8	6.2	53.3	64.7	----
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg		22	----	----	----	----
Copper	7440-50-8	5	mg/kg		6	----	----	----	----
Lead	7439-92-1	5	mg/kg		10	----	----	----	----
Nickel	7440-02-0	2	mg/kg		8	----	----	----	----
Zinc	7440-66-6	5	mg/kg		10	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Benzene	71-43-2	0.2	mg/kg		----	----	<0.2	----	----
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg		----	----	<0.5	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		----	----	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	----	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	<0.5	----
Styrene	100-42-5	0.5	mg/kg		----	----	<0.5	----	----
Styrene	100-42-5	0.5	mg/kg		<0.5	----	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	----	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg		<0.5	----	----	<0.5	----
^ Sum of monocyclic aromatic hydrocarbons	----	0.2	mg/kg		----	----	<0.2	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg		<0.5	----	----	<0.5	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		<0.5	----	----	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg		<0.5	----	----	<0.5	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		<0.5	----	----	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg		<0.5	----	----	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg		<0.5	----	----	<0.5	----

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	D4SI 0.1/081013	D4SI 0.3/081013	D4SG 0.1/081013 Volatiles	D4SH 0.1/081013 Volatiles	----
				Client sampling date / time	08-OCT-2013 16:30	08-OCT-2013 16:30	08-OCT-2013 15:30	08-OCT-2013 16:00	----
					EM1310629-011	EM1310629-012	EM1310629-013	EM1310629-014	----
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
n-Butylbenzene	104-51-8	0.5	mg/kg		<0.5	----	----	<0.5	----
EP074I: Volatile Halogenated Compounds									
Vinyl chloride	75-01-4	0.02	mg/kg		----	----	<0.02	----	----
1.1-Dichloroethene	75-35-4	0.01	mg/kg		----	----	<0.01	----	----
Methylene chloride	75-09-2	0.4	mg/kg		----	----	<0.4	----	----
trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg		----	----	<0.02	----	----
cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg		----	----	<0.01	----	----
Chloroform	67-66-3	0.02	mg/kg		----	----	<0.02	----	----
1.1.1-Trichloroethane	71-55-6	0.01	mg/kg		----	----	<0.01	----	----
Carbon Tetrachloride	56-23-5	0.01	mg/kg		----	----	<0.01	----	----
1.2-Dichloroethane	107-06-2	0.02	mg/kg		----	----	<0.02	----	----
Trichloroethene	79-01-6	0.02	mg/kg		----	----	<0.02	----	----
1.1.2-Trichloroethane	79-00-5	0.04	mg/kg		----	----	<0.04	----	----
Tetrachloroethene	127-18-4	0.02	mg/kg		----	----	<0.02	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg		----	----	<0.01	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg		----	----	<0.02	----	----
Hexachlorobutadiene	87-68-3	0.02	mg/kg		----	----	<0.02	----	----
Chlorobenzene	108-90-7	0.02	mg/kg		----	----	<0.02	----	----
1.4-Dichlorobenzene	106-46-7	0.02	mg/kg		----	----	<0.02	----	----
1.2-Dichlorobenzene	95-50-1	0.02	mg/kg		----	----	<0.02	----	----
1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg		----	----	<0.01	----	----
^ Sum of volatile chlorinated hydrocarbons	----	0.01	mg/kg		----	----	<0.01	----	----
^ Sum of other chlorinated hydrocarbons	----	0.01	mg/kg		----	----	<0.01	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		----	----	<0.5	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SEDIMENT (Matrix: SOIL)				Client sample ID	D4SI 0.1/081013	D4SI 0.3/081013	D4SG 0.1/081013 Volatiles	D4SH 0.1/081013 Volatiles	----
				Client sampling date / time	08-OCT-2013 16:30	08-OCT-2013 16:30	08-OCT-2013 15:30	08-OCT-2013 16:00	----
Compound	CAS Number	LOR	Unit		EM1310629-011	EM1310629-012	EM1310629-013	EM1310629-014	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg		<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	----	<10	----	----
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	<10	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C6 - C10 Fraction	C6_C10	10	mg/kg		----	----	<10	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	<10	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.0005	mg/kg		**0.178**	<0.0005	----	----	----
PFOA	335-67-1	0.0005	mg/kg		**0.0060**	<0.0005	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg		**0.038**	<0.005	----	----	----

Analytical Results

Sub-Matrix: **SEDIMENT** (Matrix: **SOIL**)

				Client sample ID	D4SI 0.1/081013	D4SI 0.3/081013	D4SG 0.1/081013 Volatiles	D4SH 0.1/081013 Volatiles	----
				Client sampling date / time	08-OCT-2013 16:30	08-OCT-2013 16:30	08-OCT-2013 15:30	08-OCT-2013 16:00	----
Compound	*CAS Number*	*LOR*	*Unit*		**EM1310629-011**	**EM1310629-012**	**EM1310629-013**	**EM1310629-014**	**----**
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		----	----	**71.9**	----	----
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**83.6**	----	----	**74.7**	----
Toluene-D8	2037-26-5	0.1	%		----	----	**80.8**	----	----
Toluene-D8	2037-26-5	0.1	%		**88.2**	----	----	**78.6**	----
4-Bromofluorobenzene	460-00-4	0.1	%		----	----	**81.3**	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		**91.9**	----	----	**82.8**	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		**77.5**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%		**80.9**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%		**67.4**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		**90.0**	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%		**91.4**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%		**91.7**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		**79.3**	----	----	**71.0**	----
Toluene-D8	2037-26-5	0.1	%		**78.5**	----	----	**70.0**	----
4-Bromofluorobenzene	460-00-4	0.1	%		**89.4**	----	----	**81.4**	----

Surrogate Control Limits

Sub-Matrix: **SEDIMENT**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	38	122
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	62	122
Toluene-D8	2037-26-5	64	120
4-Bromofluorobenzene	460-00-4	66	124
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP075S: Acid Extractable Surrogates			
Phenol-d6	13127-88-3	25.3	119
2-Chlorophenol-D4	93951-73-6	22.1	119
2.4.6-Tribromophenol	118-79-6	11.3	133
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	28.7	122
1.2-Dichlorobenzene-D4	2199-69-1	30	114
2-Fluorobiphenyl	321-60-8	35	126
Anthracene-d10	1719-06-8	40	135
4-Terphenyl-d14	1718-51-0	42	133
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	51	133

Environmental Division

Automated Guideline Comparison Report

Work Order	: **EM1310629**	Page	: 1 of 8
Client	: **CARDNO LANE PIPER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD		
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: Melbourne.Enviro.Services@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31	Date Received	: 09-OCT-2013
Order number	: ----	Date Analysed	: 10-OCT-2013
C-O-C number	: ----	Date Issued	: 17-OCT-2013
No. of samples received	: 14		
No. of samples analysed	: 14	Quote number	: MEBQ/115/13

General Comments

This guideline comparison report only provides evaluation data where chemical parameters specifically listed within the IWRG 621 (2009) guideline are analysed by ALS using **P-16 package in full.**

This guideline comparison report **only** provides evaluation of total concentration data against upper limit thresholds for the 'Fill Material', 'C', 'B' Categories.

This Automated Guideline Comparison report assesses potential chemical 'contaminants' versus guideline criteria. Other parameters may impact classification and 95% upper control limits may also be applied – refer to EPA Victoria's Industrial Waste Resource Regulatory Framework and associated Guidelines.

If the total concentration of Polychlorinated biphenyls is equal to, or exceeds, the upper limit threshold for the 'Fill Material' Category, please refer to Note 6 in EPA Victoria Publication IWRG 621 (2009).

Red shading is applied where the result is equal to or greater than the guideline upper limit. Red shading is not applied to the Summary of Thresholds Reached or Exceeded.

For the 'Summary of Thresholds Reached or Exceeded' to accurately function, all samples must be analysed and included in the 'Analytical Results' section of the following report. Please verify that all required sample IDs are listed and analysed.

Summary of Thresholds Reached or Exceeded

Results for all samples detailed in this report do not exceed threshold limits for fill material.

Analytical Results

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SEDIMENT**

Compound	Method	LOR	Unit	Client sample ID / Sampling date/time	Guideline Lower Limit	Guideline Upper Limit	D4SE 0.1/081013 08-OCT-2013 13:00 EM1310629-003	D4SG 0.1/081013 08-OCT-2013 15:30 EM1310629-007	----	----	----
EA001: pH in soil using 0.01M CaCl extract											
pH (CaCl2)	EA001-PR/EA001	0.1	pH Unit		4	9	**5.3**	**6.0**	----	----	----
EG005T: Total Metals by ICP-AES											
Arsenic	EN69/EG005T	5	mg/kg		----	20	<5	<5	----	----	----
Cadmium	EN69/EG005T	1	mg/kg		----	3	<1	<1	----	----	----
Copper	EN69/EG005T	5	mg/kg		----	100	**10**	**17**	----	----	----
Lead	EN69/EG005T	5	mg/kg		----	300	**10**	**11**	----	----	----
Molybdenum	EN69/EG005T	2	mg/kg		----	40	<2	**2**	----	----	----
Nickel	EN69/EG005T	2	mg/kg		----	60	**18**	**26**	----	----	----
Selenium	EN69/EG005T	5	mg/kg		----	10	<5	<5	----	----	----
Silver	EN69/EG005T	2	mg/kg		----	10	<2	<2	----	----	----
Tin	EN69/EG005T	5	mg/kg		----	50	<5	<5	----	----	----
Zinc	EN69/EG005T	5	mg/kg		----	200	**16**	**39**	----	----	----
EG035T: Total Recoverable Mercury by FIMS											
Mercury	EN69/EG035T	0.1	mg/kg		----	1	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)											
Hexavalent Chromium	EG048PR/EG048	0.5	mg/kg		----	1	<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser											
Total Cyanide	CN-PR/EK026SF	1	mg/kg		----	50	<1	<1	----	----	----
EK040T: Fluoride Total											
Fluoride	EK040T-PR/EK040T	40	mg/kg		----	450	**160**	**140**	----	----	----
EP066: Polychlorinated Biphenyls (PCB)											
Total Polychlorinated biphenyls	ORG17A-EM/EP066-EM	0.1	mg/kg		----	2	<0.1	<0.3	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons											
Benzene	ORG16-UT/EP074-UT	0.2	mg/kg		----	1	<0.2	----	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg		----	7	<0.2	----	----	----	----
EP074I: Volatile Halogenated Compounds											
Sum of volatile chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg		----	1	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)											
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg		----	1	<0.03	<0.03	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)											

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Fill Material

Sub-Matrix: **SEDIMENT**

Compound	*Method*	*LOR*	*Unit*	*Client sample ID* / *Sampling date/time*	Guideline Lower Limit	Guideline Upper Limit	**D4SE 0.1/081013** 08-OCT-2013 13:00 **EM1310629-003**	**D4SG 0.1/081013** 08-OCT-2013 15:30 **EM1310629-007**	---- ---- **----**	---- ---- **----**	---- ---- **----**
EP075A: Phenolic Compounds (Non-halogenated) - Continued											
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg		----	60	<1	<1	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons											
Benzo(a)pyrene	ORG17A-EM/EP075-EM	0.5	mg/kg		----	1	<0.5	<0.5	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg		----	20	<0.5	<0.5	----	----	----
EP075I: Organochlorine Pesticides											
Sum of organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg		----	1	<0.03	<0.03	----	----	----
EP080/071: Total Petroleum Hydrocarbons											
C6 - C9 Fraction	ORG16-UT/EP074-UT	10	mg/kg		----	100	<10	----	----	----	----
C10 - C36 Fraction (sum)	ORG17B/EP071	50	mg/kg		----	1000	<50	<50	----	----	----

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SEDIMENT**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	D4SE 0.1/081013	D4SG 0.1/081013	----	----	----
Client sample ID										
Sampling date/time						08-OCT-2013 13:00	08-OCT-2013 15:30	----	----	----
						EM1310629-003	EM1310629-007	----	----	----
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001-PR/EA001	0.1	pH Unit	4	9	**5.3**	**6.0**	----	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EN69/EG005T	5	mg/kg	----	500	<5	<5	----	----	----
Cadmium	EN69/EG005T	1	mg/kg	----	100	<1	<1	----	----	----
Copper	EN69/EG005T	5	mg/kg	----	5000	**10**	**17**	----	----	----
Lead	EN69/EG005T	5	mg/kg	----	1500	**10**	**11**	----	----	----
Molybdenum	EN69/EG005T	2	mg/kg	----	1000	<2	**2**	----	----	----
Nickel	EN69/EG005T	2	mg/kg	----	3000	**18**	**26**	----	----	----
Selenium	EN69/EG005T	5	mg/kg	----	50	<5	<5	----	----	----
Silver	EN69/EG005T	2	mg/kg	----	180	<2	<2	----	----	----
Tin	EN69/EG005T	5	mg/kg	----	500	<5	<5	----	----	----
Zinc	EN69/EG005T	5	mg/kg	----	35000	**16**	**39**	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EN69/EG035T	0.1	mg/kg	----	75	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048PR/EG048	0.5	mg/kg	----	500	<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	CN-PR/EK026SF	1	mg/kg	----	2500	<1	<1	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T-PR/EK040T	40	mg/kg	----	10000	**160**	**140**	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	ORG16-UT/EP074-UT	0.2	mg/kg	----	4	<0.2	----	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	70	<0.2	----	----	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	ORG16-UT/EP074-UT	0.02	mg/kg	----	1.2	<0.02	----	----	----	----
Hexachlorobutadiene	ORG16-UT/EP074-UT	0.02	mg/kg	----	2.8	<0.02	----	----	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	10	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	560	<1	<1	----	----	----

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Category C

Sub-Matrix: **SEDIMENT**

Compound	*Method*	*LOR*	*Unit*	Guideline Lower Limit	Guideline Upper Limit	*Client sample ID* **D4SE 0.1/081013**	**D4SG 0.1/081013**	----	----	----
						Sampling date/time 08-OCT-2013 13:00	08-OCT-2013 15:30	----	----	----
						EM1310629-003	**EM1310629-007**	**----**	**----**	**----**
EP075B: Polynuclear Aromatic Hydrocarbons										
Benzo(a)pyrene	ORG17A-EM/EP075-EM	0.5	mg/kg	----	5	<0.5	<0.5	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	100	<0.5	<0.5	----	----	----
EP075I: Organochlorine Pesticides										
Heptachlor	ORG17A-EM/EP075-EM	0.03	mg/kg	----	1.2	<0.03	<0.03	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	1.2	<0.03	<0.03	----	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	----	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	4	<0.03	<0.03	----	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	10	<0.03	<0.03	----	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	ORG16-UT/EP074-UT	10	mg/kg	----	650	<10	----	----	----	----
C10 - C36 Fraction (sum)	ORG17B/EP071	50	mg/kg	----	10000	<50	<50	----	----	----

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SEDIMENT**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: D4SE 0.1/081013	Client sample ID: D4SG 0.1/081013	----	----	----
				Sampling date/time		08-OCT-2013 13:00	08-OCT-2013 15:30	----	----	----
						EM1310629-003	EM1310629-007	----	----	----
EA001: pH in soil using 0.01M CaCl extract										
pH (CaCl2)	EA001-PR/EA001	0.1	pH Unit	2	12.5	**5.3**	**6.0**	----	----	----
EG005T: Total Metals by ICP-AES										
Arsenic	EN69/EG005T	5	mg/kg	----	2000	<5	<5	----	----	----
Cadmium	EN69/EG005T	1	mg/kg	----	400	<1	<1	----	----	----
Copper	EN69/EG005T	5	mg/kg	----	20000	**10**	**17**	----	----	----
Lead	EN69/EG005T	5	mg/kg	----	6000	**10**	**11**	----	----	----
Molybdenum	EN69/EG005T	2	mg/kg	----	4000	<2	**2**	----	----	----
Nickel	EN69/EG005T	2	mg/kg	----	12000	**18**	**26**	----	----	----
Selenium	EN69/EG005T	5	mg/kg	----	200	<5	<5	----	----	----
Silver	EN69/EG005T	2	mg/kg	----	720	<2	<2	----	----	----
Zinc	EN69/EG005T	5	mg/kg	----	140000	**16**	**39**	----	----	----
EG035T: Total Recoverable Mercury by FIMS										
Mercury	EN69/EG035T	0.1	mg/kg	----	300	<0.1	<0.1	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)										
Hexavalent Chromium	EG048PR/EG048	0.5	mg/kg	----	2000	<0.5	<0.5	----	----	----
EK026SF: Total CN by Segmented Flow Analyser										
Total Cyanide	CN-PR/EK026SF	1	mg/kg	----	10000	<1	<1	----	----	----
EK040T: Fluoride Total										
Fluoride	EK040T-PR/EK040T	40	mg/kg	----	40000	**160**	**140**	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons										
Benzene	ORG16-UT/EP074-UT	0.2	mg/kg	----	16	<0.2	----	----	----	----
Sum of monocyclic aromatic hydrocarbons	EP074-UT-SUM	0.2	mg/kg	----	240	<0.2	----	----	----	----
EP074I: Volatile Halogenated Compounds										
Vinyl chloride	ORG16-UT/EP074-UT	0.02	mg/kg	----	4.8	<0.02	----	----	----	----
Hexachlorobutadiene	ORG16-UT/EP074-UT	0.02	mg/kg	----	11	<0.02	----	----	----	----
Sum of other chlorinated hydrocarbons	EP074-UT-SUM	0.01	mg/kg	----	50	<0.01	----	----	----	----
EP075A: Phenolic Compounds (Halogenated)										
Sum of Phenols (halogenated)	EP075-EM-SUM	0.03	mg/kg	----	320	<0.03	<0.03	----	----	----
EP075A: Phenolic Compounds (Non-halogenated)										
Sum of Phenols (non-halogenated)	EP075-EM-SUM	1	mg/kg	----	2200	<1	<1	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons										

EPA Victoria Publication IWRG 621 (2009)

Table 2: Soil Hazard Categorisation Thresholds : Category B

Sub-Matrix: **SEDIMENT**

Compound	Method	LOR	Unit	Guideline Lower Limit	Guideline Upper Limit	Client sample ID: D4SE 0.1/081013	Client sample ID: D4SG 0.1/081013	----	----	----
						Sampling date/time: 08-OCT-2013 13:00	Sampling date/time: 08-OCT-2013 15:30	----	----	----
						EM1310629-003	EM1310629-007	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons - Continued										
Benzo(a)pyrene	ORG17A-EM/EP075-EM	0.5	mg/kg	----	20	<0.5	<0.5	----	----	----
Sum of polycyclic aromatic hydrocarbons	EP075-EM-SUM	0.5	mg/kg	----	400	<0.5	<0.5	----	----	----
EP075I: Organochlorine Pesticides										
Heptachlor	ORG17A-EM/EP075-EM	0.03	mg/kg	----	4.8	<0.03	<0.03	----	----	----
Sum of Aldrin + Dieldrin	EP075-EM-SUM	0.03	mg/kg	----	4.8	<0.03	<0.03	----	----	----
Sum of DDD + DDE + DDT	EP075-EM-SUM	0.05	mg/kg	----	50	<0.05	<0.05	----	----	----
Chlordane	EP075-EM-SUM	0.03	mg/kg	----	16	<0.03	<0.03	----	----	----
Sum of other organochlorine pesticides	EP075-EM-SUM	0.03	mg/kg	----	50	<0.03	<0.03	----	----	----
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction	ORG16-UT/EP074-UT	10	mg/kg	----	2600	<10	----	----	----	----
C10 - C36 Fraction (sum)	ORG17B/EP071	50	mg/kg	----	40000	<50	<50	----	----	----

Note: Red shading is applied where the result is equal to or greater than the Guideline Limit.

QUALITY CONTROL REPORT

Work Order	: **EM1310629**	Page	: 1 of 21
Client	: **CARDNO LANE PIPER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: Fiskville		
C-O-C number	: ----	Date Samples Received	: 09-OCT-2013
Sampler	: MDR	Issue Date	: 17-OCT-2013
Order number	: ----		
		No. of samples received	: 14
Quote number	: MEBQ/115/13	No. of samples analysed	: 14

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

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

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*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics
Eric Chau	Metals Team Leader	Melbourne Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Inorganics
		Melbourne Organics
Nanthini Coilparampil	Laboratory Manager - Inorganics	Sydney Inorganics
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics
Xingbin Lin	Senior Organic Chemist	Melbourne Inorganics
		Melbourne Organics

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 (%)*
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 3100197)									
EM1310629-003	D4SE 0.1/081013	EA001: pH (CaCl2)	----	0.1	pH Unit	5.3	5.4	1.9	0% - 20%
EM1310644-002	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	7.3	7.3	0.0	0% - 20%
EA055: Moisture Content (QC Lot: 3099502)									
EM1310593-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.3	12.7	4.8	0% - 50%
EM1310594-002	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	<1.0	1.1	0.0	No Limit
EA055: Moisture Content (QC Lot: 3099503)									
EM1310629-005	D4SF 0.1/081013	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	39.7	37.4	5.9	0% - 20%
EM1310635-009	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	7.7	8.0	3.3	No Limit
EA055: Moisture Content (QC Lot: 3105026)									
EM1310629-006	D4SF 0.2/081013	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	19.2	12.5	42.2	0% - 50%
ES1322112-021	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	5.2	4.2	21.1	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 3105341)									
EM1310558-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	9	0.0	No Limit
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
EM1310629-003	D4SE 0.1/081013	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	48	51	6.4	0% - 20%
		EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	18	19	0.0	No Limit
		EG005T: Silver	7440-22-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	10	11	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	11	12.9	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Tin	7440-31-5	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	16	15	10.1	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3105342)									

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 (%)*
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3105342) - continued									
EM1310558-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM1310629-003	D4SE 0.1/081013	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 3106342)									
EM1310629-003	D4SE 0.1/081013	EG048: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM1310648-009	Anonymous	EG048: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EK026SF: Total CN by Segmented Flow Analyser (QC Lot: 3105073)									
EM1310517-003	Anonymous	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EM1310629-003	D4SE 0.1/081013	EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	<1	0.0	No Limit
EK040T: Fluoride Total (QC Lot: 3099458)									
EM1310629-003	D4SE 0.1/081013	EK040T: Fluoride	16984-48-8	40	mg/kg	160	160	0.0	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3105079)									
EM1310517-003	Anonymous	EP066-EM: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.3	<0.3	0.0	No Limit
EM1310629-007	D4SG 0.1/081013	EP066-EM: Total Polychlorinated biphenyls	---	0.1	mg/kg	<0.3	<0.3	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3099452)									
EM1310593-001	Anonymous	EP074: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM1310629-005	D4SF 0.1/081013	EP074: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	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 (%)*
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3099452) - continued									
EM1310629-005	D4SF 0.1/081013	EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3099454)									
EM1310629-003	D4SE 0.1/081013	EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP074-UT: Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP074I: Volatile Halogenated Compounds (QC Lot: 3099454)									
EM1310629-003	D4SE 0.1/081013	EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	<0.01	0.0	No Limit
		EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	<0.04	0.0	No Limit
		EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	<0.4	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3099492)									
EM1310593-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	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 (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3099492) - continued									
EM1310593-001	Anonymous	EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM1310629-005	D4SF 0.1/081013	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 3105078)									
EM1310517-003	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.07	<0.07	0.0	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EM1310629-007	D4SG 0.1/081013	EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	<0.03	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 (%)*
EP075A: Phenolic Compounds (Halogenated) (QC Lot: 3105078) - continued									
EM1310629-007	D4SG 0.1/081013	EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/58-90-2	0.05	mg/kg	<0.07	<0.07	0.0	No Limit
		EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075A: Phenolic Compounds (Non-halogenated) (QC Lot: 3105078)									
EM1310517-003	Anonymous	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.0	No Limit
EM1310629-007	D4SG 0.1/081013	EP075-EM: Phenol	108-95-2	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Methylphenol	95-48-7	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2-Nitrophenol	88-75-5	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dimethylphenol	105-67-9	1	mg/kg	<1	<1	0.0	No Limit
		EP075-EM: 2.4-Dinitrophenol	51-28-5	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 4-Nitrophenol	100-02-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: Dinoseb	88-85-7	5	mg/kg	<5	<5	0.0	No Limit
		EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	5	mg/kg	<5	<5	0.0	No Limit
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3105078)									
EM1310517-003	Anonymous	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	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 (%)*
EP075B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3105078) - continued									
EM1310517-003	Anonymous	EP075-EM: Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EM1310629-007	D4SG 0.1/081013	EP075-EM: Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075I: Organochlorine Pesticides (QC Lot: 3105078)									
EM1310517-003	Anonymous	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.04	<0.04	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.04	<0.04	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 (%)*
EP075I: Organochlorine Pesticides (QC Lot: 3105078) - continued									
EM1310517-003	Anonymous	EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EM1310629-007	D4SG 0.1/081013	EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	<0.03	0.0	No Limit
		EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3099451)									
EM1310593-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EM1310629-005	D4SF 0.1/081013	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3099454)									
EM1310629-003	D4SE 0.1/081013	EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
		EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3099491)									
EM1310593-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.0	No Limit
EM1310629-005	D4SF 0.1/081013	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3099451)									
EM1310593-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	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 (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3099451) - continued									
EM1310629-005	D4SF 0.1/081013	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QC Lot: 3099491)									
EM1310593-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.0	No Limit
EM1310629-005	D4SF 0.1/081013	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.0	No Limit
EP231: Perfluorinated Compounds (QC Lot: 3102657)									
EM1310629-001	D4SD 0.1/081013	EP231: PFOS	1763-23-1	0.0005	mg/kg	0.0336	0.0287	15.6	0% - 20%
		EP231: PFOA	335-67-1	0.0005	mg/kg	0.0006	0.0006	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.007	28.1	No Limit
EM1310629-011	D4SI 0.1/081013	EP231: PFOS	1763-23-1	0.0005	mg/kg	0.178	0.203	13.2	0% - 20%
		EP231: PFOA	335-67-1	0.0005	mg/kg	0.0060	0.0048	23.6	0% - 50%
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	0.038	0.020	61.5	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
EG005T: Total Metals by ICP-AES (QCLot: 3105341)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	94.7	77	115
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	99.4	87	115
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	103	89	113
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	104	90	116
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	89.4	83	107
EG005T: Molybdenum	7439-98-7	2	mg/kg	<2	7.9 mg/kg	100	84	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	99.3	89	111
EG005T: Selenium	7782-49-2	5	mg/kg	<5	5.37 mg/kg	101	93	109
EG005T: Silver	7440-22-4	2	mg/kg	<2	2.10 mg/kg	91.9	80	108
EG005T: Tin	7440-31-5	5	mg/kg	<5	5.2 mg/kg	105	94	114
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	89.7	87	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3105342)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	92.0	87	101
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 3106342)								
EG048: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	40 mg/kg	95.3	70	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 3105073)								
EK026SF: Total Cyanide	57-12-5	1	mg/kg	<1	20 mg/kg	88.4	82	110
EK040T: Fluoride Total (QCLot: 3099458)								
EK040T: Fluoride	16984-48-8	40	mg/kg	<40	950 mg/kg	88.5	75	108
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3105079)								
EP066-EM: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	0.5 mg/kg	87.3	55	133
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3099452)								
EP074: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	99.7	69	121
EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	108	74	120
EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	99.2	71	117
EP074: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	104	69	123
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	97.4	68	116
EP074: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	104	75	119
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	98.3	67	119
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	84.8	63	113
EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	86.4	65	111
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	87.1	63	115
EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	89.4	63	113

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
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3099452) - continued								
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	89.7	65	113
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	87.0	62	114
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	82.3	54	116
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3099454)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	94.1	73	119
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	98.3	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	95.5	72	116
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	97.1	71	115
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	97.0	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	94.2	71	115
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3102107)								
EP074: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	99.7	69	121
EP074: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	108	74	120
EP074: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	99.2	71	117
EP074: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	104	69	123
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	97.4	68	116
EP074: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	104	75	119
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	98.3	67	119
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	84.8	63	113
EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	86.4	65	111
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	87.1	63	115
EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	89.4	63	113
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	89.7	65	113
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	87.0	62	114
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	82.3	54	116
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3102109)								
EP074-UT: Benzene	71-43-2	0.2	mg/kg	<0.2	2.1 mg/kg	94.1	73	119
EP074-UT: Toluene	108-88-3	0.5	mg/kg	<0.5	2.1 mg/kg	98.3	70	118
EP074-UT: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2.1 mg/kg	95.5	72	116
EP074-UT: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4.2 mg/kg	97.1	71	115
EP074-UT: Styrene	100-42-5	0.5	mg/kg	<0.5	2.1 mg/kg	97.0	71	117
EP074-UT: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.1 mg/kg	94.2	71	115
EP074I: Volatile Halogenated Compounds (QCLot: 3099454)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	92.7	46	134
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	110	63	133
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	102	60	138

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
EP074I: Volatile Halogenated Compounds (QCLot: 3099454) - continued								
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	101	71	123
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	96.0	71	119
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	96.0	70	132
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	63.0	51	125
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	70.7	58	120
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	87.4	67	125
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	96.4	69	119
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	91.5	73	125
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	97.6	69	121
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	91.7	70	122
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	91.8	62	128
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	84.5	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	96.5	72	120
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	94.0	74	112
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	94.1	70	118
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	89.4	67	129
EP074I: Volatile Halogenated Compounds (QCLot: 3102109)								
EP074-UT: Vinyl chloride	75-01-4	0.02	mg/kg	<0.02	0.1 mg/kg	92.7	46	134
EP074-UT: 1.1-Dichloroethene	75-35-4	0.01	mg/kg	<0.01	0.1 mg/kg	110	63	133
EP074-UT: Methylene chloride	75-09-2	0.4	mg/kg	<0.4	2.1 mg/kg	102	60	138
EP074-UT: trans-1.2-Dichloroethene	156-60-5	0.02	mg/kg	<0.02	0.1 mg/kg	101	71	123
EP074-UT: cis-1.2-Dichloroethene	156-59-2	0.01	mg/kg	<0.01	0.1 mg/kg	96.0	71	119
EP074-UT: Chloroform	67-66-3	0.02	mg/kg	<0.02	0.1 mg/kg	96.0	70	132
EP074-UT: 1.1.1-Trichloroethane	71-55-6	0.01	mg/kg	<0.01	0.1 mg/kg	63.0	51	125
EP074-UT: Carbon Tetrachloride	56-23-5	0.01	mg/kg	<0.01	0.1 mg/kg	70.7	58	120
EP074-UT: 1.2-Dichloroethane	107-06-2	0.02	mg/kg	<0.02	0.1 mg/kg	87.4	67	125
EP074-UT: Trichloroethene	79-01-6	0.02	mg/kg	<0.02	0.1 mg/kg	96.4	69	119
EP074-UT: 1.1.2-Trichloroethane	79-00-5	0.04	mg/kg	<0.04	0.1 mg/kg	91.5	73	125
EP074-UT: Tetrachloroethene	127-18-4	0.02	mg/kg	<0.02	0.1 mg/kg	97.6	69	121
EP074-UT: 1.1.1.2-Tetrachloroethane	630-20-6	0.01	mg/kg	<0.01	0.1 mg/kg	91.7	70	122
EP074-UT: 1.1.2.2-Tetrachloroethane	79-34-5	0.02	mg/kg	<0.02	0.1 mg/kg	91.8	62	128
EP074-UT: Hexachlorobutadiene	87-68-3	0.02	mg/kg	<0.02	0.1 mg/kg	84.5	61	125
EP074-UT: Chlorobenzene	108-90-7	0.02	mg/kg	<0.02	0.1 mg/kg	96.5	72	120
EP074-UT: 1.4-Dichlorobenzene	106-46-7	0.02	mg/kg	<0.02	0.1 mg/kg	94.0	74	112
EP074-UT: 1.2-Dichlorobenzene	95-50-1	0.02	mg/kg	<0.02	0.1 mg/kg	94.1	70	118
EP074-UT: 1.2.4-Trichlorobenzene	120-82-1	0.01	mg/kg	<0.01	0.1 mg/kg	89.4	67	129
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3099492)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	10 mg/kg	97.7	73	124
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	10 mg/kg	99.7	65	127

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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3099492) - continued								
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	10 mg/kg	92.8	73	123
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	10 mg/kg	93.5	66	130
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	10 mg/kg	89.4	74	124
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	10 mg/kg	91.9	71	123
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	10 mg/kg	85.7	72	126
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	10 mg/kg	83.4	73	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	10 mg/kg	78.2	71	127
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	10 mg/kg	77.1	72	130
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	10 mg/kg	94.5	65	131
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	10 mg/kg	98.3	70	130
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	10 mg/kg	92.2	68	128
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	10 mg/kg	86.5	66	126
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	10 mg/kg	88.9	67	125
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	10 mg/kg	86.7	63	127
EP075A: Phenolic Compounds (Halogenated) (QCLot: 3105078)								
EP075-EM: 2-Chlorophenol	95-57-8	0.03	mg/kg	<0.03	0.5 mg/kg	65.8	41	127
EP075-EM: 2.4-Dichlorophenol	120-83-2	0.03	mg/kg	<0.03	0.5 mg/kg	55.7	39	132
EP075-EM: 2.6-Dichlorophenol	87-65-0	0.03	mg/kg	<0.03	0.5 mg/kg	66.5	40	128
EP075-EM: 4-Chloro-3-Methylphenol	59-50-7	0.03	mg/kg	<0.03	0.5 mg/kg	69.9	47	127
EP075-EM: 2.4.5-Trichlorophenol	95-95-4	0.05	mg/kg	<0.05	0.5 mg/kg	74.0	42	126
EP075-EM: 2.4.6-Trichlorophenol	88-06-2	0.05	mg/kg	<0.05	0.5 mg/kg	52.7	44	126
EP075-EM: 2.3.5.6-Tetrachlorophenol	935-95-5	0.03	mg/kg	<0.03	0.5 mg/kg	108	41	132
EP075-EM: 2.3.4.5 & 2.3.4.6-Tetrachlorophenol	4901-51-3/5 8-90-2	0.05	mg/kg	<0.05	1.0 mg/kg	60.8	47	127
EP075-EM: Pentachlorophenol	87-86-5	0.2	mg/kg	<0.2	0.5 mg/kg	54.1	25	132
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 3105078)								
EP075-EM: Phenol	108-95-2	0.1	mg/kg	----	0.5 mg/kg	64.2	40	134
		1	mg/kg	<1	----	----	----	----
EP075-EM: 2-Methylphenol	95-48-7	0.1	mg/kg	----	0.5 mg/kg	57.3	37	134
		1	mg/kg	<1	----	----	----	----
EP075-EM: 3- & 4-Methylphenol	1319-77-3	0.5	mg/kg	----	1 mg/kg	70.6	38	126
		1	mg/kg	<1	----	----	----	----
EP075-EM: 2-Nitrophenol	88-75-5	0.1	mg/kg	----	0.5 mg/kg	65.0	35	131
		1	mg/kg	<1	----	----	----	----
EP075-EM: 2.4-Dimethylphenol	105-67-9	0.1	mg/kg	----	0.5 mg/kg	72.5	15.1	133
		1	mg/kg	<1	----	----	----	----
EP075-EM: 2.4-Dinitrophenol	51-28-5	0.1	mg/kg	----	3 mg/kg	29.4	22.7	105
		5	mg/kg	<5	----	----	----	----

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
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 3105078) - continued								
EP075-EM: 4-Nitrophenol	100-02-7	0.1	mg/kg	----	3 mg/kg	71.4	41	139
		5	mg/kg	<5	----	----	----	----
EP075-EM: 2-Methyl-4.6-dinitrophenol	8071-51-0	0.1	mg/kg	----	3 mg/kg	58.6	16	132
		5	mg/kg	<5	----	----	----	----
EP075-EM: Dinoseb	88-85-7	0.1	mg/kg	----	3 mg/kg	71.2	34	136
		5	mg/kg	<5	----	----	----	----
EP075-EM: 2-Cyclohexyl-4.6-Dinitrophenol	131-89-5	0.1	mg/kg	----	2.5 mg/kg	56.9	12	132
		5	mg/kg	<5	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 3105078)								
EP075-EM: Naphthalene	91-20-3	0.1	mg/kg	----	0.5 mg/kg	66.1	42	127
		0.5	mg/kg	<0.5	----	----	----	----
EP075-EM: Acenaphthene	83-32-9	0.1	mg/kg	----	0.5 mg/kg	68.6	51	130
		0.5	mg/kg	<0.5	----	----	----	----
EP075-EM: Acenaphthylene	208-96-8	0.1	mg/kg	----	0.5 mg/kg	68.2	43	131
		0.5	mg/kg	<0.5	----	----	----	----
EP075-EM: Fluorene	86-73-7	0.1	mg/kg	----	0.5 mg/kg	72.7	55	134
		0.5	mg/kg	<0.5	----	----	----	----
EP075-EM: Phenanthrene	85-01-8	0.1	mg/kg	----	0.5 mg/kg	74.6	59	136
		0.5	mg/kg	<0.5	----	----	----	----
EP075-EM: Anthracene	120-12-7	0.1	mg/kg	----	0.5 mg/kg	74.6	62	127
		0.5	mg/kg	<0.5	----	----	----	----
EP075-EM: Fluoranthene	206-44-0	0.1	mg/kg	----	0.5 mg/kg	76.6	60	134
		0.5	mg/kg	<0.5	----	----	----	----
EP075-EM: Pyrene	129-00-0	0.1	mg/kg	----	0.5 mg/kg	76.5	58	132
		0.5	mg/kg	<0.5	----	----	----	----
EP075-EM: Benz(a)anthracene	56-55-3	0.1	mg/kg	----	0.5 mg/kg	74.9	57	133
		0.5	mg/kg	<0.5	----	----	----	----
EP075-EM: Chrysene	218-01-9	0.1	mg/kg	----	0.5 mg/kg	79.3	58	136
		0.5	mg/kg	<0.5	----	----	----	----
EP075-EM: Benzo(b) & Benzo(k)fluoranthene	205-99-2 207-08-9	0.1	mg/kg	----	1.0 mg/kg	75.6	67	133
		0.5	mg/kg	<0.5	----	----	----	----
EP075-EM: Benzo(a)pyrene	50-32-8	0.1	mg/kg	----	0.5 mg/kg	73.6	61	131
		0.5	mg/kg	<0.5	----	----	----	----
EP075-EM: Indeno(1.2.3.cd)pyrene	193-39-5	0.1	mg/kg	----	0.5 mg/kg	77.7	57	131
		0.5	mg/kg	<0.5	----	----	----	----
EP075-EM: Dibenz(a.h)anthracene	53-70-3	0.1	mg/kg	----	0.5 mg/kg	77.8	57	131
		0.5	mg/kg	<0.5	----	----	----	----
EP075-EM: Benzo(g.h.i)perylene	191-24-2	0.1	mg/kg	----	0.5 mg/kg	74.8	57	133
		0.5	mg/kg	<0.5	----	----	----	----
EP075I: Organochlorine Pesticides (QCLot: 3105078)								

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
EP075I: Organochlorine Pesticides (QCLot: 3105078) - continued								
EP075-EM: alpha-BHC	319-84-6	0.03	mg/kg	<0.03	0.5 mg/kg	72.4	58	138
EP075-EM: Hexachlorobenzene (HCB)	118-74-1	0.03	mg/kg	<0.03	0.5 mg/kg	77.0	49	138
EP075-EM: beta-BHC	319-85-7	0.03	mg/kg	<0.03	0.5 mg/kg	71.5	57	141
EP075-EM: gamma-BHC	58-89-9	0.03	mg/kg	<0.03	0.5 mg/kg	75.1	58	138
EP075-EM: delta-BHC	319-86-8	0.03	mg/kg	<0.03	0.5 mg/kg	73.1	59	132
EP075-EM: Heptachlor	76-44-8	0.03	mg/kg	<0.03	0.5 mg/kg	74.6	56	132
EP075-EM: Aldrin	309-00-2	0.03	mg/kg	<0.03	0.5 mg/kg	72.7	62	131
EP075-EM: Heptachlor epoxide	1024-57-3	0.03	mg/kg	<0.03	0.5 mg/kg	77.0	62	136
EP075-EM: cis-Chlordane	5103-71-9	0.03	mg/kg	<0.03	0.5 mg/kg	77.6	63	137
EP075-EM: trans-Chlordane	5103-74-2	0.03	mg/kg	<0.03	0.5 mg/kg	77.3	62	138
EP075-EM: Endosulfan 1	959-98-8	0.03	mg/kg	<0.03	0.5 mg/kg	73.1	60	138
EP075-EM: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	73.2	60	133
EP075-EM: Dieldrin	60-57-1	0.03	mg/kg	<0.03	0.5 mg/kg	74.2	55	134
EP075-EM: Endrin aldehyde	7421-93-4	0.03	mg/kg	<0.03	0.5 mg/kg	56.2	20.5	155
EP075-EM: Endrin	72-20-8	0.03	mg/kg	<0.03	0.5 mg/kg	76.4	40	137
EP075-EM: Endosulfan 2	33213-65-9	0.03	mg/kg	<0.03	0.5 mg/kg	72.6	58	138
EP075-EM: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	75.2	62	138
EP075-EM: Endosulfan sulfate	1031-07-8	0.03	mg/kg	<0.03	0.5 mg/kg	67.9	49	146
EP075-EM: 4.4`-DDT	50-29-3	0.05	mg/kg	<0.05	0.5 mg/kg	74.7	51	141
EP075-EM: Methoxychlor	72-43-5	0.03	mg/kg	<0.03	0.5 mg/kg	74.1	46	144
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3099451)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	113	63	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3099454)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	99.9	75	121
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	99.6	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3099491)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	529 mg/kg	94.7	68	128
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	1759 mg/kg	101	72	114
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	680 mg/kg	96.0	71	115
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3102106)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	113	63	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3102109)								
EP074-UT: C6 - C9 Fraction	----	10	mg/kg	<10	39.6 mg/kg	99.9	75	121
EP074-UT: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	48.9 mg/kg	99.6	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3099451)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	111	60	134
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3099491)								

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
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3099491) - continued								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	915 mg/kg	101	70	116
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	2007 mg/kg	97.9	73	117
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	211 mg/kg	77.6	42	120
EP071: >C10 - C40 Fraction (sum)	----	100	mg/kg	<100	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3102106)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	111	60	134
EP231: Perfluorinated Compounds (QCLot: 3102657)								
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	97.9	54	146
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	77.5	54	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	79.6	56	138

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**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 3105341)							
EM1310586-005	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	101	80	116
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	85	115
		EG005T: Chromium	7440-47-3	50 mg/kg	108	79	119
		EG005T: Copper	7440-50-8	50 mg/kg	104	83	119
		EG005T: Lead	7439-92-1	50 mg/kg	102	79	117
		EG005T: Molybdenum	7439-98-7	50 mg/kg	90.7	84	108
		EG005T: Nickel	7440-02-0	50 mg/kg	106	79	117
		EG005T: Selenium	7782-49-2	50 mg/kg	93.4	82	112
		EG005T: Zinc	7440-66-6	50 mg/kg	95.5	75	121
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3105342)							
EM1310586-005	Anonymous	EG035T: Mercury	7439-97-6	5.0 mg/kg	99.9	76	116
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 3106342)							
EM1310629-007	D4SG 0.1/081013	EG048: Hexavalent Chromium	18540-29-9	40 mg/kg	80.6	58	114
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 3105073)							
EM1310549-003	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	92.8	70	120
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3105079)							
EM1310550-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.5 mg/kg	92.4	36	154
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3099452)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3099452) - continued							
EM1310593-002	Anonymous	EP074: Benzene	71-43-2	2 mg/kg	128	51	135
		EP074: Toluene	108-88-3	2 mg/kg	132	56	138
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3099454)							
EM1310629-007	D4SG 0.1/081013	EP074-UT: Benzene	71-43-2	2 mg/kg	113	56	131
		EP074-UT: Toluene	108-88-3	2 mg/kg	119	57	131
EP074I: Volatile Halogenated Compounds (QCLot: 3099454)							
EM1310629-007	D4SG 0.1/081013	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	97.8	25.6	119
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	105	50	132
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	111	62	132
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3099492)							
EM1310593-003	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	96.4	71	121
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	90.6	62	136
EP075A: Phenolic Compounds (Halogenated) (QCLot: 3105078)							
EM1310549-003	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.5 mg/kg	68.8	16.6	113
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.5 mg/kg	90.4	18.6	135
		EP075-EM: Pentachlorophenol	87-86-5	0.5 mg/kg	106	10	144
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 3105078)							
EM1310549-003	Anonymous	EP075-EM: Phenol	108-95-2	0.5 mg/kg	69.2	21	131
		EP075-EM: 2-Nitrophenol	88-75-5	0.5 mg/kg	76.2	13	129
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 3105078)							
EM1310549-003	Anonymous	EP075-EM: Acenaphthene	83-32-9	0.5 mg/kg	79.9	27.7	128
		EP075-EM: Pyrene	129-00-0	0.5 mg/kg	83.9	13.3	173
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3099451)							
EM1310593-002	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	92.8	42	122
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3099454)							
EM1310629-007	D4SG 0.1/081013	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	102	51	115
		EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	101	54	108
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3099491)							
EM1310593-002	Anonymous	EP071: C10 - C14 Fraction	----	529 mg/kg	91.8	67	129
		EP071: C15 - C28 Fraction	----	1759 mg/kg	97.1	72	114
		EP071: C29 - C36 Fraction	----	680 mg/kg	95.2	71	117
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3099451)							
EM1310593-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	89.5	39	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3099491)							
EM1310593-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	915 mg/kg	96.7	70	116

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3099491) - continued							
EM1310593-002	Anonymous	EP071: >C16 - C34 Fraction	----	2007 mg/kg	94.5	72	118
		EP071: >C34 - C40 Fraction	----	211 mg/kg	82.7	45	121
EP231: Perfluorinated Compounds (QCLot: 3102657)							
EM1310629-001	D4SD 0.1/081013	EP231: PFOS	1763-23-1	0.0025 mg/kg	# Not Determined	54	146
		EP231: PFOA	335-67-1	0.0025 mg/kg	103	54	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	110	56	138

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3099451)										
EM1310593-002	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	92.8	----	42	122	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3099451)										
EM1310593-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	89.5	----	39	121	----	----
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3099452)										
EM1310593-002	Anonymous	EP074: Benzene	71-43-2	2 mg/kg	128	----	51	135	----	----
		EP074: Toluene	108-88-3	2 mg/kg	132	----	56	138	----	----
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3099454)										
EM1310629-007	D4SG 0.1/081013	EP074-UT: Benzene	71-43-2	2 mg/kg	113	----	56	131	----	----
		EP074-UT: Toluene	108-88-3	2 mg/kg	119	----	57	131	----	----
EP074I: Volatile Halogenated Compounds (QCLot: 3099454)										
EM1310629-007	D4SG 0.1/081013	EP074-UT: 1.1-Dichloroethene	75-35-4	2 mg/kg	97.8	----	25.6	119	----	----
		EP074-UT: Trichloroethene	79-01-6	2 mg/kg	105	----	50	132	----	----
		EP074-UT: Chlorobenzene	108-90-7	2 mg/kg	111	----	62	132	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3099454)										
EM1310629-007	D4SG 0.1/081013	EP074-UT: C6 - C9 Fraction	----	28 mg/kg	102	----	51	115	----	----
		EP074-UT: C6 - C10 Fraction	C6_C10	33 mg/kg	101	----	54	108	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3099491)										
EM1310593-002	Anonymous	EP071: C10 - C14 Fraction	----	529 mg/kg	91.8	----	67	129	----	----
		EP071: C15 - C28 Fraction	----	1759 mg/kg	97.1	----	72	114	----	----
		EP071: C29 - C36 Fraction	----	680 mg/kg	95.2	----	71	117	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3099491)										

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 (QCLot: 3099491) - continued										
EM1310593-002	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	915 mg/kg	96.7	----	70	116	----	----
		EP071: >C16 - C34 Fraction	----	2007 mg/kg	94.5	----	72	118	----	----
		EP071: >C34 - C40 Fraction	----	211 mg/kg	82.7	----	45	121	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3099492)										
EM1310593-003	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	96.4	----	71	121	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	90.6	----	62	136	----	----
EP231: Perfluorinated Compounds (QCLot: 3102657)										
EM1310629-001	D4SD 0.1/081013	EP231: PFOS	1763-23-1	0.0025 mg/kg	# Not Determined	----	54	146	----	----
		EP231: PFOA	335-67-1	0.0025 mg/kg	103	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	110	----	56	138	----	----
EK026SF: Total CN by Segmented Flow Analyser (QCLot: 3105073)										
EM1310549-003	Anonymous	EK026SF: Total Cyanide	57-12-5	20 mg/kg	92.8	----	70	120	----	----
EP075A: Phenolic Compounds (Halogenated) (QCLot: 3105078)										
EM1310549-003	Anonymous	EP075-EM: 2-Chlorophenol	95-57-8	0.5 mg/kg	68.8	----	16.6	113	----	----
		EP075-EM: 4-Chloro-3-methylphenol	59-50-7	0.5 mg/kg	90.4	----	18.6	135	----	----
		EP075-EM: Pentachlorophenol	87-86-5	0.5 mg/kg	106	----	10	144	----	----
EP075A: Phenolic Compounds (Non-halogenated) (QCLot: 3105078)										
EM1310549-003	Anonymous	EP075-EM: Phenol	108-95-2	0.5 mg/kg	69.2	----	21	131	----	----
		EP075-EM: 2-Nitrophenol	88-75-5	0.5 mg/kg	76.2	----	13	129	----	----
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 3105078)										
EM1310549-003	Anonymous	EP075-EM: Acenaphthene	83-32-9	0.5 mg/kg	79.9	----	27.7	128	----	----
		EP075-EM: Pyrene	129-00-0	0.5 mg/kg	83.9	----	13.3	173	----	----
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3105079)										
EM1310550-001	Anonymous	EP066-EM: Total Polychlorinated biphenyls	----	0.5 mg/kg	92.4	----	36	154	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3105341)										
EM1310586-005	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	101	----	80	116	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	----	85	115	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	108	----	79	119	----	----
		EG005T: Copper	7440-50-8	50 mg/kg	104	----	83	119	----	----
		EG005T: Lead	7439-92-1	50 mg/kg	102	----	79	117	----	----
		EG005T: Molybdenum	7439-98-7	50 mg/kg	90.7	----	84	108	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	106	----	79	117	----	----
		EG005T: Selenium	7782-49-2	50 mg/kg	93.4	----	82	112	----	----
		EG005T: Zinc	7440-66-6	50 mg/kg	95.5	----	75	121	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3105342)										
EM1310586-005	Anonymous	EG035T: Mercury	7439-97-6	5.0 mg/kg	99.9	----	76	116	----	----

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 3106342)										
EM1310629-007	D4SG 0.1/081013	EG048: Hexavalent Chromium	18540-29-9	40 mg/kg	80.6	----	58	114	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **EM1310629**	Page	: 1 of 9
Client	: CARDNO LANE PIPER PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: Fiskville		
C-O-C number	: ----	Date Samples Received	: 09-OCT-2013
Sampler	: MDR	Issue Date	: 17-OCT-2013
Order number	: ----		
		No. of samples received	: 14
Quote number	: MEBQ/115/13	No. of samples analysed	: 14

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

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

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
EA001: pH in soil using 0.01M CaCl extract								
Soil Glass Jar - Unpreserved (EA001)								
D4SE 0.1/081013,	D4SG 0.1/081013	**08-OCT-2013**	**14-OCT-2013**	15-OCT-2013	✓	**14-OCT-2013**	14-OCT-2013	✓
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055-103)								
D4SD 0.1/081013,	D4SE 0.1/081013,	**08-OCT-2013**	**----**	----	----	**10-OCT-2013**	22-OCT-2013	✓
D4SF 0.1/081013,	D4SG 0.1/081013,							
D4SH 0.1/081013,	D4SI 0.1/081013,							
D4SG 0.1/081013 - Volatiles,	D4SH 0.1/081013 - Volatiles							
Soil Glass Jar - Unpreserved (EA055-103)								
D4SD 0.3/081013,	D4SE 05/081013,	**08-OCT-2013**	**----**	----	----	**14-OCT-2013**	22-OCT-2013	✓
D4SF 0.2/081013,	D4SG 0.3/081013,							
D4SH 0.3/081013,	D4SI 0.3/081013							
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
D4SD 0.1/081013,	D4SE 0.1/081013,	**08-OCT-2013**	**15-OCT-2013**	06-APR-2014	✓	**15-OCT-2013**	06-APR-2014	✓
D4SF 0.1/081013,	D4SG 0.1/081013,							
D4SH 0.1/081013,	D4SI 0.1/081013							
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
D4SD 0.1/081013,	D4SE 0.1/081013,	**08-OCT-2013**	**15-OCT-2013**	05-NOV-2013	✓	**15-OCT-2013**	05-NOV-2013	✓
D4SF 0.1/081013,	D4SG 0.1/081013,							
D4SH 0.1/081013,	D4SI 0.1/081013							
EG048: Hexavalent Chromium (Alkaline Digest)								
Soil Glass Jar - Unpreserved (EG048)								
D4SE 0.1/081013,	D4SG 0.1/081013	**08-OCT-2013**	**15-OCT-2013**	05-NOV-2013	✓	**17-OCT-2013**	22-OCT-2013	✓
EK026SF: Total CN by Segmented Flow Analyser								
Soil Glass Jar - Unpreserved (EK026SF)								
D4SE 0.1/081013,	D4SG 0.1/081013	**08-OCT-2013**	**14-OCT-2013**	22-OCT-2013	✓	**15-OCT-2013**	28-OCT-2013	✓
EK040T: Fluoride Total								
Soil Glass Jar - Unpreserved (EK040T)								
D4SE 0.1/081013,	D4SG 0.1/081013	**08-OCT-2013**	**10-OCT-2013**	05-NOV-2013	✓	**11-OCT-2013**	05-NOV-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
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066-EM)							
D4SE 0.1/081013, D4SG 0.1/081013	**08-OCT-2013**	**15-OCT-2013**	22-OCT-2013	✓	**16-OCT-2013**	24-NOV-2013	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013							
Soil Glass Jar - Unpreserved (EP071)							
D4SD 0.1/081013, D4SE 0.1/081013, D4SF 0.1/081013, D4SG 0.1/081013, D4SH 0.1/081013, D4SI 0.1/081013	**08-OCT-2013**	**16-OCT-2013**	22-OCT-2013	✓	**16-OCT-2013**	25-NOV-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074)							
D4SD 0.1/081013, D4SF 0.1/081013, D4SI 0.1/081013	**08-OCT-2013**	**10-OCT-2013**	15-OCT-2013	✓	**11-OCT-2013**	15-OCT-2013	✓
Soil Glass Jar - Unpreserved (EP074)							
D4SH 0.1/081013 - Volatiles	**08-OCT-2013**	**10-OCT-2013**	15-OCT-2013	✓	**14-OCT-2013**	15-OCT-2013	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
D4SE 0.1/081013	**08-OCT-2013**	**10-OCT-2013**	15-OCT-2013	✓	**10-OCT-2013**	15-OCT-2013	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
D4SG 0.1/081013 - Volatiles	**08-OCT-2013**	**10-OCT-2013**	15-OCT-2013	✓	**11-OCT-2013**	15-OCT-2013	✓
EP074I: Volatile Halogenated Compounds							
Soil Glass Jar - Unpreserved (EP074-UT)							
D4SE 0.1/081013	**08-OCT-2013**	**10-OCT-2013**	15-OCT-2013	✓	**10-OCT-2013**	15-OCT-2013	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
D4SG 0.1/081013 - Volatiles	**08-OCT-2013**	**10-OCT-2013**	15-OCT-2013	✓	**11-OCT-2013**	15-OCT-2013	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074-UT)							
D4SE 0.1/081013	**08-OCT-2013**	**10-OCT-2013**	15-OCT-2013	✓	**10-OCT-2013**	15-OCT-2013	✓
Soil Glass Jar - Unpreserved (EP074-UT)							
D4SG 0.1/081013 - Volatiles	**08-OCT-2013**	**10-OCT-2013**	15-OCT-2013	✓	**11-OCT-2013**	15-OCT-2013	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
D4SD 0.1/081013, D4SF 0.1/081013, D4SH 0.1/081013, D4SI 0.1/081013	**08-OCT-2013**	**16-OCT-2013**	22-OCT-2013	✓	**16-OCT-2013**	25-NOV-2013	✓
EP075I: Organochlorine Pesticides							
Soil Glass Jar - Unpreserved (EP075-EM)							
D4SE 0.1/081013, D4SG 0.1/081013	**08-OCT-2013**	**15-OCT-2013**	22-OCT-2013	✓	**16-OCT-2013**	24-NOV-2013	✓
EP075A: Phenolic Compounds (Halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
D4SE 0.1/081013, D4SG 0.1/081013	**08-OCT-2013**	**15-OCT-2013**	22-OCT-2013	✓	**16-OCT-2013**	24-NOV-2013	✓
EP075A: Phenolic Compounds (Non-halogenated)							
Soil Glass Jar - Unpreserved (EP075-EM)							
D4SE 0.1/081013, D4SG 0.1/081013	**08-OCT-2013**	**15-OCT-2013**	22-OCT-2013	✓	**16-OCT-2013**	24-NOV-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
EP075B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075-EM)								
D4SE 0.1/081013,	D4SG 0.1/081013	**08-OCT-2013**	**15-OCT-2013**	22-OCT-2013	✓	**16-OCT-2013**	24-NOV-2013	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080)								
D4SD 0.1/081013, D4SI 0.1/081013	D4SF 0.1/081013,	**08-OCT-2013**	**10-OCT-2013**	22-OCT-2013	✓	**11-OCT-2013**	22-OCT-2013	✓
Soil Glass Jar - Unpreserved (EP080)								
D4SH 0.1/081013 - Volatiles		**08-OCT-2013**	**10-OCT-2013**	22-OCT-2013	✓	**14-OCT-2013**	22-OCT-2013	✓
EP231: Perfluorinated Compounds								
Soil Glass Jar - Unpreserved (EP231)								
D4SD 0.1/081013,	D4SD 0.3/081013,	**08-OCT-2013**	**14-OCT-2013**	06-APR-2014	✓	**14-OCT-2013**	23-NOV-2013	✓
D4SE 0.1/081013,	D4SE 05/081013,							
D4SF 0.1/081013,	D4SF 0.2/081013,							
D4SG 0.1/081013,	D4SG 0.3/081013,							
D4SH 0.1/081013,	D4SH 0.3/081013,							
D4SI 0.1/081013,	D4SI 0.3/081013							

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)							
Moisture Content	EA055-103	6	58	**10.3**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	13	**15.4**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PCB - VIC EPA 448.3 Screen	EP066-EM	2	8	**25.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	12	**16.7**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
pH in soil using a 0.01M CaCl2 extract	EA001	2	20	**10.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Organic Compounds - Waste Classification	EP075-EM	2	9	**22.2**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	2	20	**10.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Fluoride	EK040T	1	6	**16.7**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Hexavalent Chromium by Alkaline Digestion	EG048	2	20	**10.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	19	**10.5**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	19	**10.5**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	15	**13.3**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	4	36	**11.1**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	12	**16.7**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	5	**20.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	13	**7.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PCB - VIC EPA 448.3 Screen	EP066-EM	1	8	**12.5**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	12	**8.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	9	**11.1**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Fluoride	EK040T	1	6	**16.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Hexavalent Chromium by Alkaline Digestion	EG048	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	**5.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	**5.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	**6.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	37	**8.1**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	13	**15.4**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	6	**33.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	13	**7.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PCB - VIC EPA 448.3 Screen	EP066-EM	1	8	**12.5**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	12	**8.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	9	**11.1**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Fluoride	EK040T	1	6	**16.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

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*	
Method Blanks (MB) - Continued							
Total Hexavalent Chromium by Alkaline Digestion	EG048	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	**5.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	**5.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	**6.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	37	**8.1**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	13	**15.4**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds - Ultra-trace	EP074-UT	2	6	**33.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	13	**7.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PCB - VIC EPA 448.3 Screen	EP066-EM	1	8	**12.5**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	12	**8.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Semivolatile Organic Compounds - Waste Classification	EP075-EM	1	9	**11.1**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Cyanide by Segmented Flow Analyser	EK026SF	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Hexavalent Chromium by Alkaline Digestion	EG048	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	19	**5.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	19	**5.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	15	**6.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	2	36	**5.6**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	12	**8.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds - Ultra-trace	EP074-UT	1	5	**20.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and 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 in soil using a 0.01M CaCl2 extract	EA001	SOIL	Rayment and Higginson 4B1 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
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 (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	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. Mercury in solids are determined following an appropriate acid digestion. 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 (2013) Schedule B(3)
Total Hexavalent Chromium by Alkaline Digestion	EG048	SOIL	USEPA SW846, Method 3060A. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by UV-VIS spectrophotometer following pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Cyanide by Segmented Flow Analyser	EK026SF	SOIL	APHA 4500-CN-O. Caustic leachates of soil samples are introduced into an automated segmented flow analyser. Complex bound cyanide is decomposed in a continuously flowing stream, at a pH of 3.8, by the effect of UV light. A UV-B lamp (312 nm) and a decomposition spiral of borosilicate glass are used to filter out UV light with a wavelength of less than 290 nm thus preventing the conversion of thiocyanate into cyanide. The hydrogen cyanide present at a pH of 3.8 is separated by gas dialysis. The hydrogen cyanide is then determined photometrically, based on the reaction of cyanide with chloramine-T to form cyanogen chloride. This then reacts with 4-pyridine carboxylic acid and 1,3-dimethylbarbituric acid to give a red colour which is measured at 600 nm. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Total Fluoride	EK040T	SOIL	(In-house) Total fluoride is determined by ion specific electrode (ISE) in a solution obtained after a Sodium Carbonate / Potassium Carbonate fusion dissolution.
PCB - VIC EPA 448.3 Screen	EP066-EM	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (2013) Schedule B(3) (Method 506.1)
Volatile Organic Compounds	EP074	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
Volatile Organic Compounds - Ultra-trace	EP074-UT	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS in partial SIM/Scan mode. Quantification is by comparison against an established multi-point calibration curves. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Volatile Organic Compounds - Ultra-trace - Summations	EP074-UT-SUM	SOIL	Summation of MAHs and VHCs
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
Semivolatile Organic Compounds - Waste Classification	EP075-EM	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 502)
SVOC - Waste Classification (Sums)	EP075-EM-SUM	SOIL	Summations for EP075 (EM variation)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.

Preparation Methods	Method	Matrix	Method Descriptions
NaOH leach for CN in Soils	CN-PR	SOIL	In-house, APHA 4500 CN. Samples are extracted by end-over-end tumbling with NaOH.
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	Rayment and Higginson 4B1 (mod.), 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	USEPA SW846, Method 3060A.
Total Fluoride	EK040T-PR	SOIL	(In-house) Samples are fused with Sodium Carbonate / Potassium Carbonate flux.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Methanolic Extraction of Soils - Ultra-trace.	ORG16-UT	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids - VIC EPA Screen	ORG17A-EM	SOIL	In-house, Mechanical agitation (tumbler). 20g of sample, Na2SO4 and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.

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 SW 846 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: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231: Perfluorinated Compounds	EM1310629-001	D4SD 0.1/081013	**PFOS**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

- **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.

- **No Analysis Holding Time Outliers exist.**

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.**

Cardno LanePiper

1 of 4

water tank + soil

PM Name: Leigh McDonald Field Staff: Maria Delos Reyes

Phone: 03 9888 0100 Fax: 03 9808 3511 Mobile: 0424278497

Address: Building 2, 154 Highbury Rd, Burwood, Vic, 3125

PM Email: Leigh.Mcdonald@cardno.com.au, Maria.delosreyes@cardno.com.au

Project Number: 212163.31 Site: Fiskville

Laboratory (name, phone,fax no & contact person) ALS

Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Sample Matrix: Water	Sample Matrix: Soil	Sample preservation: Ice bricks	NaOH	HNO3	H2SO4	Na2S2O3	Analysis: PFCs: PFOS, PFOA, 6:2FTS
WT01-091013	1	Green 1L, metals preserved and unpreserved x2 vials, cyanide x2, 100mL amber pfos	9/10/13		X	X	X	X	X	X	X	X
WT02 091013	2											X
WT03-091013	3											X
WT04-091013	4											X
QC05 091013	5			x3 10/10								X
QC07-091013	6		*	8/10/13				X	X	X	X	X
AF81	7	1 bag				X						
AF87	8	1 bag				X						
AF44	9	1 bag				X						

Environmental Division Melbourne

Work Order EM1310688

Telephone : +61-3-8549 9600

Sampler: I attest that the proper field sampling proceedures were used during the collection of these samples.

Sampler name: (print and signature) Maria Delos Reyes Date: 9/10/13

	Date	Time		Date	
Relinquished by (Sampler): (print and signature) Maria Delos Reyes	9/10/13				
Relinquished by: (print and signature)			622	10/10/13	
Relinquished by: (print and signature)			Express (ACT)	10/10	12-00

Please supply results electronically in spreadsheet and ESDAT files.

Turn around time: (24 hour/48 hour/3 days/5 days) Please circle

Cardno LanePiper

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Soil

PM Name: Leigh McDonald Field Staff: Maria Delos Reyes					Sample Matrix				Sample preservation					Analysis										
Phone: 03 9888 0100 Fax: 03 9808 3511 Mobile: 0424278497																								
Address: Building 2, 154 Highbury Rd, Burwood, Vic, 3125																								
PM Email: Leigh.Mcdonald@cardno.com.au, Maria.delosreyes@cardno.com.au																								
Project Number: 212163.31 Site: Fiskville																								
Laboratory (name, phone,fax no & contact person) ALS																								
Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Water				Ice bricks	NaOH	HNO3	H2SO4	Na2S2O3	PFCs: PFOS, PFOA, 6:2FTS										
AP01	10	~~9 bottles~~ 1 Bag												X										
AF07	11													X										
AF03	12													X										
AF04	13													X										
AF05	14													X										
AF06	15													X										
AF13	16													X										
AF14	17													X										
AP15	18													X										
AP16	19													X										
AF17	20													X										
AP18	21													X										
AF25	22													X										
AP26	23													X										
AF27	24	1 bag												X										

Sampler: I attest that the proper field sampling proceedures were used during the collection of these samples. Sampler name: (print and signature) Maria Delos Reyes Date: 9/10/13

Relinquished by (Sampler): (print and signature)	Date	Time		Date
Maria Delos Reyes	9/10/13			
Relinquished by: (print and signature)	Date	Time		Date
Relinquished by: (print and signature)	Date	Time		Date
			Karen (ALS)	10/10 12:00

Please supply results electronically in spreadsheet and ESDAT files

Turn around time: (24 hour/48 hour/3 days/5 days) Please circle

Cardno LanePiper

3 of 4

Soil

PM Name: Leigh McDonald **Field Staff:** Maria Delos Reyes

Phone: 03 9888 0100 **Fax:** 03 9808 3511 **Mobile:** 0424278497

Address: Building 2, 154 Highbury Rd, Burwood, Vic, 3125

PM Email: Leigh.Mcdonald@cardno.com.au, Maria.delosreyes@cardno.com.au

Project Number: 212163.31 **Site:** Fiskville

Laboratory (name, phone,fax no & contact person) ALS

Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Sample Matrix: Water	Sample Matrix: Soil	Sample preservation: Ice bricks	NaOH	HNO3	H2SO4	Na2S2O3	Analysis: PFCs: PFOS, PFOA, 6:2FTS
AF28	25	1 bag	9/10/13			X	X					X
AF33	26											X
AF34	27											X
AF38	28											X
AF39	29											X
AF40	30											X
AF41	31											X
AF42	32											X
AF45	33											X
AF46	34											X
AF47	35											X
AF48	36											X
AF49	37											X
missing QC11	~~38~~											X
QC13	38	1 bag										X

Sampler: I attest that the proper field sampling proceedures were used during the collection of these samples.

Sampler name: (print and signature) Maria Delos Reyes Date: 9/10/13

Relinquished by (Sampler): (print and signature)	Date	Time	Received by: (print and signature)	Date	Time
Maria Delos Reyes	9/10/13				
Relinquished by: (print and signature)	Date	Time	Received by: (print and signature)	Date	Time
Relinquished by: (print and signature)	Date	Time	Received by: (print and signature)	Date	Time
			RANU (ALS)	10/10	12-00

Please supply results electronically in spreadsheet and ESDAT files

Turn around time: (24 hour/48 hour/3 days/5 days) Please circle

PM Name: Leigh McDonald Field Staff: Maria Delos Reyes

Phone: 03 9888 0100 Fax: 03 9808 3511 Mobile: 0424278497

Address: Building 2, 154 Highbury Rd, Burwood, Vic, 3125

PM Email: Leigh.Mcdonald@cardno.com.au, Maria.delosreyes@cardno.com.au

Project Number: 212163.31 Site: Fiskville

Laboratory (name, phone,fax no & contact person)

Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Water	Sediment	Ice bricks	NaOH	HNO3	H2SO4	Na2S2O3	PFCs: PFOS, PFOA, 6:2FTS
D4SJ(0.1)091013	39	2 Jars 1 bag	9/10/13			X	✓					X
D4SJ(0.3)-091013	40		↓			↓	↓					X
D4SK(0.1)-091013	41											X
D4SK(0.3)-091013	42											X
D4SL(0.1)-091013	43											X
D4SL(0.25)-091013	44											X
D4SM(0.1)-091013	45											X
D4SM(0.4)091013	46											X
QC09-091013	47											X

Sampler: I attest that the proper field sampling proceedures were used during the collection of these samples.

Sampler name: (print and signature) Maria DelOs Reyes [signature] Date: 9/10/13

Relinquished by (Sampler): (print and signature) Maria DelOs Reyes [signature] Date 9/10/13 Time Date

Relinquished by: (print and signature) Date Time Date

Relinquished by: (print and signature) Date Time KANU Date 10/10 12:00

Please supply results electronically in spreadsheet and ESDAT files.

Turn around time: (24 hour/48 hour/3 days/5 days) Please circle

Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: **EM1310622**		
Client	: **CAR9 NO LANE PIPER PTD LT9**	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31	Page	: 1 of 3
Order number	: ----		
C-O-C number	: ----	Quote number	: EM2013LANECON0039 (MEBQ/115/13)
Site	: Fiskville		
Sampler	: MDR	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 10-OCT-2013	Issue Date	: 11-OCT-2013 13:11
Client Requested Due Date	: 17-OCT-2013	Scheduled Reporting Date	: **Y18OCT8Y013**

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 2.6-4.0 - Ice present
No. of coolers/boxes	: 4	No. of samples received	: 47
Security Seal	: N/A	No. of samples analysed	: 43

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
- **S- a mpel resed ed ov - mmromro- rep t mrerre- red - vd mrel eri ed sovn- overl y**
- **T. e l s. edhped remornovu d- re . - l geev ebrevded dhe ro - v- pt rns- prel novu sovdhsred gt ALS ovrerl n- re p gor- rorcel yPpe- l e rexer ro t ohr f hon- rcov xor xhrn er ov xora - rcovy**
- **Ppe- l e rexer ro n e Pro- srd e qopdovu Tca e Remornn- gpe gepoH H. cs. l ha a - rd el gre- s. el ox resoa a evded . opdovu rca el n - n. - i e osshrred mrcor ro l - a mpel wvl rrhsrcovl geovu resed ed - n n e p gor- rort y T. e - gl evse oxn d l ha a - rt n- gpe ovdcs- rel n - n- ppl - a mpel . - i e geev resed ed Hon ov n e resoa a evded . opdovu rca el xor n e - v- pt l d ref hel redy**
- **Ppe- l e dcresn- vt f herel rep- red ro l - a mpe sovdcrcov wha gerovu wgre- k- uel ro Perer R- i psy**
- **Av- pt rns- pHork xor n d Hork order Hqppge sovdhsred - nALS St dvet y**
- Sample Disposal - Aqueous (14 days), Solid (60 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.

- **No l - a mpe sovn- over wmrel eri - rcov vov8soa mpe- vse ebd ny**

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 - EA055-103 Moisture Content	SOIL - EP231-PFC Perfluorinated Compounds by LC/MS/MS
EM1310688-007	09-OCT-2013 15:00	AF81	✓		
EM1310688-008	09-OCT-2013 15:00	AF87	✓		
EM1310688-009	09-OCT-2013 15:00	AF44	✓		
EM1310688-010	09-OCT-2013 15:00	AF01		✓	✓
EM1310688-011	09-OCT-2013 15:00	AF02		✓	✓
EM1310688-012	09-OCT-2013 15:00	AF03		✓	✓
EM1310688-013	09-OCT-2013 15:00	AF04		✓	✓
EM1310688-014	09-OCT-2013 15:00	AF05		✓	✓
EM1310688-015	09-OCT-2013 15:00	AF06		✓	✓
EM1310688-016	09-OCT-2013 15:00	AF13		✓	✓
EM1310688-017	09-OCT-2013 15:00	AF14		✓	✓
EM1310688-018	09-OCT-2013 15:00	AF15		✓	✓
EM1310688-019	09-OCT-2013 15:00	AF16		✓	✓
EM1310688-020	09-OCT-2013 15:00	AF17		✓	✓
EM1310688-021	09-OCT-2013 15:00	AF18		✓	✓
EM1310688-022	09-OCT-2013 15:00	AF25		✓	✓
EM1310688-023	09-OCT-2013 15:00	AF26		✓	✓
EM1310688-024	09-OCT-2013 15:00	AF27		✓	✓
EM1310688-025	09-OCT-2013 15:00	AF28		✓	✓
EM1310688-026	09-OCT-2013 15:00	AF33		✓	✓
EM1310688-027	09-OCT-2013 15:00	AF34		✓	✓
EM1310688-028	09-OCT-2013 15:00	AF38		✓	✓
EM1310688-029	09-OCT-2013 15:00	AF39		✓	✓
EM1310688-030	09-OCT-2013 15:00	AF40		✓	✓
EM1310688-031	09-OCT-2013 15:00	AF41		✓	✓
EM1310688-032	09-OCT-2013 15:00	AF42		✓	✓
EM1310688-033	09-OCT-2013 15:00	AF45		✓	✓
EM1310688-034	09-OCT-2013 15:00	AF46		✓	✓
EM1310688-035	09-OCT-2013 15:00	AF47		✓	✓
EM1310688-036	09-OCT-2013 15:00	AF48		✓	✓
EM1310688-037	09-OCT-2013 15:00	AF49		✓	✓
EM1310688-038	09-OCT-2013 15:00	QC13		✓	✓
EM1310688-039	09-OCT-2013 15:00	D45J(0.1)_091013		✓	✓
EM1310688-040	09-OCT-2013 15:00	D45J(0.3)_091013		✓	✓
EM1310688-041	09-OCT-2013 15:00	D45K(0.1)_091013		✓	✓

			(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EP231-PFC Perfluorinated Compounds by LC/MS/MS
EM1310688-042	09-OCT-2013 15:00	D45K(0.3)_091013		✓	✓
EM1310688-043	09-OCT-2013 15:00	D45L(0.1)_091013		✓	✓
EM1310688-044	09-OCT-2013 15:00	D45L(0.25)_091013		✓	✓
EM1310688-045	09-OCT-2013 15:00	D45m(0.1)_091013		✓	✓
EM1310688-046	09-OCT-2013 15:00	D45m(0.4)_091013		✓	✓
EM1310688-047	09-OCT-2013 15:00	QC09_091013		✓	✓

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	(On Hold) WATER No analysis requested	WATER - EP231-PFC Perfluorinated Compounds by LC/MS/MS -Extended
EM1310688-001	09-OCT-2013 15:00	WT01_091013		✓
EM1310688-002	09-OCT-2013 15:00	WT02_091013		✓
EM1310688-003	09-OCT-2013 15:00	WT03_091013		✓
EM1310688-004	09-OCT-2013 15:00	WT04_091013		✓
EM1310688-005	09-OCT-2013 15:00	QC05_091013		✓
EM1310688-006	09-OCT-2013 15:00	QC07_091013	✓	

Proactive Holding Time Report

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

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	payables@lanepiper.com.au

LEIGq MC9 ONAL9

- *AU Certificate of Analysis - NATA	Email	Leigh.Mcdonald@cardno.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep)	Email	Leigh.Mcdonald@cardno.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA	Email	Leigh.Mcdonald@cardno.com.au
- A4 - AU Sample Receipt Notification - Environmental HT	Email	Leigh.Mcdonald@cardno.com.au
- Chain of Custody (CoC)	Email	Leigh.Mcdonald@cardno.com.au
- EDI Format - ESDAT	Email	Leigh.Mcdonald@cardno.com.au

MS MARIA 9 E LOS REDES

- *AU Certificate of Analysis - NATA (COA)	Email	maria.delosreyes@cardno.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	maria.delosreyes@cardno.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	maria.delosreyes@cardno.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	maria.delosreyes@cardno.com.au
- Chain of Custody (CoC) (COC)	Email	maria.delosreyes@cardno.com.au
- EDI Format - ESDAT (ESDAT)	Email	maria.delosreyes@cardno.com.au

CERTIFICATE OF ANALYSIS

Work Order	: **EM1310688**	Page	: 1 of 11
Client	: **CARDNO LANE PIPER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 10-OCT-2013
Sampler	: MDR	Issue Date	: 22-OCT-2013
Site	: Fiskville		
		No. of samples received	: 47
Quote number	: MEBQ/115/13	No. of samples analysed	: 43

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*
Gaston Allende	R&D Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney 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.

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

- **EP231: PFOA and PFOS results are reported as an aggregate of linear and branched isomers.**
- **EP231: Poor matrix spike recovery due to matrix interference.**
- **PFOS/PFOA/PFCs (EP231) conducted by ALS Sydney, NATA accreditation no. 825, site no 10911.**

Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	AF01	AF02	AF03	AF04	AF05
				Client sampling date / time	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00
					EM1310688-010	EM1310688-011	EM1310688-012	EM1310688-013	EM1310688-014
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	---	1.0	%		**21.4**	**19.9**	**23.4**	**25.3**	**25.4**
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.0005	mg/kg		**0.0009**	**0.0243**	**0.0073**	**0.0068**	**0.0184**
PFOA	335-67-1	0.0005	mg/kg		<0.0005	**0.0011**	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
8:2 Fluorotelomer sulfonate	39108-34-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
PFOSA	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Me-FOSA	31506-32-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	4151-50-2	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	2448-09-7	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-2	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	375-73-5	0.0002	mg/kg		**0.0003**	**0.0006**	**0.0002**	**0.0003**	**0.0004**
PFHxS	3871-99-6	0.0002	mg/kg		**0.0016**	**0.0048**	**0.0014**	**0.0009**	**0.0100**
PFDcS	67906-42-7	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFHxA	307-24-4	0.0002	mg/kg		**0.0003**	**0.0021**	**0.0007**	**0.0003**	**0.0023**
PFHpA	375-85-9	0.0002	mg/kg		<0.0002	**0.0003**	**0.0015**	**0.0002**	**0.0009**
PFNA	375-95-1	0.0002	mg/kg		<0.0002	**0.0044**	**0.0005**	<0.0002	**0.0003**
PFDcA	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFUnA	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFDoA	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFTriA	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFTeA	376-06-7	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	AF06	AF13	AF14	AF15	AF16
				Client sampling date / time	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00
					EM1310688-015	EM1310688-016	EM1310688-017	EM1310688-018	EM1310688-019
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	---	1.0	%		**18.2**	**17.9**	**25.7**	**20.5**	**16.8**
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.0005	mg/kg		**0.0018**	**0.0006**	**0.0151**	**0.0011**	**0.0020**
PFOA	335-67-1	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
8:2 Fluorotelomer sulfonate	39108-34-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
PFOSA	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Me-FOSA	31506-32-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	4151-50-2	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	2448-09-7	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-2	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	**0.0011**	<0.0002	<0.0002
PFHxS	3871-99-6	0.0002	mg/kg		**0.0005**	**0.0008**	**0.0034**	**0.0003**	**0.0007**
PFDcS	67906-42-7	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFHxA	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	**0.0006**	<0.0002	<0.0002
PFHpA	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	**0.0003**	<0.0002	<0.0002
PFNA	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFDcA	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFUnA	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFDoA	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFTriA	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFTeA	376-06-7	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	AF17	AF18	AF25	AF26	AF27
				Client sampling date / time	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00
					EM1310688-020	EM1310688-021	EM1310688-022	EM1310688-023	EM1310688-024
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	---	1.0	%		**17.8**	**17.6**	**36.1**	**28.7**	**18.2**
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.0005	mg/kg		**0.0009**	**0.0024**	**0.0561**	**0.0059**	**0.0018**
PFOA	335-67-1	0.0005	mg/kg		<0.0005	<0.0005	**0.0026**	<0.0005	<0.0005
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
8:2 Fluorotelomer sulfonate	39108-34-4	0.001	mg/kg		<0.001	<0.001	**0.001**	<0.001	<0.001
PFOSA	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	**0.0005**	<0.0002	<0.0002
N-Me-FOSA	31506-32-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	4151-50-2	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	2448-09-7	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-2	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	**0.0056**	**0.0003**	<0.0002
PFHxS	3871-99-6	0.0002	mg/kg		**0.0004**	**0.0012**	**0.0098**	**0.0022**	**0.0022**
PFDcS	67906-42-7	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFHxA	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	**0.0057**	**0.0010**	**0.0002**
PFHpA	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	**0.0044**	**0.0009**	<0.0002
PFNA	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	**0.0018**	**0.0009**	**0.0002**
PFDcA	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	**0.0003**	<0.0002	<0.0002
PFUnA	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	**0.0011**	**0.0003**	<0.0002
PFDoA	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFTriA	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0002**	<0.0002
PFTeA	376-06-7	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	AF28	AF33	AF34	AF38	AF39
				Client sampling date / time	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00
					EM1310688-025	EM1310688-026	EM1310688-027	EM1310688-028	EM1310688-029
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	---	1.0	%		**25.6**	**15.9**	**17.2**	**28.1**	**13.4**
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.0005	mg/kg		**0.0016**	**0.0006**	**0.0007**	**0.0540**	**0.0008**
PFOA	335-67-1	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	**0.0016**	<0.0005
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg		<0.005	<0.005	<0.005	**0.014**	<0.005
8:2 Fluorotelomer sulfonate	39108-34-4	0.001	mg/kg		<0.001	<0.001	<0.001	**0.002**	<0.001
PFOSA	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Me-FOSA	31506-32-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	4151-50-2	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	2448-09-7	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-2	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	**0.0002**	**0.0014**	<0.0002
PFHxS	3871-99-6	0.0002	mg/kg		**0.0007**	**0.0004**	**0.0008**	**0.0131**	**0.0006**
PFDcS	67906-42-7	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFHxA	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	**0.0002**	**0.0050**	<0.0002
PFHpA	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0043**	<0.0002
PFNA	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0014**	<0.0002
PFDcA	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0003**	<0.0002
PFUnA	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0003**	<0.0002
PFDoA	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFTriA	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFTeA	376-06-7	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	AF40	AF41	AF42	AF45	AF46
				Client sampling date / time	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00
					EM1310688-030	EM1310688-031	EM1310688-032	EM1310688-033	EM1310688-034
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	---	1.0	%		**16.4**	**22.8**	**21.1**	**29.2**	**19.4**
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.0005	mg/kg		<0.0005	**0.0021**	<0.0005	**0.0022**	**0.0021**
PFOA	335-67-1	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
8:2 Fluorotelomer sulfonate	39108-34-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
PFOSA	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Me-FOSA	31506-32-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	4151-50-2	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	2448-09-7	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-2	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFHxS	3871-99-6	0.0002	mg/kg		**0.0009**	**0.0017**	**0.0003**	**0.0009**	**0.0012**
PFDcS	67906-42-7	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFHxA	307-24-4	0.0002	mg/kg		**0.0002**	**0.0010**	<0.0002	<0.0002	<0.0002
PFHpA	375-85-9	0.0002	mg/kg		**0.0002**	**0.0012**	<0.0002	<0.0002	**0.0002**
PFNA	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFDcA	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFUnA	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFDoA	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFTriA	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFTeA	376-06-7	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: **SOIL** (Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Client sample ID	AF47	AF48	AF49	QC13	D45J(0.1)_091013
				Client sampling date / time	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00
					EM1310688-035	EM1310688-036	EM1310688-037	EM1310688-038	EM1310688-039
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	---	1.0	%		**19.7**	**18.2**	**23.9**	**18.6**	**22.8**
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.0005	mg/kg		**0.0018**	**0.0013**	**0.0012**	**0.0216**	**0.0204**
PFOA	335-67-1	0.0005	mg/kg		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg		<0.005	<0.005	<0.005	<0.005	<0.005
8:2 Fluorotelomer sulfonate	39108-34-4	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
PFOSA	754-91-6	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
N-Me-FOSA	31506-32-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	4151-50-2	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	2448-09-7	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-2	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	375-73-5	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0003**	**0.0002**
PFHxS	3871-99-6	0.0002	mg/kg		**0.0010**	**0.0005**	**0.0019**	**0.0063**	**0.0028**
PFDcS	67906-42-7	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFHxA	307-24-4	0.0002	mg/kg		<0.0002	<0.0002	**0.0005**	**0.0028**	**0.0027**
PFHpA	375-85-9	0.0002	mg/kg		<0.0002	<0.0002	**0.0003**	**0.0004**	**0.0006**
PFNA	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	**0.0030**	<0.0002
PFDcA	335-76-2	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFUnA	2058-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFDoA	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFTriA	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFTeA	376-06-7	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	D45J(0.3)_091013	D45K(0.1)_091013	D45K(0.3)_091013	D45L(0.1)_091013	D45L(0.25)_091013
				Client sampling date / time	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00
Compound	CAS Number	LOR	Unit		EM1310688-040	EM1310688-041	EM1310688-042	EM1310688-043	EM1310688-044
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	---	1.0	%		24.8	41.2	35.3	19.1	17.8
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.0005	mg/kg		0.0037	0.0924	0.0464	0.0592	0.0616
PFOA	335-67-1	0.0005	mg/kg		<0.0005	0.0015	0.0009	0.0018	0.0014
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg		<0.005	0.012	0.008	0.011	0.010
8:2 Fluorotelomer sulfonate	39108-34-4	0.001	mg/kg		<0.001	0.004	<0.001	0.002	0.004
PFOSA	754-91-6	0.0002	mg/kg		<0.0002	0.0011	<0.0002	<0.0002	<0.0002
N-Me-FOSA	31506-32-8	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	4151-50-2	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	2448-09-7	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-2	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	375-73-5	0.0002	mg/kg		0.0002	0.0007	0.0004	0.0011	0.0010
PFHxS	3871-99-6	0.0002	mg/kg		0.0013	0.0165	0.0086	0.0182	0.0121
PFDcS	67906-42-7	0.0002	mg/kg		<0.0002	0.0003	<0.0002	<0.0002	<0.0002
PFHxA	307-24-4	0.0002	mg/kg		0.0016	0.0047	0.0026	0.0073	0.0068
PFHpA	375-85-9	0.0002	mg/kg		0.0002	0.0016	0.0009	0.0028	0.0025
PFNA	375-95-1	0.0002	mg/kg		<0.0002	0.0011	0.0005	0.0006	0.0007
PFDcA	335-76-2	0.0002	mg/kg		<0.0002	0.0019	<0.0002	<0.0002	0.0003
PFUnA	2058-94-8	0.0002	mg/kg		<0.0002	0.0004	<0.0002	<0.0002	<0.0002
PFDoA	307-55-1	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFTriA	72629-94-8	0.0002	mg/kg		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
PFTeA	376-06-7	0.001	mg/kg		<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	D45m(0.1)_091013	D45m(0.4)_091013	QC09_091013	----	----
			Client sampling date / time	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00	----	----
Compound	CAS Number	LOR	Unit	EM1310688-045	EM1310688-046	EM1310688-047	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	**25.9**	**22.8**	**19.5**	----	----
EP231: Perfluorinated Compounds								
PFOS	1763-23-1	0.0005	mg/kg	**0.0653**	**0.0300**	**0.0564**	----	----
PFOA	335-67-1	0.0005	mg/kg	**0.0036**	**0.0022**	**0.0016**	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	**0.010**	<0.005	**0.009**	----	----
8:2 Fluorotelomer sulfonate	39108-34-4	0.001	mg/kg	<0.001	<0.001	**0.002**	----	----
PFOSA	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
N-Me-FOSA	31506-32-8	0.001	mg/kg	<0.001	<0.001	<0.001	----	----
N-Et-FOSA	4151-50-2	0.001	mg/kg	<0.001	<0.001	<0.001	----	----
N-Me-FOSE	2448-09-7	0.001	mg/kg	<0.001	<0.001	<0.001	----	----
N-Et-FOSE	1691-99-2	0.001	mg/kg	<0.001	<0.001	<0.001	----	----
PFBS	375-73-5	0.0002	mg/kg	**0.0026**	**0.0009**	**0.0010**	----	----
PFHxS	3871-99-6	0.0002	mg/kg	**0.0305**	**0.0154**	**0.0166**	----	----
PFDcS	67906-42-7	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
PFHxA	307-24-4	0.0002	mg/kg	**0.0181**	**0.0054**	**0.0076**	----	----
PFHpA	375-85-9	0.0002	mg/kg	**0.0063**	**0.0019**	**0.0027**	----	----
PFNA	375-95-1	0.0002	mg/kg	**0.0010**	**0.0002**	**0.0005**	----	----
PFDcA	335-76-2	0.0002	mg/kg	**0.0003**	<0.0002	<0.0002	----	----
PFUnA	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
PFDoA	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
PFTriA	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
PFTeA	376-06-7	0.001	mg/kg	<0.001	<0.001	<0.001	----	----

Analytical Results

Sub-Matrix: **WATER** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Client sample ID	WT01_091013	WT02_091013	WT03_091013	WT04_091013	QC05_091013
				Client sampling date / time	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00	09-OCT-2013 15:00
					EM1310688-001	EM1310688-002	EM1310688-003	EM1310688-004	EM1310688-005
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
PFOA	335-67-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L		<0.1	<0.1	<0.1	<0.1	<0.1
8:2 Fluorotelomer sulfonate	39108-34-4	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
PFOSA	754-91-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
N-Me-FOSA	31506-32-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
N-Et-FOSA	4151-50-2	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
N-Me-FOSE	2448-09-7	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
N-Et-FOSE	1691-99-2	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
PFBS	375-73-5	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
PFHxS	3871-99-6	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
PFDcS	67906-42-7	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
PFHxA	307-24-4	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
PFHpA	375-85-9	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
PFNA	375-95-1	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
PFDcA	335-76-2	0.02	µg/L		<0.02	<0.02	<0.02	<0.02	<0.02
PFUnA	2058-94-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
PFDoA	307-55-1	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
PFTriA	72629-94-8	0.05	µg/L		<0.05	<0.05	<0.05	<0.05	<0.05
PFTeA	376-06-7	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5

QUALITY CONTROL REPORT

Work Order	: **EM1310688**	Page	: 1 of 11
Client	: **CARDNO LANE PIPER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: Fiskville		
C-O-C number	: ----	Date Samples Received	: 10-OCT-2013
Sampler	: MDR	Issue Date	: 22-OCT-2013
Order number	: ----		
		No. of samples received	: 47
Quote number	: MEBQ/115/13	No. of samples analysed	: 43

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 ir compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Gaston Allende	R&D Chemist	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney 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 (%)*
EA055: Moisture Content (QC Lot: 3113967)									
EM1310688-012	AF03	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	23.4	22.7	3.0	0% - 20%
EM1310688-023	AF26	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	28.7	26.8	6.9	0% - 20%
EA055: Moisture Content (QC Lot: 3113968)									
EM1310688-032	AF42	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	21.1	21.7	3.0	0% - 20%
EM1310688-043	D45L(0.1)_091013	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	19.1	18.4	3.8	0% - 50%
EP231: Perfluorinated Compounds (QC Lot: 3102683)									
EM1310688-010	AF01	EP231: PFOS	1763-23-1	0.0005	mg/kg	0.0009	0.0009	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
EM1310688-024	AF27	EP231: PFOS	1763-23-1	0.0005	mg/kg	0.0018	0.0017	7.6	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
EP231: Perfluorinated Compounds (QC Lot: 3102684)									
EM1310688-010	AF01	EP231-PFC: PFOSA	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFBS	375-73-5	0.0002	mg/kg	0.0003	0.0003	0.0	No Limit
		EP231-PFC: PFHxS	3871-99-6	0.0002	mg/kg	0.0016	0.0013	14.9	No Limit
		EP231-PFC: PFDcS	67906-42-7	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFHxA	307-24-4	0.0002	mg/kg	0.0003	0.0002	0.0	No Limit
		EP231-PFC: PFHpA	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFNA	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFDcA	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFUnA	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFDoA	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFTriA	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: 8:2 Fluorotelomer sulfonate	39108-34-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: N-Me-FOSA	31506-32-8	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: N-Et-FOSA	4151-50-2	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: N-Me-FOSE	2448-09-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: N-Et-FOSE	1691-99-2	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: PFTeA	376-06-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EM1310688-024	AF27	EP231-PFC: PFOSA	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFBS	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFHxS	3871-99-6	0.0002	mg/kg	0.0022	0.0023	0.0	0% - 50%
		EP231-PFC: PFDcS	67906-42-7	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFHxA	307-24-4	0.0002	mg/kg	0.0002	0.0002	0.0	No Limit
		EP231-PFC: PFHpA	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	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 (%)*
EP231: Perfluorinated Compounds (QC Lot: 3102684) - continued									
EM1310688-024	AF27	EP231-PFC: PFNA	375-95-1	0.0002	mg/kg	0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFDcA	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFUnA	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFDoA	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFTriA	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: 8:2 Fluorotelomer sulfonate	39108-34-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: N-Me-FOSA	31506-32-8	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: N-Et-FOSA	4151-50-2	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: N-Me-FOSE	2448-09-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: N-Et-FOSE	1691-99-2	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: PFTeA	376-06-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231: Perfluorinated Compounds (QC Lot: 3102685)									
EM1310688-030	AF40	EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
EM1310688-031	AF41	EP231: PFOS	1763-23-1	0.0005	mg/kg	0.0021	0.0021	0.0	No Limit
		EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
EP231: Perfluorinated Compounds (QC Lot: 3102686)									
EM1310688-030	AF40	EP231-PFC: PFOSA	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFBS	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFHxS	3871-99-6	0.0002	mg/kg	0.0009	0.0007	21.9	No Limit
		EP231-PFC: PFDcS	67906-42-7	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFHxA	307-24-4	0.0002	mg/kg	0.0002	0.0002	0.0	No Limit
		EP231-PFC: PFHpA	375-85-9	0.0002	mg/kg	0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFNA	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFDcA	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFUnA	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFDoA	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFTriA	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: 8:2 Fluorotelomer sulfonate	39108-34-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: N-Me-FOSA	31506-32-8	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: N-Et-FOSA	4151-50-2	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: N-Me-FOSE	2448-09-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: N-Et-FOSE	1691-99-2	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: PFTeA	376-06-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EM1310688-031	AF41	EP231-PFC: PFOSA	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFBS	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFHxS	3871-99-6	0.0002	mg/kg	0.0017	0.0015	9.6	No Limit
		EP231-PFC: PFDcS	67906-42-7	0.0002	mg/kg	<0.0002	<0.0002	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 (%)*
EP231: Perfluorinated Compounds (QC Lot: 3102686) - continued									
EM1310688-031	AF41	EP231-PFC: PFHxA	307-24-4	0.0002	mg/kg	0.0010	0.0010	0.0	No Limit
		EP231-PFC: PFHpA	375-85-9	0.0002	mg/kg	0.0012	0.0012	0.0	No Limit
		EP231-PFC: PFNA	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFDcA	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFUnA	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFDoA	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: PFTriA	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231-PFC: 8:2 Fluorotelomer sulfonate	39108-34-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: N-Me-FOSA	31506-32-8	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: N-Et-FOSA	4151-50-2	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: N-Me-FOSE	2448-09-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: N-Et-FOSE	1691-99-2	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231-PFC: PFTeA	376-06-7	0.001	mg/kg	<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 (%)*
EP231: Perfluorinated Compounds (QC Lot: 3104235)									
EM1310688-001	WT01_091013	EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231: PFOA	335-67-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231: Perfluorinated Compounds (QC Lot: 3104236)									
EM1310688-001	WT01_091013	EP231-PFC: PFOSA	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231-PFC: PFBS	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231-PFC: PFHxS	3871-99-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231-PFC: PFDcS	67906-42-7	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231-PFC: PFHxA	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231-PFC: PFHpA	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231-PFC: PFNA	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231-PFC: PFDcA	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231-PFC: N-Et-FOSA	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231-PFC: PFUnA	2058-94-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231-PFC: PFDoA	307-55-1	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231-PFC: PFTriA	72629-94-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231-PFC: 8:2 Fluorotelomer sulfonate	39108-34-4	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP231-PFC: N-Me-FOSA	31506-32-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP231-PFC: N-Me-FOSE	2448-09-7	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP231-PFC: N-Et-FOSE	1691-99-2	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP231-PFC: PFTeA	376-06-7	0.5	µg/L	<0.5	<0.5	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
EP231: Perfluorinated Compounds (QCLot: 3102683)								
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	70.0	54	146
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	89.8	54	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	126	56	138
EP231: Perfluorinated Compounds (QCLot: 3102684)								
EP231-PFC: 8:2 FtS	39108-34-4	0.001	mg/kg	<0.001	0.0125 mg/kg	124	60	130
EP231-PFC: PFOSA	754-91-6	0.0002	mg/kg	<0.0002	0.0025 mg/kg	70.0	60	130
EP231-PFC: N-Me-FOSA	31506-32-8	0.001	mg/kg	<0.001	0.0125 mg/kg	128	60	130
EP231-PFC: N-Et-FOSA	4151-50-2	0.001	mg/kg	<0.001	0.0125 mg/kg	110	60	130
EP231-PFC: N-Me-FOSE	2448-09-7	0.001	mg/kg	<0.001	0.0125 mg/kg	78.0	60	130
EP231-PFC: N-Et-FOSE	1691-99-2	0.001	mg/kg	<0.001	0.0125 mg/kg	94.8	60	130
EP231-PFC: PFBS	375-73-5	0.0002	mg/kg	<0.0002	0.0025 mg/kg	128	60	130
EP231-PFC: PFHxS	3871-99-6	0.0002	mg/kg	<0.0002	0.0025 mg/kg	116	60	130
EP231-PFC: PFDcS	67906-42-7	0.0002	mg/kg	<0.0002	0.0025 mg/kg	124	60	130
EP231-PFC: PFHxA	307-24-4	0.0002	mg/kg	<0.0002	0.0025 mg/kg	128	60	130
EP231-PFC: PFHpA	375-85-9	0.0002	mg/kg	<0.0002	0.0025 mg/kg	120	60	130
EP231-PFC: PFNA	375-95-1	0.0002	mg/kg	<0.0002	0.0025 mg/kg	73.4	60	130
EP231-PFC: PFDcA	335-76-2	0.0002	mg/kg	<0.0002	0.0025 mg/kg	121	60	130
EP231-PFC: PFUnA	2058-94-8	0.0002	mg/kg	<0.0002	0.0025 mg/kg	81.2	60	130
EP231-PFC: PFDoA	307-55-1	0.0002	mg/kg	<0.0002	0.0025 mg/kg	85.4	60	130
EP231-PFC: PFTriA	72629-94-8	0.0002	mg/kg	<0.0002	0.0025 mg/kg	78.6	60	130
EP231-PFC: PFTeA	376-06-7	0.001	mg/kg	<0.001	0.0125 mg/kg	70.8	60	130
EP231: Perfluorinated Compounds (QCLot: 3102685)								
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	126	54	146
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	124	54	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	127	56	138
EP231: Perfluorinated Compounds (QCLot: 3102686)								
EP231-PFC: 8:2 FtS	39108-34-4	0.001	mg/kg	<0.001	0.0125 mg/kg	112	60	130
EP231-PFC: PFOSA	754-91-6	0.0002	mg/kg	<0.0002	0.0025 mg/kg	102	60	130
EP231-PFC: N-Me-FOSA	31506-32-8	0.001	mg/kg	<0.001	0.0125 mg/kg	111	60	130
EP231-PFC: N-Et-FOSA	4151-50-2	0.001	mg/kg	<0.001	0.0125 mg/kg	128	60	130
EP231-PFC: N-Me-FOSE	2448-09-7	0.001	mg/kg	<0.001	0.0125 mg/kg	95.2	60	130
EP231-PFC: N-Et-FOSE	1691-99-2	0.001	mg/kg	<0.001	0.0125 mg/kg	109	60	130
EP231-PFC: PFBS	375-73-5	0.0002	mg/kg	<0.0002	0.0025 mg/kg	128	60	130
EP231-PFC: PFHxS	3871-99-6	0.0002	mg/kg	<0.0002	0.0025 mg/kg	124	60	130

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
EP231: Perfluorinated Compounds (QCLot: 3102686) - continued								
EP231-PFC: PFDcS	67906-42-7	0.0002	mg/kg	<0.0002	0.0025 mg/kg	74.4	60	130
EP231-PFC: PFHxA	307-24-4	0.0002	mg/kg	<0.0002	0.0025 mg/kg	128	60	130
EP231-PFC: PFHpA	375-85-9	0.0002	mg/kg	<0.0002	0.0025 mg/kg	128	60	130
EP231-PFC: PFNA	375-95-1	0.0002	mg/kg	<0.0002	0.0025 mg/kg	128	60	130
EP231-PFC: PFDcA	335-76-2	0.0002	mg/kg	<0.0002	0.0025 mg/kg	125	60	130
EP231-PFC: PFUnA	2058-94-8	0.0002	mg/kg	<0.0002	0.0025 mg/kg	74.8	60	130
EP231-PFC: PFDoA	307-55-1	0.0002	mg/kg	<0.0002	0.0025 mg/kg	113	60	130
EP231-PFC: PFTriA	72629-94-8	0.0002	mg/kg	<0.0002	0.0025 mg/kg	122	60	130
EP231-PFC: PFTeA	376-06-7	0.001	mg/kg	<0.001	0.0125 mg/kg	114	60	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
EP231: Perfluorinated Compounds (QCLot: 3104235)								
EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	0.5 µg/L	102	70	136
EP231: PFOA	335-67-1	0.02	µg/L	<0.02	0.5 µg/L	93.4	72	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	2.5 µg/L	112	61	145
EP231: Perfluorinated Compounds (QCLot: 3104236)								
EP231-PFC: 8:2 FtS	39108-34-4	0.5	µg/L	<0.5	2.5 µg/L	84.8	70	130
EP231-PFC: PFOSA	754-91-6	0.02	µg/L	<0.02	0.5 µg/L	127	70	130
EP231-PFC: N-Me-FOSA	31506-32-8	0.5	µg/L	<0.5	2.5 µg/L	118	70	130
EP231-PFC: N-Et-FOSA	4151-50-2	0.05	µg/L	<0.05	2.5 µg/L	76.8	70	130
EP231-PFC: N-Me-FOSE	2448-09-7	1	µg/L	<1.0	2.5 µg/L	104	70	130
EP231-PFC: N-Et-FOSE	1691-99-2	1	µg/L	<1.0	2.5 µg/L	74.0	70	130
EP231-PFC: PFBS	375-73-5	0.02	µg/L	<0.02	0.5 µg/L	121	70	130
EP231-PFC: PFHxS	3871-99-6	0.02	µg/L	<0.02	0.5 µg/L	98.0	70	130
EP231-PFC: PFDcS	67906-42-7	0.05	µg/L	<0.05	0.5 µg/L	71.2	70	130
EP231-PFC: PFHxA	307-24-4	0.02	µg/L	<0.02	0.5 µg/L	112	70	130
EP231-PFC: PFHpA	375-85-9	0.02	µg/L	<0.02	0.5 µg/L	106	70	130
EP231-PFC: PFNA	375-95-1	0.02	µg/L	<0.02	0.5 µg/L	97.6	70	130
EP231-PFC: PFDcA	335-76-2	0.02	µg/L	<0.02	0.5 µg/L	109	70	130
EP231-PFC: PFUnA	2058-94-8	0.05	µg/L	<0.05	0.5 µg/L	# 134	70	130
EP231-PFC: PFDoA	307-55-1	0.05	µg/L	<0.05	0.5 µg/L	106	70	130
EP231-PFC: PFTriA	72629-94-8	0.05	µg/L	<0.05	0.5 µg/L	75.4	70	130
EP231-PFC: PFTeA	376-06-7	0.5	µg/L	<0.5	2.5 µg/L	76.0	70	130

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	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231: Perfluorinated Compounds (QCLot: 3102683)							
EM1310688-010	AF01	EP231: PFOS	1763-23-1	0.0025 mg/kg	114	54	146
		EP231: PFOA	335-67-1	0.0025 mg/kg	108	54	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	125	56	138
EP231: Perfluorinated Compounds (QCLot: 3102684)							
EM1310688-010	AF01	EP231-PFC: 8:2 Fluorotelomer sulfonate	39108-34-4	0.0125 mg/kg	125	60	130
		EP231-PFC: PFOSA	754-91-6	0.0025 mg/kg	103	60	130
		EP231-PFC: N-Me-FOSA	31506-32-8	0.0125 mg/kg	127	60	130
		EP231-PFC: N-Et-FOSA	4151-50-2	0.0125 mg/kg	130	60	130
		EP231-PFC: N-Me-FOSE	2448-09-7	0.0125 mg/kg	60.3	60	130
		EP231-PFC: N-Et-FOSE	1691-99-2	0.0125 mg/kg	68.8	60	130
		EP231-PFC: PFBS	375-73-5	0.0025 mg/kg	119	60	130
		EP231-PFC: PFHxS	3871-99-6	0.0025 mg/kg	113	60	130
		EP231-PFC: PFDcS	67906-42-7	0.0025 mg/kg	# 138	60	130
		EP231-PFC: PFHxA	307-24-4	0.0025 mg/kg	84.2	60	130
		EP231-PFC: PFHpA	375-85-9	0.0025 mg/kg	111	60	130
		EP231-PFC: PFNA	375-95-1	0.0025 mg/kg	123	60	130
		EP231-PFC: PFDcA	335-76-2	0.0025 mg/kg	125	60	130
		EP231-PFC: PFUnA	2058-94-8	0.0025 mg/kg	94.0	60	130
		EP231-PFC: PFDoA	307-55-1	0.0025 mg/kg	108	60	130
		EP231-PFC: PFTriA	72629-94-8	0.0025 mg/kg	# 135	60	130
		EP231-PFC: PFTeA	376-06-7	0.0125 mg/kg	110	60	130
EP231: Perfluorinated Compounds (QCLot: 3102685)							
EM1310688-030	AF40	EP231: PFOS	1763-23-1	0.0025 mg/kg	108	54	146
		EP231: PFOA	335-67-1	0.0025 mg/kg	99.4	54	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	78.4	56	138
EP231: Perfluorinated Compounds (QCLot: 3102686)							
EM1310688-030	AF40	EP231-PFC: 8:2 Fluorotelomer sulfonate	39108-34-4	0.0125 mg/kg	128	60	130
		EP231-PFC: PFOSA	754-91-6	0.0025 mg/kg	72.0	60	130
		EP231-PFC: N-Me-FOSA	31506-32-8	0.0125 mg/kg	77.2	60	130
		EP231-PFC: N-Et-FOSA	4151-50-2	0.0125 mg/kg	83.6	60	130
		EP231-PFC: N-Me-FOSE	2448-09-7	0.0125 mg/kg	# 56.8	60	130
		EP231-PFC: N-Et-FOSE	1691-99-2	0.0125 mg/kg	# 56.0	60	130
		EP231-PFC: PFBS	375-73-5	0.0025 mg/kg	126	60	130
		EP231-PFC: PFHxS	3871-99-6	0.0025 mg/kg	119	60	130
		EP231-PFC: PFDcS	67906-42-7	0.0025 mg/kg	109	60	130
		EP231-PFC: PFHxA	307-24-4	0.0025 mg/kg	# 138	60	130
		EP231-PFC: PFHpA	375-85-9	0.0025 mg/kg	99.0	60	130
		EP231-PFC: PFNA	375-95-1	0.0025 mg/kg	94.0	60	130
		EP231-PFC: PFDcA	335-76-2	0.0025 mg/kg	# 132	60	130

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EP231: Perfluorinated Compounds (QCLot: 3102686) - continued							
EM1310688-030	AF40	EP231-PFC: PFUnA	2058-94-8	0.0025 mg/kg	81.6	60	130
		EP231-PFC: PFDoA	307-55-1	0.0025 mg/kg	72.4	60	130
		EP231-PFC: PFTriA	72629-94-8	0.0025 mg/kg	129	60	130
		EP231-PFC: PFTeA	376-06-7	0.0125 mg/kg	116	60	130

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EP231: Perfluorinated Compounds (QCLot: 3104235)							
EM1310688-001	WT01_091013	EP231: PFOS	1763-23-1	0.5 µg/L	80.2	70	136
		EP231: PFOA	335-67-1	0.5 µg/L	72.8	72	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	2.5 µg/L	98.8	61	145
EP231: Perfluorinated Compounds (QCLot: 3104236)							
EM1310688-001	WT01_091013	EP231-PFC: 8:2 Fluorotelomer sulfonate	39108-34-4	2.5 µg/L	74.4	----	----
		EP231-PFC: PFOSA	754-91-6	0.5 µg/L	109	----	----
		EP231-PFC: N-Me-FOSA	31506-32-8	2.5 µg/L	95.6	----	----
		EP231-PFC: N-Et-FOSA	4151-50-2	2.5 µg/L	72.0	----	----
		EP231-PFC: N-Me-FOSE	2448-09-7	2.5 µg/L	90.8	----	----
		EP231-PFC: N-Et-FOSE	1691-99-2	2.5 µg/L	72.0	----	----
		EP231-PFC: PFBS	375-73-5	0.5 µg/L	87.4	----	----
		EP231-PFC: PFHxS	3871-99-6	0.5 µg/L	82.4	----	----
		EP231-PFC: PFDcS	67906-42-7	0.5 µg/L	26.0	----	----
		EP231-PFC: PFHxA	307-24-4	0.5 µg/L	82.4	----	----
		EP231-PFC: PFHpA	375-85-9	0.5 µg/L	87.8	----	----
		EP231-PFC: PFNA	375-95-1	0.5 µg/L	76.4	----	----
		EP231-PFC: PFDcA	335-76-2	0.5 µg/L	78.2	----	----
		EP231-PFC: PFUnA	2058-94-8	0.5 µg/L	103	----	----
		EP231-PFC: PFDoA	307-55-1	0.5 µg/L	85.0	----	----
		EP231-PFC: PFTriA	72629-94-8	0.5 µg/L	72.8	----	----
		EP231-PFC: PFTeA	376-06-7	2.5 µg/L	72.8	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report: Spike Concentration	Spike Recovery (%): MS	Spike Recovery (%): MSD	Recovery Limits (%): Low	Recovery Limits (%): High	RPDs (%): Value	RPDs (%): Control Limit
EP231: Perfluorinated Compounds (QCLot: 3102683)										

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP231: Perfluorinated Compounds (QCLot: 3102683) - continued										
EM1310688-010	AF01	EP231: PFOS	1763-23-1	0.0025 mg/kg	114	----	54	146	----	----
		EP231: PFOA	335-67-1	0.0025 mg/kg	108	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	125	----	56	138	----	----
EP231: Perfluorinated Compounds (QCLot: 3102684)										
EM1310688-010	AF01	EP231-PFC: 8:2 Fluorotelomer sulfonate	39108-34-4	0.0125 mg/kg	125	----	60	130	----	----
		EP231-PFC: PFOSA	754-91-6	0.0025 mg/kg	103	----	60	130	----	----
		EP231-PFC: N-Me-FOSA	31506-32-8	0.0125 mg/kg	127	----	60	130	----	----
		EP231-PFC: N-Et-FOSA	4151-50-2	0.0125 mg/kg	130	----	60	130	----	----
		EP231-PFC: N-Me-FOSE	2448-09-7	0.0125 mg/kg	60.3	----	60	130	----	----
		EP231-PFC: N-Et-FOSE	1691-99-2	0.0125 mg/kg	68.8	----	60	130	----	----
		EP231-PFC: PFBS	375-73-5	0.0025 mg/kg	119	----	60	130	----	----
		EP231-PFC: PFHxS	3871-99-6	0.0025 mg/kg	113	----	60	130	----	----
		EP231-PFC: PFDcS	67906-42-7	0.0025 mg/kg	# 138	----	60	130	----	----
		EP231-PFC: PFHxA	307-24-4	0.0025 mg/kg	84.2	----	60	130	----	----
		EP231-PFC: PFHpA	375-85-9	0.0025 mg/kg	111	----	60	130	----	----
		EP231-PFC: PFNA	375-95-1	0.0025 mg/kg	123	----	60	130	----	----
		EP231-PFC: PFDcA	335-76-2	0.0025 mg/kg	125	----	60	130	----	----
		EP231-PFC: PFUnA	2058-94-8	0.0025 mg/kg	94.0	----	60	130	----	----
		EP231-PFC: PFDoA	307-55-1	0.0025 mg/kg	108	----	60	130	----	----
		EP231-PFC: PFTriA	72629-94-8	0.0025 mg/kg	# 135	----	60	130	----	----
		EP231-PFC: PFTeA	376-06-7	0.0125 mg/kg	110	----	60	130	----	----
EP231: Perfluorinated Compounds (QCLot: 3102685)										
EM1310688-030	AF40	EP231: PFOS	1763-23-1	0.0025 mg/kg	108	----	54	146	----	----
		EP231: PFOA	335-67-1	0.0025 mg/kg	99.4	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	78.4	----	56	138	----	----
EP231: Perfluorinated Compounds (QCLot: 3102686)										
EM1310688-030	AF40	EP231-PFC: 8:2 Fluorotelomer sulfonate	39108-34-4	0.0125 mg/kg	128	----	60	130	----	----
		EP231-PFC: PFOSA	754-91-6	0.0025 mg/kg	72.0	----	60	130	----	----
		EP231-PFC: N-Me-FOSA	31506-32-8	0.0125 mg/kg	77.2	----	60	130	----	----
		EP231-PFC: N-Et-FOSA	4151-50-2	0.0125 mg/kg	83.6	----	60	130	----	----
		EP231-PFC: N-Me-FOSE	2448-09-7	0.0125 mg/kg	# 56.8	----	60	130	----	----
		EP231-PFC: N-Et-FOSE	1691-99-2	0.0125 mg/kg	# 56.0	----	60	130	----	----
		EP231-PFC: PFBS	375-73-5	0.0025 mg/kg	126	----	60	130	----	----
		EP231-PFC: PFHxS	3871-99-6	0.0025 mg/kg	119	----	60	130	----	----
		EP231-PFC: PFDcS	67906-42-7	0.0025 mg/kg	109	----	60	130	----	----
		EP231-PFC: PFHxA	307-24-4	0.0025 mg/kg	# 138	----	60	130	----	----
		EP231-PFC: PFHpA	375-85-9	0.0025 mg/kg	99.0	----	60	130	----	----
		EP231-PFC: PFNA	375-95-1	0.0025 mg/kg	94.0	----	60	130	----	----
		EP231-PFC: PFDcA	335-76-2	0.0025 mg/kg	# 132	----	60	130	----	----

Sub-Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP231: Perfluorinated Compounds (QCLot: 3102686) - continued										
EM1310688-030	AF40	EP231-PFC: PFUnA	2058-94-8	0.0025 mg/kg	81.6	----	60	130	----	----
		EP231-PFC: PFDoA	307-55-1	0.0025 mg/kg	72.4	----	60	130	----	----
		EP231-PFC: PFTriA	72629-94-8	0.0025 mg/kg	129	----	60	130	----	----
		EP231-PFC: PFTeA	376-06-7	0.0125 mg/kg	116	----	60	130	----	----

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP231: Perfluorinated Compounds (QCLot: 3104235)										
EM1310688-001	WT01_091013	EP231: PFOS	1763-23-1	0.5 µg/L	80.2	----	70	136	----	----
		EP231: PFOA	335-67-1	0.5 µg/L	72.8	----	72	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	2.5 µg/L	98.8	----	61	145	----	----
EP231: Perfluorinated Compounds (QCLot: 3104236)										
EM1310688-001	WT01_091013	EP231-PFC: 8:2 Fluorotelomer sulfonate	39108-34-4	2.5 µg/L	74.4	----	----	----	----	----
		EP231-PFC: PFOSA	754-91-6	0.5 µg/L	109	----	----	----	----	----
		EP231-PFC: N-Me-FOSA	31506-32-8	2.5 µg/L	95.6	----	----	----	----	----
		EP231-PFC: N-Et-FOSA	4151-50-2	2.5 µg/L	72.0	----	----	----	----	----
		EP231-PFC: N-Me-FOSE	2448-09-7	2.5 µg/L	90.8	----	----	----	----	----
		EP231-PFC: N-Et-FOSE	1691-99-2	2.5 µg/L	72.0	----	----	----	----	----
		EP231-PFC: PFBS	375-73-5	0.5 µg/L	87.4	----	----	----	----	----
		EP231-PFC: PFHxS	3871-99-6	0.5 µg/L	82.4	----	----	----	----	----
		EP231-PFC: PFDcS	67906-42-7	0.5 µg/L	26.0	----	----	----	----	----
		EP231-PFC: PFHxA	307-24-4	0.5 µg/L	82.4	----	----	----	----	----
		EP231-PFC: PFHpA	375-85-9	0.5 µg/L	87.8	----	----	----	----	----
		EP231-PFC: PFNA	375-95-1	0.5 µg/L	76.4	----	----	----	----	----
		EP231-PFC: PFDcA	335-76-2	0.5 µg/L	78.2	----	----	----	----	----
		EP231-PFC: PFUnA	2058-94-8	0.5 µg/L	103	----	----	----	----	----
		EP231-PFC: PFDoA	307-55-1	0.5 µg/L	85.0	----	----	----	----	----
		EP231-PFC: PFTriA	72629-94-8	0.5 µg/L	72.8	----	----	----	----	----
		EP231-PFC: PFTeA	376-06-7	2.5 µg/L	72.8	----	----	----	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **EM1310688**	Page	: 1 of 7
Client	: CARDNO LANE PIPER PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: Fiskville		
C-O-C number	: ----	Date Samples Received	: 10-OCT-2013
Sampler	: MDR	Issue Date	: 22-OCT-2013
Order number	: ----		
		No. of samples received	: 47
Quote number	: MEBQ/115/13	No. of samples analysed	: 43

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

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

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 (EA055-103)							
AF01, AF02, AF03, AF04, AF05, AF06, AF13, AF14, AF15, AF16, AF17, AF18, AF25, AF26, AF27, AF28, AF33, AF34, AF38, AF39, AF40, AF41, AF42, AF45, AF46, AF47, AF48, AF49, QC13, D45J(0.1)_091013, D45J(0.3)_091013, D45K(0.1)_091013, D45K(0.3)_091013, D45L(0.1)_091013, D45L(0.25)_091013, D45m(0.1)_091013, D45m(0.4)_091013, QC09_091013	**09-OCT-2013**	**----**	----	----	**18-OCT-2013**	23-OCT-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
EP231: Perfluorinated Compounds							
Snap Lock Bag (EP231)							
AF01, AF02, AF03, AF04, AF05, AF06, AF13, AF14, AF15, AF16, AF17, AF18, AF25, AF26, AF27, AF28, AF33, AF34, AF38, AF39, AF40, AF41, AF42, AF45, AF46, AF47, AF48, AF49, QC13, D45J(0.1)_091013, D45J(0.3)_091013, D45K(0.1)_091013, D45K(0.3)_091013, D45L(0.1)_091013, D45L(0.25)_091013, D45m(0.1)_091013, D45m(0.4)_091013, QC09_091013	**09-OCT-2013**	**14-OCT-2013**	07-APR-2014	✓	**14-OCT-2013**	23-NOV-2013	✓
EP231: Perfluorinated Compounds							
Snap Lock Bag (EP231-PFC)							
AF01, AF02, AF03, AF04, AF05, AF06, AF13, AF14, AF15, AF16, AF17, AF18, AF25, AF26, AF27, AF28, AF33, AF34, AF38, AF39, AF40, AF41, AF42, AF45, AF46, AF47, AF48, AF49, QC13, D45J(0.1)_091013, D45J(0.3)_091013, D45K(0.1)_091013, D45K(0.3)_091013, D45L(0.1)_091013, D45L(0.25)_091013, D45m(0.1)_091013, D45m(0.4)_091013, QC09_091013	**09-OCT-2013**	**14-OCT-2013**	07-APR-2014	✓	**14-OCT-2013**	23-NOV-2013	✓

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
EP231: Perfluorinated Compounds							
HDPE (no PTFE) (EP231)							
WT01_091013, WT02_091013, WT03_091013, WT04_091013, QC05_091013	**09-OCT-2013**	---	07-APR-2014	----	**14-OCT-2013**	07-APR-2014	✓
EP231: Perfluorinated Compounds							
HDPE (no PTFE) (EP231-PFC)							
WT01_091013, WT02_091013, WT03_091013, WT04_091013, QC05_091013	**09-OCT-2013**	---	07-APR-2014	----	**14-OCT-2013**	07-APR-2014	✓

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)							
Moisture Content	EA055-103	4	40	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorinated Compounds by LCMSMS	EP231-PFC	4	38	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	4	38	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	38	5.3	5.0	✓	NEPM 2013 Schedule B(3) and 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	
Laboratory Duplicates (DUP)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	6	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	6	16.7	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	6	16.7	5.0	✓	NEPM 2013 Schedule B(3) and 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
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 (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
Perfluorinated Compounds by LCMSMS	EP231-PFC	SOIL	In-House. A portion of soil is extracted with MTBE. The extract is taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
PFOS and PFOA	EP231	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorped onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.
Perfluorinated Compounds by LCMSMS	EP231-PFC	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorped onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.

Preparation Methods	Method	Matrix	Method Descriptions
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House

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 SW 846 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: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP231: Perfluorinated Compounds	EM1310688-030	AF40	**N-Me-FOSE**	2448-09-7	56.8 %	60-130%	**Recovery less than lower data quality objective**
EP231: Perfluorinated Compounds	EM1310688-030	AF40	**N-Et-FOSE**	1691-99-2	56.0 %	60-130%	**Recovery less than lower data quality objective**
EP231: Perfluorinated Compounds	EM1310688-010	AF01	**PFDcS**	67906-42-7	138 %	60-130%	**Recovery greater than upper data quality objective**
EP231: Perfluorinated Compounds	EM1310688-030	AF40	**PFHxA**	307-24-4	138 %	60-130%	**Recovery greater than upper data quality objective**
EP231: Perfluorinated Compounds	EM1310688-030	AF40	**PFDcA**	335-76-2	132 %	60-130%	**Recovery greater than upper data quality objective**
EP231: Perfluorinated Compounds	EM1310688-010	AF01	**PFTriA**	72629-94-8	135 %	60-130%	**Recovery greater than upper data quality objective**

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP231: Perfluorinated Compounds	3701616-002	---	**PFUnA**	2058-94-8	134 %	70-130%	**Recovery greater than upper control limit**

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

- **No Analysis Holding Time Outliers exist.**

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.**

Cardno LanePiper

1/5

PM Name: Leigh McDonald Field Staff: Maria Delos Reyes					Sample Matrix				Sample preservation					Analysis										
Phone: 03 9888 0100 Fax: 03 9808 3511 Mobile: 0424278497																								
Address: Building 2, 154 Highbury Rd, Burwood, Vic, 3125																								
PM Email: Leigh.Mcdonald@cardno.com.au, Maria.delosreyes@cardno.com.au																								
Project Number: 212163.31 Site: Fiskville																								
Laboratory (name, phone,fax no & contact person) ALS (Carol Walsh)																								
	Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Soil				Ice bricks					PFCs: PFOS, PFOA, 6:2FTS									
1	AF07 (0.65)		1 bag	10/10/2013		X				X					X									
2	AF08			10/10/2013		X				X														
3	AF09			10/10/2013		X				X														
4	AF10 (0.05)			10/10/2013		X				X														
5	AF11			10/10/2013		X				X														
6	AF12 (0.05)			10/10/2013		X				X														
7	AF19			10/10/2013		X				X														
8	AF20 (0.05)			10/10/2013		X				X														
9	AF21			10/10/2013		X				X														
10	AF22			10/10/2013		X				X														
11	AF23			10/10/2013		X				X														
12	AF24			10/10/2013		X				X														
13	AF29			10/10/2013		X				X														
14	AF30 (0.05)			10/10/2013		X				X														
15	AF31			10/10/2013		X				X														

Environmental Division
Melbourne
CM 11/10 Work Order
EM1310769

Telephone : +61-3-8549 9600

Sampler: I attest that the proper field sampling proceedures were used during the collection of these samples.

Sampler name: (print and signature) MARIA DELOS REYES Date: 11/10/13.

Relinquished by (Sampler): (print and signature)	Date	Time		Date	
MARIA DELOS REYES	11/10/13			11.10.13	2:40.
Relinquished by: (print and signature)	Date	Time		Date	
Relinquished by: (print and signature)	Date	Time		Date	
			ANU (ALS)	11/10	16:15

Please supply results electronically in spreadsheet and ESDAT files.

Turn around time: (24 hour/48 hour/3 days/5 days) Please circle

Cardno LanePiper

2/5

	PM Name: Leigh McDonald Field Staff: Maria Delos Reyes					Sample Matrix				Sample preservation					Analysis										
	Phone: 03 9888 0100 Fax: 03 9808 3511 Mobile: 0424278497																								
	Address: Building 2, 154 Highbury Rd, Burwood, Vic, 3125																								
	PM Email: Leigh.Mcdonald@cardno.com.au, Maria.delosreyes@cardno.com.au																								
	Project Number: 212163.31 Site: Fiskville																								
	Laboratory (name, phone,fax no & contact person) ALS (Carol Walsh)																								
	Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Soil				Ice bricks					PFCs: PFOS, PFOA, 6:2FTS										
16	AF32			10/10/2013		X				X					X										
17	AF33 (0.05)			10/10/2013		X				X															
18	AF35			10/10/2013		X				X															
19	AF36			10/10/2013		X				X															
20	AF37			10/10/2013		X				X															
21	AF42 (0.05)			10/10/2013		X				X															
22	AF43			10/10/2013		X				X															
23	AF46 (0.05)		1 bag	10/10/2013		X				X															
24	AF50			10/10/2013		X				X															
25	AF51			10/10/2013		X				X															
26	AF52			10/10/2013		X				X															
27	AF53			10/10/2013		X				X															
28	AF54			10/10/2013		X				X															
29	AF55			10/10/2013		X				X															
30	AF56			10/10/2013		X				X															

Sampler: I attest that the proper field sampling proceedures were used during the collection of these samples. **Sampler name:** (print and signature) M. DELOS REYES Date: 11/10/13

Relinquished by (Sampler): (print and signature)	Date	Time		Date	
M. Delos Reyes	11/10/13				
Relinquished by: (print and signature)	Date	Time		Date	
Relinquished by: (print and signature)	Date	Time		Date	
			Rhonda (AU)	16/10	16:15

Please supply results electronically in spreadsheet and ESDAT files.

Turn around time: (24 hour/48 hour/3 days/5 days) Please circle

Cardno LanePiper

PM Name: Leigh McDonald **Field Staff:** Maria Delos Reyes

Phone: 03 9888 0100 **Fax:** 03 9808 3511 **Mobile:** 0424278497

Address: Building 2, 154 Highbury Rd, Burwood, Vic, 3125

PM Email: Leigh.Mcdonald@cardno.com.au, Maria.delosreyes@cardno.com.au

Project Number: 212163.31 **Site:** Fiskville

Laboratory (name, phone,fax no & contact person) Carol Walsh (ALS)

	Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Sample Matrix: Soi	Sample preservation: Ice bricks	Analysis: PFCs: PFOS, PFOA, 6:2FTS
31	AF57		I bag	10/10/2013		X	X	X
32	AF58			10/10/2013		X	X	
33	AF59			10/10/2013		X	X	
34	AF60			10/10/2013		X	X	
35	AF61			10/10/2013		X	X	
36	AF62			10/10/2013		X	X	
37	AF63			10/10/2013		X	X	
38	AF64			10/10/2013		X	X	
39	AF65			10/10/2013		X	X	
40	AF66			10/10/2013		X	X	
41	AF67 (0.05)			10/10/2013		X	X	
42	AF68			10/10/2013		X	X	
43	AF69			10/10/2013		X	X	
44	AF70			10/10/2013		X	X	
45	AF71 (0.05)			10/10/2013		X	X	

Sampler: I attest that the proper field sampling proceedures were used during the collection of these samples.

Sampler name: (print and signature) MARIA DELOS REYES [signature] Date: 11/10/13

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by (Sampler): (print and signature) M. Delos Reyes [signature]	11/10/13				
Relinquished by: (print and signature)					
Relinquished by: (print and signature)			Marcu (ALS)	11/10	16:15

Please supply results electronically in spreadsheet and ESDAT files.

Turn around time: (24 hour/48 hour/3 days/5 days) Please circle

Cardno LanePiper

4 15

PM Name: Leigh McDonald **Field Staff:** Maria Delos Reyes

Phone: 03 9888 0100 **Fax:** 03 9808 3511 **Mobile:** 0424278497

Address: Building 2, 154 Highbury Rd, Burwood, Vic, 3125

PM Email: Leigh.Mcdonald@cardno.com.au, Maria.delosreyes@cardno.com.au

Project Number: 212163.31 **Site:** Fiskville

Laboratory (name, phone,fax no & contact person) ALS (carol Walsh)

	Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Sample Matrix: Soil	Sample preservation: Ice bricks	Analysis: PFCs: PFOS, PFOA, 6:2FTS
46	AF72			10/10/2013		X	X	X
47	AF73			10/10/2013		X	X	
48	AF74			10/10/2013		X	X	
49	AF75			10/10/2013		X	X	
50*	AF76			10/10/2013		X	X	
51	AF77			10/10/2013		X	X	
52	AF78			10/10/2013		X	X	
53	AF79		1 bag	10/10/2013		X	X	
54	AF80			10/10/2013		X	X	
55	AF82			10/10/2013		X	X	
56	AF83			10/10/2013		X	X	
57	AF84			10/10/2013		X	X	
58	AF85			10/10/2013		X	X	
59	AF86			10/10/2013		X	X	
60	QC07	PFOS +	nutrients	10/10/2013		X	X	

Sampler: I attest that the proper field sampling proceedures were used during the collection of these samples.

Sampler name: (print and signature) M. Delos Reyes — Date: 11/10/13

	Date	Time		Date	
Relinquished by (Sampler): (print and signature) M. Delos Reyes	11/10/13				
Relinquished by: (print and signature)					
Relinquished by: (print and signature)			Marie (ALS)	11/10	1615

Please supply results electronically in spreadsheet and ESDAT files.

Turn around time: (24 hour/48 hour/3 days/5 days) Please circle

Cardno LanePiper

5/5

PM Name: Leigh McDonald **Field Staff:** Maria Delos Reyes

Phone: 03 9888 0100 **Fax:** 03 9808 3511 **Mobile:** 0424278497

Address: Building 2, 154 Highbury Rd, Burwood, Vic, 3125

PM Email: Leigh.Mcdonald@cardno.com.au, Maria.delosreyes@cardno.com.au

Project Number: 212163.31 **Site:** Fiskville

Laboratory (name, phone,fax no & contact person)

	Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Sample Matrix: Soi	Sample preservation: Ice bricks	Analysis: PFCs: PFOS, PFOA, 6:2FTS
61	AF07 (0.3)		1 bag	10/10/2013		X	X	X (arrow drawn down through all rows)
62	AF10 (0.3)			10/10/2013		X	X	
63	AF12 (0.3)			10/10/2013		X	X	
64	AF20 (0.3)			10/10/2013		X	X	
65	AF30 (0.3)			10/10/2013		X	X	
66	AF67 (0.3)			10/10/2013		X	X	
67	AF71 (0.3)			10/10/2013		X	X	
				10/10/2013		X	X	
68	QC15_101013			10/10/2013		X	X	
69	QC17_101013			10/10/2013		X	X	
70	QC21_101013			10/10/2013		X	X	
71	QC22_101013		PFOS BOTTLE	10/10/2013		X	X	
72	QC24_101013			10/10/2013		X	X	
73	QC23_101013			10/10/2013		X	X	
74	QC25_101013			10/10/2013		X	X	

Sampler: I attest that the proper field sampling proceedures were used during the collection of these samples.

Sampler name: (print and signature) M. Delos Reyes [signature] Date: 11/10/13

Relinquished by (Sampler): (print and signature) M. Delos Reyes [signature] Date 11/10/13 Time

Relinquished by: (print and signature) Date Time Date

Relinquished by: (print and signature) Date Time MARIA CHEN Date 11/10 16:15

Please supply results electronically in spreadsheet and ESDAT files.

Turn around time: (24 hour/48 hour/3 days/5 days) Please circle

Cardno LanePiper

PM Name: Leigh McDonald **Field Staff:** Maria Delos Reyes

Phone: 03 9888 0100 **Fax:** 03 9808 3511 **Mobile:** 0424278497

Address: Building 2, 154 Highbury Rd, Burwood, Vic, 3125

PM Email: Leigh.Mcdonald@cardno.com.au, Maria.delosreyes@cardno.com.au

Project Number: 212163.31 **Site:** Fiskville

Laboratory (name, phone,fax no & contact person)

	Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Sample Matrix: Water	Sample preservation: Ice bricks	NaOH	HNO3	H2SO4	Na2S2O3	Analysis: HOLD
79	QC13-091013		vial PFOS			X	X					X
79	QC14-091013					X	X					X

Sampler: I attest that the proper field sampling proceedures were used during the collection of these samples.

Sampler name: (print and signature) m.delos Reyes Date: 11/10/13

	Date	Time		Date	
Relinquished by (Sampler): (print and signature) m.delosReyes	11/10/13			11/10/13	
Relinquished by: (print and signature)	Date	Time		Date	
Relinquished by: (print and signature)	Date	Time	MARK CRAIG	Date 11/10	16:15

Please supply results electronically in spreadsheet and ESDAT files.

Turn around time: (24 hour/48 hour/3 days/5 days) Please circle

Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: **EM1310769**		
Client	: **CARDNO LANE PIPER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31	Page	: 1 of 5
Order number	: ----		
C-O-C number	: ----	Quote number	: EM2013LANECON0039 (MEBQ/115/13)
Site	: Fiskville		
Sampler	: MDR	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 11-OCT-2013	Issue Date	: 15-OCT-2013 12:30
Client Requested Due Date	: 22-OCT-2013	Scheduled Reporting Date	: **22-OCT-2013**

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 4.8-13.0 - Ice present
No. of coolers/boxes	: 7	No. of samples received	: 76
Security Seal	: N/A	No. of samples analysed	: 74

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 refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Please direct any queries related to sample condition / numbering / breakages to Peter Ravlic.**
- **Analytical work for this work order will be conducted at ALS Springvale and ALS Sydney.**
- Sample Disposal - Aqueous (14 days), Solid (60 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
EP231 : Perfluorooctyl Acids and Sulfonates by LC/MS/MS		
AF07 (0.05)	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF08	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF09	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF10 (0.05)	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF11	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF12 (0.05)	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF19	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF20 (0.05)	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF21	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF22	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF23	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF24	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF29	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF30 (0.05)	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF31	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF32	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF33 (0.05)	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF35	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF36	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF37	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF42 (0.05)	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF43	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF46 (0.05)	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF50	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF51	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF52	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF53	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF54	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF55	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF56	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF57	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF58	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF59	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF60	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF61	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF62	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF63	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF64	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF65	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF66	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF67 (0.05)	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF68	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF69	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF70	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF71 (0.05)	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF72	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF73	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF74	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF75	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF76	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF77	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF78	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF79	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF80	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF82	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF83	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF84	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF85	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF86	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF07 (0.3)	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF10 (0.3)	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF12 (0.3)	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF20 (0.3)	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF30 (0.3)	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
AF67 (0.3)	- Snap Lock Bag	- Soil Glass Jar - Unpreserved

Method *Client sample ID*	Sample Container Received	Preferred Sample Container for Analysis
EP231 : Perfluorooctyl Acids and Sulfonates by LC/MS/MS		
AF71 (0.3)	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
QC15_101013	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
QC17_101013	- Snap Lock Bag	- Soil Glass Jar - Unpreserved
QC21_101013	- Snap Lock Bag	- Soil Glass Jar - Unpreserved

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 - EA055-103 Moisture Content	SOIL - EP231-PFC Perfluorinated Compounds by LC/MS/MS
EM1310769-001	10-OCT-2013 15:00	AF07 (0.05)	✓	✓
EM1310769-002	10-OCT-2013 15:00	AF08	✓	✓
EM1310769-003	10-OCT-2013 15:00	AF09	✓	✓
EM1310769-004	10-OCT-2013 15:00	AF10 (0.05)	✓	✓
EM1310769-005	10-OCT-2013 15:00	AF11	✓	✓
EM1310769-006	10-OCT-2013 15:00	AF12 (0.05)	✓	✓
EM1310769-007	10-OCT-2013 15:00	AF19	✓	✓
EM1310769-008	10-OCT-2013 15:00	AF20 (0.05)	✓	✓
EM1310769-009	10-OCT-2013 15:00	AF21	✓	✓
EM1310769-010	10-OCT-2013 15:00	AF22	✓	✓
EM1310769-011	10-OCT-2013 15:00	AF23	✓	✓
EM1310769-012	10-OCT-2013 15:00	AF24	✓	✓
EM1310769-013	10-OCT-2013 15:00	AF29	✓	✓
EM1310769-014	10-OCT-2013 15:00	AF30 (0.05)	✓	✓
EM1310769-015	10-OCT-2013 15:00	AF31	✓	✓
EM1310769-016	10-OCT-2013 15:00	AF32	✓	✓
EM1310769-017	10-OCT-2013 15:00	AF33 (0.05)	✓	✓
EM1310769-018	10-OCT-2013 15:00	AF35	✓	✓
EM1310769-019	10-OCT-2013 15:00	AF36	✓	✓
EM1310769-020	10-OCT-2013 15:00	AF37	✓	✓
EM1310769-021	10-OCT-2013 15:00	AF42 (0.05)	✓	✓
EM1310769-022	10-OCT-2013 15:00	AF43	✓	✓
EM1310769-023	10-OCT-2013 15:00	AF46 (0.05)	✓	✓
EM1310769-024	10-OCT-2013 15:00	AF50	✓	✓
EM1310769-025	10-OCT-2013 15:00	AF51	✓	✓
EM1310769-026	10-OCT-2013 15:00	AF52	✓	✓
EM1310769-027	10-OCT-2013 15:00	AF53	✓	✓
EM1310769-028	10-OCT-2013 15:00	AF54	✓	✓
EM1310769-029	10-OCT-2013 15:00	AF55	✓	✓
EM1310769-030	10-OCT-2013 15:00	AF56	✓	✓
EM1310769-031	10-OCT-2013 15:00	AF57	✓	✓
EM1310769-032	10-OCT-2013 15:00	AF58	✓	✓
EM1310769-033	10-OCT-2013 15:00	AF59	✓	✓

			SOIL - EA055-103 Moisture Content	SOIL - EP231-PFC Perfluorinated Compounds by LC/MS/MS
EM1310769-034	10-OCT-2013 15:00	AF60	✓	✓
EM1310769-035	10-OCT-2013 15:00	AF61	✓	✓
EM1310769-036	10-OCT-2013 15:00	AF62	✓	✓
EM1310769-037	10-OCT-2013 15:00	AF63	✓	✓
EM1310769-038	10-OCT-2013 15:00	AF64	✓	✓
EM1310769-039	10-OCT-2013 15:00	AF65	✓	✓
EM1310769-040	10-OCT-2013 15:00	AF66	✓	✓
EM1310769-041	10-OCT-2013 15:00	AF67 (0.05)	✓	✓
EM1310769-042	10-OCT-2013 15:00	AF68	✓	✓
EM1310769-043	10-OCT-2013 15:00	AF69	✓	✓
EM1310769-044	10-OCT-2013 15:00	AF70	✓	✓
EM1310769-045	10-OCT-2013 15:00	AF71 (0.05)	✓	✓
EM1310769-046	10-OCT-2013 15:00	AF72	✓	✓
EM1310769-047	10-OCT-2013 15:00	AF73	✓	✓
EM1310769-048	10-OCT-2013 15:00	AF74	✓	✓
EM1310769-049	10-OCT-2013 15:00	AF75	✓	✓
EM1310769-050	10-OCT-2013 15:00	AF76	✓	✓
EM1310769-051	10-OCT-2013 15:00	AF77	✓	✓
EM1310769-052	10-OCT-2013 15:00	AF78	✓	✓
EM1310769-053	10-OCT-2013 15:00	AF79	✓	✓
EM1310769-054	10-OCT-2013 15:00	AF80	✓	✓
EM1310769-055	10-OCT-2013 15:00	AF82	✓	✓
EM1310769-056	10-OCT-2013 15:00	AF83	✓	✓
EM1310769-057	10-OCT-2013 15:00	AF84	✓	✓
EM1310769-058	10-OCT-2013 15:00	AF85	✓	✓
EM1310769-059	10-OCT-2013 15:00	AF86	✓	✓
EM1310769-061	10-OCT-2013 15:00	AF07 (0.3)	✓	✓
EM1310769-062	10-OCT-2013 15:00	AF10 (0.3)	✓	✓
EM1310769-063	10-OCT-2013 15:00	AF12 (0.3)	✓	✓
EM1310769-064	10-OCT-2013 15:00	AF20 (0.3)	✓	✓
EM1310769-065	10-OCT-2013 15:00	AF30 (0.3)	✓	✓
EM1310769-066	10-OCT-2013 15:00	AF67 (0.3)	✓	✓
EM1310769-067	10-OCT-2013 15:00	AF71 (0.3)	✓	✓
EM1310769-068	10-OCT-2013 15:00	QC15_101013	✓	✓
EM1310769-069	10-OCT-2013 15:00	QC17_101013	✓	✓
EM1310769-070	10-OCT-2013 15:00	QC21_101013	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	(On Hold) WATER No analysis requested	WATER - EP231-PFC Perfluorinated Compounds by LC/MS/MS -Extended
EM1310769-060	10-OCT-2013 15:00	QC07		✓
EM1310769-071	10-OCT-2013 15:00	QC22_101013		✓
EM1310769-072	10-OCT-2013 15:00	QC24_101013		✓
EM1310769-073	10-OCT-2013 15:00	QC23_101013		✓
EM1310769-074	10-OCT-2013 15:00	QC25_101013		✓
EM1310769-075	10-OCT-2013 15:00	QC13_091013	✓	
EM1310769-076	10-OCT-2013 15:00	QC14_091013	✓	

Proactive Holding Time Report

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

Requested Deliverables

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	payables@lanepiper.com.au

LEIGH MCDONALD

- *AU Certificate of Analysis - NATA (COA)	Email	Leigh.Mcdonald@cardno.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Leigh.Mcdonald@cardno.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Leigh.Mcdonald@cardno.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Leigh.Mcdonald@cardno.com.au
- Chain of Custody (CoC) (COC)	Email	Leigh.Mcdonald@cardno.com.au
- EDI Format - ESDAT (ESDAT)	Email	Leigh.Mcdonald@cardno.com.au

MS MARIA DE LOS REYES

- *AU Certificate of Analysis - NATA	Email	maria.delosreyes@cardno.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep)	Email	maria.delosreyes@cardno.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA	Email	maria.delosreyes@cardno.com.au
- A4 - AU Sample Receipt Notification - Environmental HT	Email	maria.delosreyes@cardno.com.au
- Chain of Custody (CoC)	Email	maria.delosreyes@cardno.com.au
- EDI Format - ESDAT	Email	maria.delosreyes@cardno.com.au

CERTIFICATE OF ANALYSIS

Work Order	: **EM1310769**	Page	: 1 of 1L
Amendment	: **1**		
i lneEy	: **CARDNO LANE PIPER PTY LTD**	bat orayorC	: v EmnroED eEyal MnnsroE c elt ourEe
i oEyal y	: bv GHO c i MNAWbM	i oEyal y	: i arol h alsd
W55ress	: 14B OGHOURYV YNWM URYh NNM , G SWR2TYWbGVp134	W55ress	: B h esyall Y5 27mEgnale , G Wusyralna p1L1
v-Darl	: bergd.c l 5oEal5@l ar5Eo.l oD.au	v-Darl	: l arol.walsd@alsglot al.l oD
Tele7doEe	: +61 0p 98880100	Tele7doEe	: +61-p-84B9 9608
Fal srDne	: +61 0p 9808p411	Fal srDne	: +61-p-84B9 9601
Projel y	: 31316p p1	Qi benel	: Av Pc 301p 2l de5ule U(p) aE5 Wb2 Qi 2p requnreD eEy
Nr5er EuDt er	: ----		
i -N-i EuDt er	: ----	Maye 2aD7les Yel enne5	: 11-Ni T-301p
2aD7ler	: c MY	Gsue Maye	: 1p-Mv i -301p
2nye	: Frskmnlle		
		Ao. of saD7les rel enne5	: L6
Quoye EuDt er	: c v UQ/114/1p	Ao. of saD7les aEalOse5	: LB

Tdns re7ory su7erse5es aEC 7rennous re7ory(s) wnyd ydns refereEl e. Yesulys a77lC yo yde saD7le(s) as sut Dnye5. Wl 7ages of ydns re7ory dane t eeE l del ke5 aE5 a77rone5 for release.

Tdns i eryfnl aye of WEalOsns l oEyanEs yde followrEg nEforD ayroE:

- HeEeral i oD DeEys
- WEalOynal Yesulys

NATA
WORLD RECOGNISED
ACCREDITATION

AWTWW l re5nye5 bat orayorC834

Wl re5nye5 for l oD7lnaEl e wnyd G2N/Gi 1L034.

Signatories

Tdns 5ol uD eEy das t eeE elel yroEnl allC snrgEe5 t C yde auydonze5 snrgEayornes nE5nl aye5 t elow. v lel yroEnl snrgEnEg das t eeE l arne5 ouynE l oD7lnaEl e wnyd 7rol e5ures s7el nne5 nE 31 i FY Pary11.

Signatories	*Position*	*Accreditation Category*
v nne.2 n5arya	GEorgaEnl i deDnsy	2C5EeCGEorgaEnl s
HasyoE WleE5e	Y&Mi deDnsy	2C5EeCNrgaEnl s

General Comments

Tde aEalCyrlal 7rol e5ures use5 t C yde v EmrroEDeEyal MmrnsroE dame teeE 5emelo7e5 froD esyat lnsde5 rEyerEayroEallC rel ogErze5 7rol e5ures sul d as ydose 7ut lnsde5 t C yde R2v PWS WPOWS W2 aE5 Av Pc . GE douse 5emelo7e5 7rol e5ures are eD7loCe5 rEyde at seEl e of 5ol uDeEye5 syaE5ar5s or t Cl lreEyrequesy.

h dere Dorsyure 5eyerDrEayroE das t eeE 7erforDe5Sresulys are re7orye5 oE a 5rCwergdyt asrs.

h dere a re7orye5 less ydaE (<) resulyrs drgder ydaE yde bNYSydrs DaCt e 5ue yo 7rrDarCsaD7le exyral y5rgesyaye 5rluyroE aE5/or rEsuffrlreEysaD7le for aEalCsrs.

h dere yde bNY of a re7orye5 resuly5rffers froD syaE5ar5 bNYSydrs DaCt e 5ue yo drgd Dorsyure l oEyeEySrEsuffrlreEysaD7le (re5ul e5 wergdyeD7loCe5) or Dayrx rEyerfereEl e.

h deE saD7lrEg yrDe rEforDayroE rs Eoy7rorr5e5 t Cyde llreEySsaD7lrEg 5ayes are sdowE wrydouya yrDe l oD7oEeEy. GE ydese rEsyaEl esSyde yrDe l oD7oEeEydas t eeE assuDe5 t Cyde lat orayorCfor 7rol essrEg 7ur7oses.

KeC: i W2 AuDt er = i W2 regrsyrCEuDt er froD 5ayat ase DarEyarEe5 t Ci deDrlal Wt syral ys 2ermrles. Tde i deDrlal Wt syral ys 2ermrle rs a 5rmrsroE of yde WDerrlaE i deDrlal 2olreyC.
bNY = brDryof re7oryEg
^ = Tdrs resulyrs l oD7uye5 froD rE5rr5ual aEalCye 5eyel yroEs ayor at orre yde lerrel of re7oryEg

- **EP231: PFOA and PFOS results are reported as an aggregate of linear and branched isomers.**
- **EP231: Poor matrix spike recovery due to matrix interference.**
- **PFOS/PFOA (EP231) conducted by ALS Sydney, NATA accreditation no. 825, site no 10911.**
- **This work order has been amended to change the sampling date of sample 60 - QC07 to 9/10/13, as requested on 13/12/13.**

Analytical Results

2ut -c aynx: SOIL (c aynx: SOIL)			Client sample ID	AF07 (0.05)	AF08	AF09	AF10 (0.05)	AF11
			Client sampling date / time	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00
Compound	CAS Number	LOR	Unit	EM1310769-001	EM1310769-002	EM1310769-003	EM1310769-004	EM1310769-005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	22.5	20.3	19.6	22.4	15.5
EP231: Perfluorinated Compounds								
PFOS	1L6p-3p-1	0.0004	Dg/kg	0.0035	0.0016	0.0023	0.0024	0.0013
PFOA	pp4-6L-1	0.0004	Dg/kg	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
6:2 Fluorotelomer sulfonate (6:2 FtS)	3L619-9L-3	0.004	Dg/kg	<0.004	<0.004	<0.004	<0.004	<0.004
8:2 Fluorotelomer sulfonate	p9108-pB-B	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFOSA	L4B-91-6	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
N-Me-FOSA	p1406-p3-8	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	B141-40-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	3BB8-09-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	pL4-Lp-4	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxS	p8L1-99-6	0.0003	Dg/kg	0.0015	0.0012	0.0012	0.0009	0.0011
PFDcS	6L906-B3-L	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxA	p0L-3B-B	0.0003	Dg/kg	0.0005	<0.0003	<0.0003	0.0002	0.0008
PFHpA	pL4-84-9	0.0003	Dg/kg	0.0007	0.0003	0.0003	0.0004	0.0010
PFNA	pL4-94-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDcA	pp4-L6-3	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFUnA	3048-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDoA	p0L-44-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTriA	L3639-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTeA	pL6-06-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

2ut -c aynx: SOIL (c aynx: SOIL)			Client sample ID	AF12 (0.05)	AF19	AF20 (0.05)	AF21	AF22
			Client sampling date / time	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00
Compound	CAS Number	LOR	Unit	EM1310769-006	EM1310769-007	EM1310769-008	EM1310769-009	EM1310769-010
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	21.6	25.3	18.7	19.8	22.6
EP231: Perfluorinated Compounds								
PFOS	1L6p-3p-1	0.0004	Dg/kg	0.0035	0.0013	0.0021	0.0016	0.0020
PFOA	pp4-6L-1	0.0004	Dg/kg	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
6:2 Fluorotelomer sulfonate (6:2 FtS)	3L619-9L-3	0.004	Dg/kg	<0.004	<0.004	<0.004	<0.004	<0.004
8:2 Fluorotelomer sulfonate	p9108-pB-B	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFOSA	L4B-91-6	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
N-Me-FOSA	p1406-p3-8	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	B141-40-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	3BB8-09-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	pL4-Lp-4	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxS	p8L1-99-6	0.0003	Dg/kg	0.0022	0.0010	0.0015	0.0012	0.0016
PFDcS	6L906-B3-L	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxA	p0L-3B-B	0.0003	Dg/kg	0.0012	<0.0003	<0.0003	0.0002	0.0003
PFHpA	pL4-84-9	0.0003	Dg/kg	0.0014	0.0002	0.0002	0.0003	0.0004
PFNA	pL4-94-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDcA	pp4-L6-3	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFUnA	3048-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDoA	p0L-44-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTriA	L3639-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTeA	pL6-06-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

2ut -c aynx: SOIL (c aynx: SOIL)			Client sample ID	AF23	AF24	AF29	AF30 (0.05)	AF31
			Client sampling date / time	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00
Compound	CAS Number	LOR	Unit	EM1310769-011	EM1310769-012	EM1310769-013	EM1310769-014	EM1310769-015
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	**10.7**	**18.2**	**22.6**	**20.7**	**19.3**
EP231: Perfluorinated Compounds								
PFOS	1L6p-3p-1	0.0004	Dg/kg	**0.0006**	**0.0006**	**0.0022**	**0.0019**	**0.0009**
PFOA	pp4-6L-1	0.0004	Dg/kg	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
6:2 Fluorotelomer sulfonate (6:2 FtS)	3L619-9L-3	0.004	Dg/kg	<0.004	<0.004	<0.004	<0.004	<0.004
8:2 Fluorotelomer sulfonate	p9108-pB-B	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFOSA	L4B-91-6	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
N-Me-FOSA	p1406-p3-8	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	B141-40-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	3BB8-09-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	pL4-Lp-4	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxS	p8L1-99-6	0.0003	Dg/kg	**0.0006**	**0.0014**	**0.0022**	**0.0014**	**0.0010**
PFDcS	6L906-B3-L	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxA	p0L-3B-B	0.0003	Dg/kg	**0.0004**	**0.0005**	**0.0005**	**0.0002**	**0.0011**
PFHpA	pL4-84-9	0.0003	Dg/kg	**0.0003**	**0.0005**	**0.0003**	**0.0003**	**0.0011**
PFNA	pL4-94-1	0.0003	Dg/kg	<0.0003	<0.0003	**0.0003**	<0.0003	<0.0003
PFDcA	pp4-L6-3	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFUnA	3048-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDoA	p0L-44-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTriA	L3639-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTeA	pL6-06-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

2ut -c aynx: SOIL (c aynx: SOIL)			Client sample ID	AF32	AF33 (0.05)	AF35	AF36	AF37
			Client sampling date / time	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00
Compound	CAS Number	LOR	Unit	EM1310769-016	EM1310769-017	EM1310769-018	EM1310769-019	EM1310769-020
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	22.7	20.4	19.2	11.3	19.2
EP231: Perfluorinated Compounds								
PFOS	1L6p-3p-1	0.0004	Dg/kg	**0.0240**	**0.0024**	**0.0012**	**0.0014**	<0.0004
PFOA	pp4-6L-1	0.0004	Dg/kg	**0.0008**	<0.0004	<0.0004	<0.0004	<0.0004
6:2 Fluorotelomer sulfonate (6:2 FtS)	3L619-9L-3	0.004	Dg/kg	<0.004	<0.004	<0.004	<0.004	<0.004
8:2 Fluorotelomer sulfonate	p9108-pB-B	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFOSA	L4B-91-6	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
N-Me-FOSA	p1406-p3-8	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	B141-40-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	3BB8-09-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	pL4-Lp-4	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxS	p8L1-99-6	0.0003	Dg/kg	**0.0032**	**0.0013**	**0.0008**	**0.0018**	**0.0005**
PFDcS	6L906-B3-L	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxA	p0L-3B-B	0.0003	Dg/kg	**0.0028**	**0.0003**	<0.0003	**0.0003**	<0.0003
PFHpA	pL4-84-9	0.0003	Dg/kg	**0.0026**	**0.0003**	<0.0003	**0.0003**	<0.0003
PFNA	pL4-94-1	0.0003	Dg/kg	**0.0009**	<0.0003	<0.0003	<0.0003	<0.0003
PFDcA	pp4-L6-3	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFUnA	3048-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDoA	p0L-44-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTriA	L3639-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTeA	pL6-06-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

2ut -c aynx: SOIL (c aynx: SOIL)			Client sample ID	AF42 (0.05)	AF43	AF46 (0.05)	AF50	AF51
			Client sampling date / time	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00
Compound	*CAS Number*	*LOR*	*Unit*	**EM1310769-021**	**EM1310769-022**	**EM1310769-023**	**EM1310769-024**	**EM1310769-025**
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	**23.4**	**17.8**	**21.0**	**19.0**	**21.7**
EP231: Perfluorinated Compounds								
PFOS	1L6p-3p-1	0.0004	Dg/kg	**0.0014**	<0.0004	<0.0004	**0.0009**	**0.0006**
PFOA	pp4-6L-1	0.0004	Dg/kg	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
6:2 Fluorotelomer sulfonate (6:2 FtS)	3L619-9L-3	0.004	Dg/kg	<0.004	<0.004	<0.004	<0.004	<0.004
8:2 Fluorotelomer sulfonate	p9108-pB-B	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFOSA	L4B-91-6	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
N-Me-FOSA	p1406-p3-8	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	B141-40-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	3BB8-09-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	pL4-Lp-4	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxS	p8L1-99-6	0.0003	Dg/kg	**0.0011**	**0.0004**	**0.0005**	**0.0009**	**0.0005**
PFDcS	6L906-B3-L	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxA	p0L-3B-B	0.0003	Dg/kg	**0.0009**	<0.0003	**0.0002**	<0.0003	<0.0003
PFHpA	pL4-84-9	0.0003	Dg/kg	**0.0012**	<0.0003	<0.0003	**0.0004**	<0.0003
PFNA	pL4-94-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDcA	pp4-L6-3	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFUnA	3048-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDoA	p0L-44-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTriA	L3639-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTeA	pL6-06-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

2ut -c aynx: SOIL (c aynx: SOIL)			Client sample ID	AF52	AF53	AF54	AF55	AF56
			Client sampling date / time	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00
Compound	CAS Number	LOR	Unit	EM1310769-026	EM1310769-027	EM1310769-028	EM1310769-029	EM1310769-030
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	**20.4**	**22.2**	**26.2**	**21.4**	**23.1**
EP231: Perfluorinated Compounds								
PFOS	1L6p-3p-1	0.0004	Dg/kg	**0.0015**	**0.0006**	<0.0004	<0.0004	**0.0009**
PFOA	pp4-6L-1	0.0004	Dg/kg	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
6:2 Fluorotelomer sulfonate (6:2 FtS)	3L619-9L-3	0.004	Dg/kg	<0.004	<0.004	<0.004	<0.004	<0.004
8:2 Fluorotelomer sulfonate	p9108-pB-B	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFOSA	L4B-91-6	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
N-Me-FOSA	p1406-p3-8	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	B141-40-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	3BB8-09-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	pL4-Lp-4	0.0003	Dg/kg	**0.0002**	<0.0003	<0.0003	<0.0003	<0.0003
PFHxS	p8L1-99-6	0.0003	Dg/kg	**0.0014**	**0.0004**	**0.0003**	**0.0003**	**0.0004**
PFDcS	6L906-B3-L	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxA	p0L-3B-B	0.0003	Dg/kg	**0.0018**	<0.0003	<0.0003	<0.0003	<0.0003
PFHpA	pL4-84-9	0.0003	Dg/kg	**0.0018**	<0.0003	<0.0003	<0.0003	**0.0002**
PFNA	pL4-94-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDcA	pp4-L6-3	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFUnA	3048-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDoA	p0L-44-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTriA	L3639-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTeA	pL6-06-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

2ut -c aynx: SOIL (c aynx: SOIL)			Client sample ID	AF57	AF58	AF59	AF60	AF61
			Client sampling date / time	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00
Compound	CAS Number	LOR	Unit	EM1310769-031	EM1310769-032	EM1310769-033	EM1310769-034	EM1310769-035
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	24.7	12.7	19.9	16.8	16.3
EP231: Perfluorinated Compounds								
PFOS	1L6p-3p-1	0.0004	Dg/kg	<0.0004	**0.0006**	**0.0007**	<0.0004	<0.0004
PFOA	pp4-6L-1	0.0004	Dg/kg	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
6:2 Fluorotelomer sulfonate (6:2 FtS)	3L619-9L-3	0.004	Dg/kg	<0.004	<0.004	<0.004	<0.004	<0.004
8:2 Fluorotelomer sulfonate	p9108-pB-B	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFOSA	L4B-91-6	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
N-Me-FOSA	p1406-p3-8	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	B141-40-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	3BB8-09-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	pL4-Lp-4	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxS	p8L1-99-6	0.0003	Dg/kg	**0.0002**	**0.0002**	**0.0004**	**0.0004**	**0.0002**
PFDcS	6L906-B3-L	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxA	p0L-3B-B	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHpA	pL4-84-9	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFNA	pL4-94-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDcA	pp4-L6-3	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFUnA	3048-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDoA	p0L-44-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTriA	L3639-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTeA	pL6-06-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

2ut -c ayrnx: SOIL (c ayrnx: SOIL)			Client sample ID	AF62	AF63	AF64	AF65	AF66
			Client sampling date / time	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00
Compound	CAS Number	LOR	Unit	EM1310769-036	EM1310769-037	EM1310769-038	EM1310769-039	EM1310769-040
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	**21.6**	**14.0**	**17.6**	**17.6**	**16.2**
EP231: Perfluorinated Compounds								
PFOS	1L6p-3p-1	0.0004	Dg/kg	<0.0004	**0.0010**	<0.0004	**0.0006**	**0.0005**
PFOA	pp4-6L-1	0.0004	Dg/kg	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
6:2 Fluorotelomer sulfonate (6:2 FtS)	3L619-9L-3	0.004	Dg/kg	<0.004	<0.004	<0.004	<0.004	<0.004
8:2 Fluorotelomer sulfonate	p9108-pB-B	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFOSA	L4B-91-6	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
N-Me-FOSA	p1406-p3-8	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	B141-40-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	3BB8-09-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	pL4-Lp-4	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxS	p8L1-99-6	0.0003	Dg/kg	**0.0006**	**0.0003**	**0.0004**	**0.0004**	<0.0003
PFDcS	6L906-B3-L	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxA	p0L-3B-B	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHpA	pL4-84-9	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFNA	pL4-94-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDcA	pp4-L6-3	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFUnA	3048-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDoA	p0L-44-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTriA	L3639-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTeA	pL6-06-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

2ut -c aynx: SOIL (c aynx: SOIL)			Client sample ID	AF67 (0.05)	AF68	AF69	AF70	AF71 (0.05)
			Client sampling date / time	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00
Compound	*CAS Number*	*LOR*	*Unit*	**EM1310769-041**	**EM1310769-042**	**EM1310769-043**	**EM1310769-044**	**EM1310769-045**
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	**15.6**	**17.3**	**19.5**	**18.8**	**13.5**
EP231: Perfluorinated Compounds								
PFOS	1L6p-3p-1	0.0004	Dg/kg	**0.0005**	<0.0004	<0.0004	**0.0005**	<0.0004
PFOA	pp4-6L-1	0.0004	Dg/kg	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
6:2 Fluorotelomer sulfonate (6:2 FtS)	3L619-9L-3	0.004	Dg/kg	<0.004	<0.004	<0.004	<0.004	<0.004
8:2 Fluorotelomer sulfonate	p9108-pB-B	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFOSA	L4B-91-6	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
N-Me-FOSA	p1406-p3-8	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	B141-40-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	3BB8-09-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	pL4-Lp-4	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxS	p8L1-99-6	0.0003	Dg/kg	**0.0003**	**0.0003**	<0.0003	**0.0002**	**0.0002**
PFDcS	6L906-B3-L	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxA	p0L-3B-B	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHpA	pL4-84-9	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFNA	pL4-94-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDcA	pp4-L6-3	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFUnA	3048-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDoA	p0L-44-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTriA	L3639-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTeA	pL6-06-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

2ut -c aynx: SOIL (c aynx: SOIL)			Client sample ID	AF72	AF73	AF74	AF75	AF76
			Client sampling date / time	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00
Compound	CAS Number	LOR	Unit	EM1310769-046	EM1310769-047	EM1310769-048	EM1310769-049	EM1310769-050
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	**18.1**	**18.5**	**18.2**	**20.1**	**18.2**
EP231: Perfluorinated Compounds								
PFOS	1L6p-3p-1	0.0004	Dg/kg	**0.0006**	<0.0004	<0.0004	**0.0009**	<0.0004
PFOA	pp4-6L-1	0.0004	Dg/kg	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
6:2 Fluorotelomer sulfonate (6:2 FtS)	3L619-9L-3	0.004	Dg/kg	<0.004	<0.004	<0.004	<0.004	<0.004
8:2 Fluorotelomer sulfonate	p9108-pB-B	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFOSA	L4B-91-6	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
N-Me-FOSA	p1406-p3-8	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	B141-40-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	3BB8-09-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	pL4-Lp-4	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxS	p8L1-99-6	0.0003	Dg/kg	**0.0003**	**0.0002**	**0.0003**	**0.0005**	<0.0003
PFDcS	6L906-B3-L	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxA	p0L-3B-B	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHpA	pL4-84-9	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFNA	pL4-94-1	0.0003	Dg/kg	<0.0003	<0.0003	**0.0006**	<0.0003	<0.0003
PFDcA	pp4-L6-3	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFUnA	3048-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDoA	p0L-44-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTriA	L3639-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTeA	pL6-06-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

2ut -c aynx: SOIL (c aynx: SOIL)			Client sample ID	AF77	AF78	AF79	AF80	AF82
			Client sampling date / time	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00
Compound	CAS Number	LOR	Unit	EM1310769-051	EM1310769-052	EM1310769-053	EM1310769-054	EM1310769-055
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	19.6	16.3	16.6	17.9	16.8
EP231: Perfluorinated Compounds								
PFOS	1L6p-3p-1	0.0004	Dg/kg	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
PFOA	pp4-6L-1	0.0004	Dg/kg	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
6:2 Fluorotelomer sulfonate (6:2 FtS)	3L619-9L-3	0.004	Dg/kg	<0.004	<0.004	<0.004	<0.004	<0.004
8:2 Fluorotelomer sulfonate	p9108-pB-B	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFOSA	L4B-91-6	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
N-Me-FOSA	p1406-p3-8	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	B141-40-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	3BB8-09-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	pL4-Lp-4	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxS	p8L1-99-6	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDcS	6L906-B3-L	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxA	p0L-3B-B	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHpA	pL4-84-9	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFNA	pL4-94-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDcA	pp4-L6-3	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFUnA	3048-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDoA	p0L-44-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTriA	L3639-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTeA	pL6-06-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

2ut -c aynx: SOIL (c aynx: SOIL)			Client sample ID	AF83	AF84	AF85	AF86	AF07 (0.3)
			Client sampling date / time	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00
Compound	CAS Number	LOR	Unit	EM1310769-056	EM1310769-057	EM1310769-058	EM1310769-059	EM1310769-061
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	**16.1**	**19.9**	**17.2**	**18.5**	**15.3**
EP231: Perfluorinated Compounds								
PFOS	1L6p-3p-1	0.0004	Dg/kg	<0.0004	<0.0004	<0.0004	<0.0004	**0.0015**
PFOA	pp4-6L-1	0.0004	Dg/kg	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
6:2 Fluorotelomer sulfonate (6:2 FtS)	3L619-9L-3	0.004	Dg/kg	<0.004	<0.004	<0.004	<0.004	<0.004
8:2 Fluorotelomer sulfonate	p9108-pB-B	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFOSA	L4B-91-6	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
N-Me-FOSA	p1406-p3-8	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	B141-40-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	3BB8-09-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	pL4-Lp-4	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxS	p8L1-99-6	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	**0.0002**	**0.0011**
PFDcS	6L906-B3-L	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxA	p0L-3B-B	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	**0.0003**
PFHpA	pL4-84-9	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	**0.0003**
PFNA	pL4-94-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDcA	pp4-L6-3	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFUnA	3048-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDoA	p0L-44-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTriA	L3639-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTeA	pL6-06-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

2ut -c aynx: SOIL (c aynx: SOIL)			Client sample ID	AF10 (0.3)	AF12 (0.3)	AF20 (0.3)	AF30 (0.3)	AF67 (0.3)
			Client sampling date / time	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00
Compound	CAS Number	LOR	Unit	EM1310769-062	EM1310769-063	EM1310769-064	EM1310769-065	EM1310769-066
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	---	1.0	%	**25.8**	**21.8**	**12.2**	**16.0**	**15.2**
EP231: Perfluorinated Compounds								
PFOS	1L6p-3p-1	0.0004	Dg/kg	<0.0004	**0.0021**	**0.0013**	**0.0008**	<0.0004
PFOA	pp4-6L-1	0.0004	Dg/kg	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
6:2 Fluorotelomer sulfonate (6:2 FtS)	3L619-9L-3	0.004	Dg/kg	<0.004	<0.004	<0.004	<0.004	<0.004
8:2 Fluorotelomer sulfonate	p9108-pB-B	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFOSA	L4B-91-6	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
N-Me-FOSA	p1406-p3-8	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSA	B141-40-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Me-FOSE	3BB8-09-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
N-Et-FOSE	1691-99-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001
PFBS	pL4-Lp-4	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxS	p8L1-99-6	0.0003	Dg/kg	**0.0005**	**0.0018**	**0.0010**	**0.0016**	<0.0003
PFDcS	6L906-B3-L	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFHxA	p0L-3B-B	0.0003	Dg/kg	<0.0003	**0.0006**	<0.0003	**0.0003**	<0.0003
PFHpA	pL4-84-9	0.0003	Dg/kg	<0.0003	**0.0006**	<0.0003	<0.0003	<0.0003
PFNA	pL4-94-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDcA	pp4-L6-3	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFUnA	3048-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFDoA	p0L-44-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTriA	L3639-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
PFTeA	pL6-06-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	<0.001

Analytical Results

2ut -c ayrx: SOIL (c ayrx: SOIL)			Client sample ID	AF71 (0.3)	QC15_101013	QC17_101013	QC21_101013	----
			Client sampling date / time	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	----
Compound	*CAS Number*	*LOR*	*Unit*	**EM1310769-067**	**EM1310769-068**	**EM1310769-069**	**EM1310769-070**	**----**
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	**12.6**	**15.3**	**16.6**	**19.6**	----
EP231: Perfluorinated Compounds								
PFOS	1L6p-3p-1	0.0004	Dg/kg	<0.0004	**0.0018**	<0.0004	<0.0004	----
PFOA	pp4-6L-1	0.0004	Dg/kg	<0.0004	<0.0004	<0.0004	<0.0004	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	3L619-9L-3	0.004	Dg/kg	<0.004	<0.004	<0.004	<0.004	----
8:2 Fluorotelomer sulfonate	p9108-pB-B	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	----
PFOSA	L4B-91-6	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	----
N-Me-FOSA	p1406-p3-8	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	----
N-Et-FOSA	B141-40-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	----
N-Me-FOSE	3BB8-09-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	----
N-Et-FOSE	1691-99-3	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	----
PFBS	pL4-Lp-4	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	----
PFHxS	p8L1-99-6	0.0003	Dg/kg	<0.0003	**0.0013**	<0.0003	<0.0003	----
PFDcS	6L906-B3-L	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	----
PFHxA	p0L-3B-B	0.0003	Dg/kg	<0.0003	**0.0004**	<0.0003	<0.0003	----
PFHpA	pL4-84-9	0.0003	Dg/kg	<0.0003	**0.0004**	<0.0003	<0.0003	----
PFNA	pL4-94-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	----
PFDcA	pp4-L6-3	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	----
PFUnA	3048-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	----
PFDoA	p0L-44-1	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	----
PFTriA	L3639-9B-8	0.0003	Dg/kg	<0.0003	<0.0003	<0.0003	<0.0003	----
PFTeA	pL6-06-L	0.001	Dg/kg	<0.001	<0.001	<0.001	<0.001	----

Analytical Results

2ut -c ayrıx: WATER (c ayrıx: WATER)			Client sample ID	QC07	QC22_101013	QC24_101013	QC23_101013	QC25_101013
			Client sampling date / time	09-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00	10-Ni T-301p 14:00
Compound	CAS Number	LOR	Unit	EM1310769-060	EM1310769-071	EM1310769-072	EM1310769-073	EM1310769-074
EP231: Perfluorinated Compounds								
PFOS	1L6p-3p-1	0.03	µg/b	<0.03	<0.03	<0.03	<0.03	<0.03
PFOA	pp4-6L-1	0.03	µg/b	<0.03	<0.03	<0.03	<0.03	<0.03
6:2 Fluorotelomer sulfonate (6:2 FtS)	3L619-9L-3	0.1	µg/b	<0.1	<0.1	<0.1	<0.1	<0.1
8:2 Fluorotelomer sulfonate	p9108-pB-B	0.4	µg/b	<0.4	<0.4	<0.4	<0.4	<0.4
PFOSA	L4B-91-6	0.03	µg/b	<0.03	<0.03	<0.03	<0.03	<0.03
N-Me-FOSA	p1406-p3-8	0.4	µg/b	<0.4	<0.4	<0.4	<0.4	<0.4
N-Et-FOSA	B141-40-3	0.04	µg/b	<0.04	<0.04	<0.04	<0.04	<0.04
N-Me-FOSE	3BB8-09-L	0.4	µg/b	<0.4	<0.4	<0.4	<0.4	<0.4
N-Et-FOSE	1691-99-3	0.4	µg/b	<0.4	<0.4	<0.4	<0.4	<0.4
PFBS	pL4-Lp-4	0.03	µg/b	<0.03	<0.03	<0.03	<0.03	<0.03
PFHxS	p8L1-99-6	0.03	µg/b	<0.03	<0.03	<0.03	<0.03	<0.03
PFDcS	6L906-B3-L	0.03	µg/b	<0.03	<0.03	<0.03	<0.03	<0.03
PFHxA	p0L-3B-B	0.03	µg/b	<0.03	<0.03	<0.03	<0.03	<0.03
PFHpA	pL4-84-9	0.03	µg/b	<0.03	<0.03	<0.03	<0.03	<0.03
PFNA	pL4-94-1	0.03	µg/b	<0.03	<0.03	<0.03	<0.03	<0.03
PFDcA	pp4-L6-3	0.03	µg/b	<0.03	<0.03	<0.03	<0.03	<0.03
PFUnA	3048-9B-8	0.04	µg/b	<0.04	<0.04	<0.04	<0.04	<0.04
PFDoA	p0L-44-1	0.04	µg/b	<0.04	<0.04	<0.04	<0.04	<0.04
PFTriA	L3639-9B-8	0.04	µg/b	<0.04	<0.04	<0.04	<0.04	<0.04
PFTeA	pL6-06-L	0.4	µg/b	<0.4	<0.4	<0.4	<0.4	<0.4

QUALITY CONTROL REPORT

Work Order	: **EM131068D**	Page	: 1 of 17
As e| ds e| H	: **1**		
Client	: **CAR+NO LANE PIPER PTY LT+**	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
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Project	: 313162 21	QC Level	: NEPM 3012 Schedule B(2) and ALS QCS2 requirement
Site	: Fiskville		
C-O-C number	: ----	Date Samples Received	: 11-OCT-3012
Sampler	: MDR	Issue Date	: 12-DEC-3012
Order number	: ----		
		No. of samples received	: 76
Quote number	: MEBQ/115/12	No. of samples analysed	: 74

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 835

Accredited for compliance with ISO/IEC 17035.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out ir compliance with procedures specified in 31 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Evie.Sidarta	Inorganic Chemist	Sydney Inorganics
Gaston Allende	R&D Chemist	Sydney Organics

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/28 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 30 times LOR:- 0% - 50%; Result > 30 times LOR:- 0% - 30%.

Sub-Matrix: nOIL

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA0cc: Mot- H(re Co| He| H 7QC LoH 3113DD8)									
EM1210769-002	AF09	EA055-102: Moisture Content (dried @ 102°C)	----	1.0	%	19.6	19.4	0.6	0% - 50%
EM1210769-014	AF20 (0.05)	EA055-102: Moisture Content (dried @ 102°C)	----	1.0	%	30.7	30.0	2.7	0% - 30%
EA0cc: Mot- H(re Co| He| H 7QC LoH 3113DD6)									
EM1210769-032	AF46 (0.05)	EA055-102: Moisture Content (dried @ 102°C)	----	1.0	%	31.0	19.9	5.5	0% - 30%
EM1210769-024	AF60	EA055-102: Moisture Content (dried @ 102°C)	----	1.0	%	16.8	17.0	1.2	0% - 50%
EA0cc: Mot- H(re Co| He| H 7QC LoH 3113DDa)									
EM1210769-042	AF69	EA055-102: Moisture Content (dried @ 102°C)	----	1.0	%	19.5	19.5	0.0	0% - 50%
EM1210769-054	AF80	EA055-102: Moisture Content (dried @ 102°C)	----	1.0	%	17.9	17.2	2.8	0% - 50%
EA0cc: Mot- H(re Co| He| H 7QC LoH 3113DDD)									
EM1210769-064	AF30 (0.2)	EA055-102: Moisture Content (dried @ 102°C)	----	1.0	%	13.3	12.3	7.4	0% - 50%
EP231: Perfu(ort| I Hed Cos po(| d- 7QC LoH 3108a6c)									
EM1210769-001	AF07 (0.05)	EP321: PFOS	1762-32-1	0.0005	mg/kg	0.0025	0.0021	12.7	No Limit
		EP321: PFOA	225-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP321: 6:3 Fluorotelomer sulfonate (6:3 FtS)	37619-97-3	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
EM1210769-011	AF32	EP321: PFOS	1762-32-1	0.0005	mg/kg	0.0006	<0.0005	34.7	No Limit
		EP321: PFOA	225-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP321: 6:3 Fluorotelomer sulfonate (6:3 FtS)	37619-97-3	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
EP231: Perfu(ort| I Hed Cos po(| d- 7QC LoH 3108a68)									
EM1210769-001	AF07 (0.05)	EP321-PFC: PFOSA	754-91-6	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFBS	275-72-5	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFHxS	2871-99-6	0.0003	mg/kg	0.0015	0.0010	28.0	No Limit
		EP321-PFC: PFDcS	67906-43-7	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFHxA	207-34-4	0.0003	mg/kg	0.0005	0.0004	36.1	No Limit
		EP321-PFC: PFHpA	275-85-9	0.0003	mg/kg	0.0007	0.0005	37.8	No Limit
		EP321-PFC: PFNA	275-95-1	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFDcA	225-76-3	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFUnA	3058-94-8	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFDoA	207-55-1	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFTriA	73639-94-8	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: 8:3 Fluorotelomer sulfonate	29108-24-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Me-FOSA	21506-23-8	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Et-FOSA	4151-50-3	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Me-FOSE	3448-09-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Et-FOSE	1691-99-3	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: PFTeA	276-06-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit

Sub-Matrix: nOIL

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231: Perfu(ort| l Hed Cos po(| d- 7QC LoH 3108a68) FSo| H| (ed									
EM1210769-011	AF32	EP321-PFC: PFOSA	754-91-6	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFBS	275-72-5	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFHxS	2871-99-6	0.0003	mg/kg	0.0006	0.0005	0.0	No Limit
		EP321-PFC: PFDcS	67906-43-7	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFHxA	207-34-4	0.0003	mg/kg	0.0004	0.0005	22.0	No Limit
		EP321-PFC: PFHpA	275-85-9	0.0003	mg/kg	0.0002	0.0002	0.0	No Limit
		EP321-PFC: PFNA	275-95-1	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFDcA	225-76-3	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFUnA	3058-94-8	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFDoA	207-55-1	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFTriA	73639-94-8	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: 8:3 Fluorotelomer sulfonate	29108-24-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Me-FOSA	21506-23-8	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Et-FOSA	4151-50-3	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Me-FOSE	3448-09-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Et-FOSE	1691-99-3	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: PFTeA	276-06-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231: Perfu(ort| l Hed Cos po(| d- 7QC LoH 3108a66)									
EM1210769-031	AF43 (0.05)	EP321: PFOS	1762-32-1	0.0005	mg/kg	0.0014	0.0014	0.0	No Limit
		EP321: PFOA	225-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP321: 6:3 Fluorotelomer sulfonate (6:3 FtS)	37619-97-3	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
EM1210769-021	AF57	EP321: PFOS	1762-32-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP321: PFOA	225-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP321: 6:3 Fluorotelomer sulfonate (6:3 FtS)	37619-97-3	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
EP231: Perfu(ort| l Hed Cos po(| d- 7QC LoH 3108a6a)									
EM1210769-031	AF43 (0.05)	EP321-PFC: PFOSA	754-91-6	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFBS	275-72-5	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFHxS	2871-99-6	0.0003	mg/kg	0.0011	0.0011	0.0	No Limit
		EP321-PFC: PFDcS	67906-43-7	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFHxA	207-34-4	0.0003	mg/kg	0.0009	0.0009	0.0	No Limit
		EP321-PFC: PFHpA	275-85-9	0.0003	mg/kg	0.0013	0.0011	12.6	No Limit
		EP321-PFC: PFNA	275-95-1	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFDcA	225-76-3	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFUnA	3058-94-8	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFDoA	207-55-1	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFTriA	73639-94-8	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: 8:3 Fluorotelomer sulfonate	29108-24-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Me-FOSA	21506-23-8	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Et-FOSA	4151-50-3	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Me-FOSE	3448-09-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit

Sub-Matrix: nOIL

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231: Perfu ort l Hed Cos po l d- 7QC LoH 3108a6a) FSo l H l (ed									
EM1210769-031	AF43 (0.05)	EP321-PFC: N-Et-FOSE	1691-99-3	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: PFTeA	276-06-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EM1210769-021	AF57	EP321-PFC: PFOSA	754-91-6	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFBS	275-72-5	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFHxS	2871-99-6	0.0003	mg/kg	0.0003	0.0002	0.0	No Limit
		EP321-PFC: PFDcS	67906-43-7	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFHxA	207-34-4	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFHpA	275-85-9	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFNA	275-95-1	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFDcA	225-76-3	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFUnA	3058-94-8	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFDoA	207-55-1	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFTriA	73639-94-8	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: 8:3 Fluorotelomer sulfonate	29108-24-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Me-FOSA	21506-23-8	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Et-FOSA	4151-50-3	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Me-FOSE	3448-09-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Et-FOSE	1691-99-3	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: PFTeA	276-06-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231: Perfu ort l Hed Cos po l d- 7QC LoH 3108a6D)									
EM1210769-041	AF67 (0.05)	EP321: PFOS	1762-32-1	0.0005	mg/kg	0.0005	<0.0005	0.0	No Limit
		EP321: PFOA	225-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP321: 6:3 Fluorotelomer sulfonate (6:3 FtS)	37619-97-3	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
EM1210769-051	AF77	EP321: PFOS	1762-32-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP321: PFOA	225-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP321: 6:3 Fluorotelomer sulfonate (6:3 FtS)	37619-97-3	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
EP231: Perfu ort l Hed Cos po l d- 7QC LoH 3108aa0)									
EM1210769-041	AF67 (0.05)	EP321-PFC: PFOSA	754-91-6	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFBS	275-72-5	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFHxS	2871-99-6	0.0003	mg/kg	0.0002	0.0002	0.0	No Limit
		EP321-PFC: PFDcS	67906-43-7	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFHxA	207-34-4	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFHpA	275-85-9	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFNA	275-95-1	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFDcA	225-76-3	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFUnA	3058-94-8	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFDoA	207-55-1	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFTriA	73639-94-8	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: 8:3 Fluorotelomer sulfonate	29108-24-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Me-FOSA	21506-23-8	0.001	mg/kg	<0.001	<0.001	0.0	No Limit

Sub-Matrix: nOIL

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP231: Perfu(ort| l Hed Cos po(| d- 7QC LoH 3108aa0) FSo| H| (ed									
EM1210769-041	AF67 (0.05)	EP321-PFC: N-Et-FOSA	4151-50-3	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Me-FOSE	3448-09-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Et-FOSE	1691-99-3	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: PFTeA	276-06-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EM1210769-051	AF77	EP321-PFC: PFOSA	754-91-6	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFBS	275-72-5	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFHxS	2871-99-6	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFDcS	67906-43-7	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFHxA	207-34-4	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFHpA	275-85-9	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFNA	275-95-1	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFDcA	225-76-3	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFUnA	3058-94-8	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFDoA	207-55-1	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFTriA	73639-94-8	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: 8:3 Fluorotelomer sulfonate	29108-24-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Me-FOSA	21506-23-8	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Et-FOSA	4151-50-3	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Me-FOSE	3448-09-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Et-FOSE	1691-99-3	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: PFTeA	276-06-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231: Perfu(ort| l Hed Cos po(| d- 7QC LoH 3108aa1)									
EM1210769-063	AF10 (0.2)	EP321: PFOS	1762-32-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP321: PFOA	225-67-1	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP321: 6:3 Fluorotelomer sulfonate (6:3 FtS)	37619-97-3	0.005	mg/kg	<0.005	<0.005	0.0	No Limit
EP231: Perfu(ort| l Hed Cos po(| d- 7QC LoH 3108aa2)									
EM1210769-063	AF10 (0.2)	EP321-PFC: PFOSA	754-91-6	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFBS	275-72-5	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFHxS	2871-99-6	0.0003	mg/kg	0.0005	0.0004	27.6	No Limit
		EP321-PFC: PFDcS	67906-43-7	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFHxA	207-34-4	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFHpA	275-85-9	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFNA	275-95-1	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFDcA	225-76-3	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFUnA	3058-94-8	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFDoA	207-55-1	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: PFTriA	73639-94-8	0.0003	mg/kg	<0.0003	<0.0003	0.0	No Limit
		EP321-PFC: 8:3 Fluorotelomer sulfonate	29108-24-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Me-FOSA	21506-23-8	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Et-FOSA	4151-50-3	0.001	mg/kg	<0.001	<0.001	0.0	No Limit

Sub-Matrix: **nOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231: Perfu(ort| l Hed Cos po(| d- 7QC LoH 3108aa2) FSo| H| (ed									
EM1210769-063	AF10 (0.2)	EP321-PFC: N-Me-FOSE	3448-09-7	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: N-Et-FOSE	1691-99-3	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP321-PFC: PFTeA	276-06-7	0.001	mg/kg	<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 (%)*
EP231: Perfu(ort| l Hed Cos po(| d- 7QC LoH 3108aa3)									
EM1210769-060	QC07	EP321: PFOS	1762-32-1	0.03	µg/L	<0.03	<0.03	0.0	No Limit
		EP321: PFOA	225-67-1	0.03	µg/L	<0.03	<0.03	0.0	No Limit
		EP321: 6:3 Fluorotelomer sulfonate (6:3 FtS)	37619-97-3	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231: Perfu(ort| l Hed Cos po(| d- 7QC LoH 3108aai)									
EM1210769-060	QC07	EP321-PFC: PFOSA	754-91-6	0.03	µg/L	<0.03	<0.03	0.0	No Limit
		EP321-PFC: PFBS	275-72-5	0.03	µg/L	<0.03	<0.03	0.0	No Limit
		EP321-PFC: PFHxS	2871-99-6	0.03	µg/L	<0.03	<0.03	0.0	No Limit
		EP321-PFC: PFDcS	67906-43-7	0.03	µg/L	<0.03	<0.03	0.0	No Limit
		EP321-PFC: PFHxA	207-34-4	0.03	µg/L	<0.03	<0.03	0.0	No Limit
		EP321-PFC: PFHpA	275-85-9	0.03	µg/L	<0.03	<0.03	0.0	No Limit
		EP321-PFC: PFNA	275-95-1	0.03	µg/L	<0.03	<0.03	0.0	No Limit
		EP321-PFC: PFDcA	225-76-3	0.03	µg/L	<0.03	<0.03	0.0	No Limit
		EP321-PFC: N-Et-FOSA	4151-50-3	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP321-PFC: PFUnA	3058-94-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP321-PFC: PFDoA	207-55-1	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP321-PFC: PFTriA	73639-94-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP321-PFC: 8:3 Fluorotelomer sulfonate	29108-24-4	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP321-PFC: N-Me-FOSA	21506-23-8	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP321-PFC: N-Me-FOSE	3448-09-7	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP321-PFC: N-Et-FOSE	1691-99-3	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EP321-PFC: PFTeA	276-06-7	0.5	µg/L	<0.5	<0.5	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: **nOIL**

				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
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108a6c)								
EP321: PFOS	1762-32-1	0.0005	mg/kg	<0.0005	0.0035 mg/kg	64.0	54	146
EP321: PFOA	225-67-1	0.0005	mg/kg	<0.0005	0.0035 mg/kg	89.3	54	124
EP321: 6:3 Fluorotelomer Sulfonate (6:3 FtS)	37619-97-3	0.005	mg/kg	<0.005	0.0135 mg/kg	90.4	56	128
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108a68)								
EP321-PFC: 8:3 FtS	29108-24-4	0.001	mg/kg	<0.001	0.0135 mg/kg	130	60	120
EP321-PFC: PFOSA	754-91-6	0.0003	mg/kg	<0.0003	0.0035 mg/kg	96.0	60	120
EP321-PFC: N-Me-FOSA	21506-23-8	0.001	mg/kg	<0.001	0.0135 mg/kg	117	60	120
EP321-PFC: N-Et-FOSA	4151-50-3	0.001	mg/kg	<0.001	0.0135 mg/kg	119	60	120
EP321-PFC: N-Me-FOSE	3448-09-7	0.001	mg/kg	<0.001	0.0135 mg/kg	74.2	60	120
EP321-PFC: N-Et-FOSE	1691-99-3	0.001	mg/kg	<0.001	0.0135 mg/kg	77.6	60	120
EP321-PFC: PFBS	275-72-5	0.0003	mg/kg	<0.0003	0.0035 mg/kg	137	60	120
EP321-PFC: PFHxS	2871-99-6	0.0003	mg/kg	<0.0003	0.0035 mg/kg	119	60	120
EP321-PFC: PFDcS	67906-43-7	0.0003	mg/kg	<0.0003	0.0035 mg/kg	132	60	120
EP321-PFC: PFHxA	207-34-4	0.0003	mg/kg	<0.0003	0.0035 mg/kg	# 120	60	120
EP321-PFC: PFHpA	275-85-9	0.0003	mg/kg	<0.0003	0.0035 mg/kg	119	60	120
EP321-PFC: PFNA	275-95-1	0.0003	mg/kg	<0.0003	0.0035 mg/kg	100	60	120
EP321-PFC: PFDcA	225-76-3	0.0003	mg/kg	<0.0003	0.0035 mg/kg	135	60	120
EP321-PFC: PFUnA	3058-94-8	0.0003	mg/kg	<0.0003	0.0035 mg/kg	130	60	120
EP321-PFC: PFDoA	207-55-1	0.0003	mg/kg	<0.0003	0.0035 mg/kg	116	60	120
EP321-PFC: PFTriA	73639-94-8	0.0003	mg/kg	<0.0003	0.0035 mg/kg	94.4	60	120
EP321-PFC: PFTeA	276-06-7	0.001	mg/kg	<0.001	0.0135 mg/kg	67.4	60	120
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108a66)								
EP321: PFOS	1762-32-1	0.0005	mg/kg	<0.0005	0.0035 mg/kg	70.0	54	146
EP321: PFOA	225-67-1	0.0005	mg/kg	<0.0005	0.0035 mg/kg	110	54	124
EP321: 6:3 Fluorotelomer Sulfonate (6:3 FtS)	37619-97-3	0.005	mg/kg	<0.005	0.0135 mg/kg	109	56	128
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108a6a)								
EP321-PFC: 8:3 FtS	29108-24-4	0.001	mg/kg	<0.001	0.0135 mg/kg	139	60	120
EP321-PFC: PFOSA	754-91-6	0.0003	mg/kg	<0.0003	0.0035 mg/kg	# 125	60	120
EP321-PFC: N-Me-FOSA	21506-23-8	0.001	mg/kg	<0.001	0.0135 mg/kg	# 128	60	120
EP321-PFC: N-Et-FOSA	4151-50-3	0.001	mg/kg	<0.001	0.0135 mg/kg	101	60	120
EP321-PFC: N-Me-FOSE	3448-09-7	0.001	mg/kg	<0.001	0.0135 mg/kg	117	60	120
EP321-PFC: N-Et-FOSE	1691-99-3	0.001	mg/kg	<0.001	0.0135 mg/kg	88.8	60	120
EP321-PFC: PFBS	275-72-5	0.0003	mg/kg	<0.0003	0.0035 mg/kg	131	60	120
EP321-PFC: PFHxS	2871-99-6	0.0003	mg/kg	<0.0003	0.0035 mg/kg	118	60	120

Sub-Matrix: nOIL

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
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108a6a) FSo| H| (ed								
EP321-PFC: PFDcS	67906-43-7	0.0003	mg/kg	<0.0003	0.0035 mg/kg	102	60	120
EP321-PFC: PFHxA	207-34-4	0.0003	mg/kg	<0.0003	0.0035 mg/kg	138	60	120
EP321-PFC: PFHpA	275-85-9	0.0003	mg/kg	<0.0003	0.0035 mg/kg	116	60	120
EP321-PFC: PFNA	275-95-1	0.0003	mg/kg	<0.0003	0.0035 mg/kg	134	60	120
EP321-PFC: PFDcA	225-76-3	0.0003	mg/kg	<0.0003	0.0035 mg/kg	134	60	120
EP321-PFC: PFUnA	3058-94-8	0.0003	mg/kg	<0.0003	0.0035 mg/kg	118	60	120
EP321-PFC: PFDoA	207-55-1	0.0003	mg/kg	<0.0003	0.0035 mg/kg	133	60	120
EP321-PFC: PFTriA	73639-94-8	0.0003	mg/kg	<0.0003	0.0035 mg/kg	94.0	60	120
EP321-PFC: PFTeA	276-06-7	0.001	mg/kg	<0.001	0.0135 mg/kg	70.7	60	120
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108a6D)								
EP321: PFOS	1762-32-1	0.0005	mg/kg	<0.0005	0.0035 mg/kg	70.8	54	146
EP321: PFOA	225-67-1	0.0005	mg/kg	<0.0005	0.0035 mg/kg	104	54	124
EP321: 6:3 Fluorotelomer Sulfonate (6:3 FtS)	37619-97-3	0.005	mg/kg	<0.005	0.0135 mg/kg	131	56	128
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108aa0)								
EP321-PFC: 8:3 FtS	29108-24-4	0.001	mg/kg	<0.001	0.0135 mg/kg	119	60	120
EP321-PFC: PFOSA	754-91-6	0.0003	mg/kg	<0.0003	0.0035 mg/kg	95.6	60	120
EP321-PFC: N-Me-FOSA	21506-23-8	0.001	mg/kg	<0.001	0.0135 mg/kg	137	60	120
EP321-PFC: N-Et-FOSA	4151-50-3	0.001	mg/kg	<0.001	0.0135 mg/kg	96.8	60	120
EP321-PFC: N-Me-FOSE	3448-09-7	0.001	mg/kg	<0.001	0.0135 mg/kg	80.8	60	120
EP321-PFC: N-Et-FOSE	1691-99-3	0.001	mg/kg	<0.001	0.0135 mg/kg	97.6	60	120
EP321-PFC: PFBS	275-72-5	0.0003	mg/kg	<0.0003	0.0035 mg/kg	135	60	120
EP321-PFC: PFHxS	2871-99-6	0.0003	mg/kg	<0.0003	0.0035 mg/kg	131	60	120
EP321-PFC: PFDcS	67906-43-7	0.0003	mg/kg	<0.0003	0.0035 mg/kg	138	60	120
EP321-PFC: PFHxA	207-34-4	0.0003	mg/kg	<0.0003	0.0035 mg/kg	119	60	120
EP321-PFC: PFHpA	275-85-9	0.0003	mg/kg	<0.0003	0.0035 mg/kg	138	60	120
EP321-PFC: PFNA	275-95-1	0.0003	mg/kg	<0.0003	0.0035 mg/kg	102	60	120
EP321-PFC: PFDcA	225-76-3	0.0003	mg/kg	<0.0003	0.0035 mg/kg	130	60	120
EP321-PFC: PFUnA	3058-94-8	0.0003	mg/kg	<0.0003	0.0035 mg/kg	133	60	120
EP321-PFC: PFDoA	207-55-1	0.0003	mg/kg	<0.0003	0.0035 mg/kg	103	60	120
EP321-PFC: PFTriA	73639-94-8	0.0003	mg/kg	<0.0003	0.0035 mg/kg	104	60	120
EP321-PFC: PFTeA	276-06-7	0.001	mg/kg	<0.001	0.0135 mg/kg	83.4	60	120
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108aa1)								
EP321: PFOS	1762-32-1	0.0005	mg/kg	<0.0005	0.0035 mg/kg	73.0	54	146
EP321: PFOA	225-67-1	0.0005	mg/kg	<0.0005	0.0035 mg/kg	99.6	54	124
EP321: 6:3 Fluorotelomer Sulfonate (6:3 FtS)	37619-97-3	0.005	mg/kg	<0.005	0.0135 mg/kg	133	56	128
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108aa2)								
EP321-PFC: 8:3 FtS	29108-24-4	0.001	mg/kg	<0.001	0.0135 mg/kg	136	60	120
EP321-PFC: PFOSA	754-91-6	0.0003	mg/kg	<0.0003	0.0035 mg/kg	101	60	120

Sub-Matrix: nOIL

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
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108aa2) FSo| H| (ed								
EP321-PFC: N-Me-FOSA	21506-23-8	0.001	mg/kg	<0.001	0.0135 mg/kg	119	60	120
EP321-PFC: N-Et-FOSA	4151-50-3	0.001	mg/kg	<0.001	0.0135 mg/kg	97.6	60	120
EP321-PFC: N-Me-FOSE	3448-09-7	0.001	mg/kg	<0.001	0.0135 mg/kg	75.1	60	120
EP321-PFC: N-Et-FOSE	1691-99-3	0.001	mg/kg	<0.001	0.0135 mg/kg	67.2	60	120
EP321-PFC: PFBS	275-72-5	0.0003	mg/kg	<0.0003	0.0035 mg/kg	116	60	120
EP321-PFC: PFHxS	2871-99-6	0.0003	mg/kg	<0.0003	0.0035 mg/kg	100	60	120
EP321-PFC: PFDcS	67906-43-7	0.0003	mg/kg	<0.0003	0.0035 mg/kg	108	60	120
EP321-PFC: PFHxA	207-34-4	0.0003	mg/kg	<0.0003	0.0035 mg/kg	134	60	120
EP321-PFC: PFHpA	275-85-9	0.0003	mg/kg	<0.0003	0.0035 mg/kg	105	60	120
EP321-PFC: PFNA	275-95-1	0.0003	mg/kg	<0.0003	0.0035 mg/kg	107	60	120
EP321-PFC: PFDcA	225-76-3	0.0003	mg/kg	<0.0003	0.0035 mg/kg	109	60	120
EP321-PFC: PFUnA	3058-94-8	0.0003	mg/kg	<0.0003	0.0035 mg/kg	73.4	60	120
EP321-PFC: PFDoA	207-55-1	0.0003	mg/kg	<0.0003	0.0035 mg/kg	116	60	120
EP321-PFC: PFTriA	73639-94-8	0.0003	mg/kg	<0.0003	0.0035 mg/kg	103	60	120
EP321-PFC: PFTeA	276-06-7	0.001	mg/kg	<0.001	0.0135 mg/kg	75.8	60	120

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
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108aa3)								
EP321: PFOS	1762-32-1	0.03	µg/L	<0.03	0.5 µg/L	105	70	126
EP321: PFOA	225-67-1	0.03	µg/L	<0.03	0.5 µg/L	106	73	124
EP321: 6:3 Fluorotelomer Sulfonate (6:3 FtS)	37619-97-3	0.1	µg/L	<0.1	3.5 µg/L	138	61	145
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108aai)								
EP321-PFC: 8:3 FtS	29108-24-4	0.5	µg/L	<0.5	3.5 µg/L	134	70	120
EP321-PFC: PFOSA	754-91-6	0.03	µg/L	<0.03	0.5 µg/L	102	70	120
EP321-PFC: N-Me-FOSA	21506-23-8	0.5	µg/L	<0.5	3.5 µg/L	133	70	120
EP321-PFC: N-Et-FOSA	4151-50-3	0.05	µg/L	<0.05	3.5 µg/L	91.3	70	120
EP321-PFC: N-Me-FOSE	3448-09-7	1	µg/L	<1.0	3.5 µg/L	113	70	120
EP321-PFC: N-Et-FOSE	1691-99-3	1	µg/L	<1.0	3.5 µg/L	100	70	120
EP321-PFC: PFBS	275-72-5	0.03	µg/L	<0.03	0.5 µg/L	109	70	120
EP321-PFC: PFHxS	2871-99-6	0.03	µg/L	<0.03	0.5 µg/L	102	70	120
EP321-PFC: PFDcS	67906-43-7	0.05	µg/L	<0.05	0.5 µg/L	86.4	70	120
EP321-PFC: PFHxA	207-34-4	0.03	µg/L	<0.03	0.5 µg/L	101	70	120
EP321-PFC: PFHpA	275-85-9	0.03	µg/L	<0.03	0.5 µg/L	103	70	120
EP321-PFC: PFNA	275-95-1	0.03	µg/L	<0.03	0.5 µg/L	113	70	120
EP321-PFC: PFDcA	225-76-3	0.03	µg/L	<0.03	0.5 µg/L	106	70	120
EP321-PFC: PFUnA	3058-94-8	0.05	µg/L	<0.05	0.5 µg/L	105	70	120
EP321-PFC: PFDoA	207-55-1	0.05	µg/L	<0.05	0.5 µg/L	93.0	70	120

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
EP231: Perfluorinated Compounds by LC-MS/MS (QCLot: 3108aai)								
EP321-PFC: PFTriA	73639-94-8	0.05	µg/L	<0.05	0.5 µg/L	94.4	70	120
EP321-PFC: PFTeA	276-06-7	0.5	µg/L	<0.5	3.5 µg/L	96.8	70	120

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: **nOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EP231: Perfluorinated Compounds by LC-MS/MS (QCLot: 3108a6c)							
EM1210769-001	AF07 (0.05)	EP321: PFOS	1762-32-1	0.0035 mg/kg	63.4	54	146
		EP321: PFOA	225-67-1	0.0035 mg/kg	110	54	124
		EP321: 6:3 Fluorotelomer sulfonate (6:3 FtS)	37619-97-3	0.0135 mg/kg	86.4	56	128
EP231: Perfluorinated Compounds by LC-MS/MS (QCLot: 3108a68)							
EM1210769-001	AF07 (0.05)	EP321-PFC: 8:3 Fluorotelomer sulfonate	29108-24-4	0.0135 mg/kg	137	60	120
		EP321-PFC: PFOSA	754-91-6	0.0035 mg/kg	66.0	60	120
		EP321-PFC: N-Me-FOSA	21506-23-8	0.0135 mg/kg	130	60	120
		EP321-PFC: N-Et-FOSA	4151-50-3	0.0135 mg/kg	134	60	120
		EP321-PFC: N-Me-FOSE	3448-09-7	0.0135 mg/kg	82.3	60	120
		EP321-PFC: N-Et-FOSE	1691-99-3	0.0135 mg/kg	76.5	60	120
		EP321-PFC: PFBS	275-72-5	0.0035 mg/kg	105	60	120
		EP321-PFC: PFHxS	2871-99-6	0.0035 mg/kg	136	60	120
		EP321-PFC: PFDcS	67906-43-7	0.0035 mg/kg	104	60	120
		EP321-PFC: PFHxA	207-34-4	0.0035 mg/kg	109	60	120
		EP321-PFC: PFHpA	275-85-9	0.0035 mg/kg	104	60	120
		EP321-PFC: PFNA	275-95-1	0.0035 mg/kg	# 121	60	120
		EP321-PFC: PFDcA	225-76-3	0.0035 mg/kg	130	60	120
		EP321-PFC: PFUnA	3058-94-8	0.0035 mg/kg	78.8	60	120
		EP321-PFC: PFDoA	207-55-1	0.0035 mg/kg	108	60	120
		EP321-PFC: PFTriA	73639-94-8	0.0035 mg/kg	92.6	60	120
		EP321-PFC: PFTeA	276-06-7	0.0135 mg/kg	96.8	60	120
EP231: Perfluorinated Compounds by LC-MS/MS (QCLot: 3108a66)							
EM1210769-031	AF43 (0.05)	EP321: PFOS	1762-32-1	0.0035 mg/kg	82.6	54	146
		EP321: PFOA	225-67-1	0.0035 mg/kg	110	54	124
		EP321: 6:3 Fluorotelomer sulfonate (6:3 FtS)	37619-97-3	0.0135 mg/kg	93.8	56	128
EP231: Perfluorinated Compounds by LC-MS/MS (QCLot: 3108a6a)							
EM1210769-031	AF43 (0.05)	EP321-PFC: 8:3 Fluorotelomer sulfonate	29108-24-4	0.0135 mg/kg	76.7	60	120

Sub-Matrix: nOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Recovery Limits (%) Low	Matrix Spike (MS) Report: Recovery Limits (%) High
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108a6a) FSo| H| (ed							
EM1210769-031	AF43 (0.05)	EP321-PFC: PFOSA	754-91-6	0.0035 mg/kg	72.3	60	120
		EP321-PFC: N-Me-FOSA	21506-23-8	0.0135 mg/kg	113	60	120
		EP321-PFC: N-Et-FOSA	4151-50-3	0.0135 mg/kg	139	60	120
		EP321-PFC: N-Me-FOSE	3448-09-7	0.0135 mg/kg	77.5	60	120
		EP321-PFC: N-Et-FOSE	1691-99-3	0.0135 mg/kg	75.2	60	120
		EP321-PFC: PFBS	275-72-5	0.0035 mg/kg	110	60	120
		EP321-PFC: PFHxS	2871-99-6	0.0035 mg/kg	111	60	120
		EP321-PFC: PFDcS	67906-43-7	0.0035 mg/kg	133	60	120
		EP321-PFC: PFHxA	207-34-4	0.0035 mg/kg	117	60	120
		EP321-PFC: PFHpA	275-85-9	0.0035 mg/kg	90.8	60	120
		EP321-PFC: PFNA	275-95-1	0.0035 mg/kg	138	60	120
		EP321-PFC: PFDcA	225-76-3	0.0035 mg/kg	76.8	60	120
		EP321-PFC: PFUnA	3058-94-8	0.0035 mg/kg	61.3	60	120
		EP321-PFC: PFDoA	207-55-1	0.0035 mg/kg	104	60	120
		EP321-PFC: PFTriA	73639-94-8	0.0035 mg/kg	# 122	60	120
		EP321-PFC: PFTeA	276-06-7	0.0135 mg/kg	131	60	120
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108a6D)							
EM1210769-041	AF67 (0.05)	EP321: PFOS	1762-32-1	0.0035 mg/kg	78.0	54	146
		EP321: PFOA	225-67-1	0.0035 mg/kg	138	54	124
		EP321: 6:3 Fluorotelomer sulfonate (6:3 FtS)	37619-97-3	0.0135 mg/kg	99.3	56	128
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108aa0)							
EM1210769-041	AF67 (0.05)	EP321-PFC: 8:3 Fluorotelomer sulfonate	29108-24-4	0.0135 mg/kg	133	60	120
		EP321-PFC: PFOSA	754-91-6	0.0035 mg/kg	# 57.3	60	120
		EP321-PFC: N-Me-FOSA	21506-23-8	0.0135 mg/kg	118	60	120
		EP321-PFC: N-Et-FOSA	4151-50-3	0.0135 mg/kg	103	60	120
		EP321-PFC: N-Me-FOSE	3448-09-7	0.0135 mg/kg	# 44.6	60	120
		EP321-PFC: N-Et-FOSE	1691-99-3	0.0135 mg/kg	# 53.0	60	120
		EP321-PFC: PFBS	275-72-5	0.0035 mg/kg	90.8	60	120
		EP321-PFC: PFHxS	2871-99-6	0.0035 mg/kg	118	60	120
		EP321-PFC: PFDcS	67906-43-7	0.0035 mg/kg	108	60	120
		EP321-PFC: PFHxA	207-34-4	0.0035 mg/kg	114	60	120
		EP321-PFC: PFHpA	275-85-9	0.0035 mg/kg	118	60	120
		EP321-PFC: PFNA	275-95-1	0.0035 mg/kg	89.6	60	120
		EP321-PFC: PFDcA	225-76-3	0.0035 mg/kg	115	60	120
		EP321-PFC: PFUnA	3058-94-8	0.0035 mg/kg	63.8	60	120
		EP321-PFC: PFDoA	207-55-1	0.0035 mg/kg	99.6	60	120
		EP321-PFC: PFTriA	73639-94-8	0.0035 mg/kg	137	60	120
		EP321-PFC: PFTeA	276-06-7	0.0135 mg/kg	# 128	60	120
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108aa1)							

Sub-Matrix: **nOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231: Perfu(ort| I Hed Cos po(| d- 7QCLoH 3108aa1) FSo| H| (ed							
EM1210769-063	AF10 (0.2)	EP321: PFOS	1762-32-1	0.0035 mg/kg	78.0	54	146
		EP321: PFOA	225-67-1	0.0035 mg/kg	94.8	54	124
		EP321: 6:3 Fluorotelomer sulfonate (6:3 FtS)	37619-97-3	0.0135 mg/kg	116	56	128
**EP231: Perfu(ort	I Hed Cos po(	d- 7QCLoH 3108aa2)**					
EM1210769-063	AF10 (0.2)	EP321-PFC: 8:3 Fluorotelomer sulfonate	29108-24-4	0.0135 mg/kg	138	60	120
		EP321-PFC: PFOSA	754-91-6	0.0035 mg/kg	77.3	60	120
		EP321-PFC: N-Me-FOSA	21506-23-8	0.0135 mg/kg	136	60	120
		EP321-PFC: N-Et-FOSA	4151-50-3	0.0135 mg/kg	96.8	60	120
		EP321-PFC: N-Me-FOSE	3448-09-7	0.0135 mg/kg	92.6	60	120
		EP321-PFC: N-Et-FOSE	1691-99-3	0.0135 mg/kg	117	60	120
		EP321-PFC: PFBS	275-72-5	0.0035 mg/kg	# 123	60	120
		EP321-PFC: PFHxS	2871-99-6	0.0035 mg/kg	113	60	120
		EP321-PFC: PFDcS	67906-43-7	0.0035 mg/kg	104	60	120
		EP321-PFC: PFHxA	207-34-4	0.0035 mg/kg	117	60	120
		EP321-PFC: PFHpA	275-85-9	0.0035 mg/kg	117	60	120
		EP321-PFC: PFNA	275-95-1	0.0035 mg/kg	115	60	120
		EP321-PFC: PFDcA	225-76-3	0.0035 mg/kg	114	60	120
		EP321-PFC: PFUnA	3058-94-8	0.0035 mg/kg	# 53.0	60	120
		EP321-PFC: PFDoA	207-55-1	0.0035 mg/kg	100	60	120
		EP321-PFC: PFTriA	73639-94-8	0.0035 mg/kg	132	60	120
		EP321-PFC: PFTeA	276-06-7	0.0135 mg/kg	96.0	60	120

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
**EP231: Perfu(ort	I Hed Cos po(	d- 7QCLoH 3108aa3)**					
EM1210769-060	QC07	EP321: PFOS	1762-32-1	0.5 µg/L	133	70	126
		EP321: PFOA	225-67-1	0.5 µg/L	138	73	124
		EP321: 6:3 Fluorotelomer sulfonate (6:3 FtS)	37619-97-3	3.5 µg/L	114	61	145
**EP231: Perfu(ort	I Hed Cos po(	d- 7QCLoH 3108aai)**					
EM1210769-060	QC07	EP321-PFC: 8:3 Fluorotelomer sulfonate	29108-24-4	3.5 µg/L	118	----	----
		EP321-PFC: PFOSA	754-91-6	0.5 µg/L	132	----	----
		EP321-PFC: N-Me-FOSA	21506-23-8	3.5 µg/L	75.4	----	----
		EP321-PFC: N-Et-FOSA	4151-50-3	3.5 µg/L	110	----	----
		EP321-PFC: N-Me-FOSE	3448-09-7	3.5 µg/L	114	----	----
		EP321-PFC: N-Et-FOSE	1691-99-3	3.5 µg/L	132	----	----
		EP321-PFC: PFBS	275-72-5	0.5 µg/L	96.0	----	----
		EP321-PFC: PFHxS	2871-99-6	0.5 µg/L	79.6	----	----
		EP321-PFC: PFDcS	67906-43-7	0.5 µg/L	67.6	----	----

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Recovery Limits (%) Low	Matrix Spike (MS) Report: Recovery Limits (%) High
EP231: Perfluorinated Compounds by LC-MS/MS (QCLot: 3108aai)							
EM1210769-060	QC07	EP321-PFC: PFHxA	207-34-4	0.5 µg/L	79.6	----	----
		EP321-PFC: PFHpA	275-85-9	0.5 µg/L	86.0	----	----
		EP321-PFC: PFNA	275-95-1	0.5 µg/L	84.8	----	----
		EP321-PFC: PFDcA	225-76-3	0.5 µg/L	74.8	----	----
		EP321-PFC: PFUnA	3058-94-8	0.5 µg/L	70.0	----	----
		EP321-PFC: PFDoA	207-55-1	0.5 µg/L	132	----	----
		EP321-PFC: PFTriA	73639-94-8	0.5 µg/L	72.3	----	----
		EP321-PFC: PFTeA	276-06-7	3.5 µg/L	66.3	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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: **nOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report: Spike Concentration	Spike Recovery (%) MS	Spike Recovery (%) MSD	Recovery Limits (%) Low	Recovery Limits (%) High	RPDs (%) Value	RPDs (%) Control Limit
EP231: Perfluorinated Compounds by LC-MS/MS (QCLot: 3108a6c)										
EM1210769-001	AF07 (0.05)	EP321: PFOS	1762-32-1	0.0035 mg/kg	63.4	----	54	146	----	----
		EP321: PFOA	225-67-1	0.0035 mg/kg	110	----	54	124	----	----
		EP321: 6:3 Fluorotelomer sulfonate (6:3 FtS)	37619-97-3	0.0135 mg/kg	86.4	----	56	128	----	----
EP231: Perfluorinated Compounds by LC-MS/MS (QCLot: 3108a68)										
EM1210769-001	AF07 (0.05)	EP321-PFC: 8:3 Fluorotelomer sulfonate	29108-24-4	0.0135 mg/kg	137	----	60	120	----	----
		EP321-PFC: PFOSA	754-91-6	0.0035 mg/kg	66.0	----	60	120	----	----
		EP321-PFC: N-Me-FOSA	21506-23-8	0.0135 mg/kg	130	----	60	120	----	----
		EP321-PFC: N-Et-FOSA	4151-50-3	0.0135 mg/kg	134	----	60	120	----	----
		EP321-PFC: N-Me-FOSE	3448-09-7	0.0135 mg/kg	82.3	----	60	120	----	----
		EP321-PFC: N-Et-FOSE	1691-99-3	0.0135 mg/kg	76.5	----	60	120	----	----
		EP321-PFC: PFBS	275-72-5	0.0035 mg/kg	105	----	60	120	----	----
		EP321-PFC: PFHxS	2871-99-6	0.0035 mg/kg	136	----	60	120	----	----
		EP321-PFC: PFDcS	67906-43-7	0.0035 mg/kg	104	----	60	120	----	----
		EP321-PFC: PFHxA	207-34-4	0.0035 mg/kg	109	----	60	120	----	----
		EP321-PFC: PFHpA	275-85-9	0.0035 mg/kg	104	----	60	120	----	----
		EP321-PFC: PFNA	275-95-1	0.0035 mg/kg	# 121	----	60	120	----	----
		EP321-PFC: PFDcA	225-76-3	0.0035 mg/kg	130	----	60	120	----	----
		EP321-PFC: PFUnA	3058-94-8	0.0035 mg/kg	78.8	----	60	120	----	----
		EP321-PFC: PFDoA	207-55-1	0.0035 mg/kg	108	----	60	120	----	----
		EP321-PFC: PFTriA	73639-94-8	0.0035 mg/kg	92.6	----	60	120	----	----
		EP321-PFC: PFTeA	276-06-7	0.0135 mg/kg	96.8	----	60	120	----	----
EP231: Perfluorinated Compounds by LC-MS/MS (QCLot: 3108a66)										

Sub-Matrix: nOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108a66) FSo| H(ed										
EM1210769-031	AF43 (0.05)	EP321: PFOS	1762-32-1	0.0035 mg/kg	82.6	----	54	146	----	----
		EP321: PFOA	225-67-1	0.0035 mg/kg	110	----	54	124	----	----
		EP321: 6:3 Fluorotelomer sulfonate (6:3 FtS)	37619-97-3	0.0135 mg/kg	93.8	----	56	128	----	----
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108a6a)										
EM1210769-031	AF43 (0.05)	EP321-PFC: 8:3 Fluorotelomer sulfonate	29108-24-4	0.0135 mg/kg	76.7	----	60	120	----	----
		EP321-PFC: PFOSA	754-91-6	0.0035 mg/kg	72.3	----	60	120	----	----
		EP321-PFC: N-Me-FOSA	21506-23-8	0.0135 mg/kg	113	----	60	120	----	----
		EP321-PFC: N-Et-FOSA	4151-50-3	0.0135 mg/kg	139	----	60	120	----	----
		EP321-PFC: N-Me-FOSE	3448-09-7	0.0135 mg/kg	77.5	----	60	120	----	----
		EP321-PFC: N-Et-FOSE	1691-99-3	0.0135 mg/kg	75.2	----	60	120	----	----
		EP321-PFC: PFBS	275-72-5	0.0035 mg/kg	110	----	60	120	----	----
		EP321-PFC: PFHxS	2871-99-6	0.0035 mg/kg	111	----	60	120	----	----
		EP321-PFC: PFDcS	67906-43-7	0.0035 mg/kg	133	----	60	120	----	----
		EP321-PFC: PFHxA	207-34-4	0.0035 mg/kg	117	----	60	120	----	----
		EP321-PFC: PFHpA	275-85-9	0.0035 mg/kg	90.8	----	60	120	----	----
		EP321-PFC: PFNA	275-95-1	0.0035 mg/kg	138	----	60	120	----	----
		EP321-PFC: PFDcA	225-76-3	0.0035 mg/kg	76.8	----	60	120	----	----
		EP321-PFC: PFUnA	3058-94-8	0.0035 mg/kg	61.3	----	60	120	----	----
		EP321-PFC: PFDoA	207-55-1	0.0035 mg/kg	104	----	60	120	----	----
		EP321-PFC: PFTriA	73639-94-8	0.0035 mg/kg	# 122	----	60	120	----	----
		EP321-PFC: PFTeA	276-06-7	0.0135 mg/kg	131	----	60	120	----	----
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108a6D)										
EM1210769-041	AF67 (0.05)	EP321: PFOS	1762-32-1	0.0035 mg/kg	78.0	----	54	146	----	----
		EP321: PFOA	225-67-1	0.0035 mg/kg	138	----	54	124	----	----
		EP321: 6:3 Fluorotelomer sulfonate (6:3 FtS)	37619-97-3	0.0135 mg/kg	99.3	----	56	128	----	----
EP231: Perfu(ort| l Hed Cos po(| d- 7QCLoH 3108aa0)										
EM1210769-041	AF67 (0.05)	EP321-PFC: 8:3 Fluorotelomer sulfonate	29108-24-4	0.0135 mg/kg	133	----	60	120	----	----
		EP321-PFC: PFOSA	754-91-6	0.0035 mg/kg	# 57.3	----	60	120	----	----
		EP321-PFC: N-Me-FOSA	21506-23-8	0.0135 mg/kg	118	----	60	120	----	----
		EP321-PFC: N-Et-FOSA	4151-50-3	0.0135 mg/kg	103	----	60	120	----	----
		EP321-PFC: N-Me-FOSE	3448-09-7	0.0135 mg/kg	# 44.6	----	60	120	----	----
		EP321-PFC: N-Et-FOSE	1691-99-3	0.0135 mg/kg	# 53.0	----	60	120	----	----
		EP321-PFC: PFBS	275-72-5	0.0035 mg/kg	90.8	----	60	120	----	----
		EP321-PFC: PFHxS	2871-99-6	0.0035 mg/kg	118	----	60	120	----	----
		EP321-PFC: PFDcS	67906-43-7	0.0035 mg/kg	108	----	60	120	----	----
		EP321-PFC: PFHxA	207-34-4	0.0035 mg/kg	114	----	60	120	----	----
		EP321-PFC: PFHpA	275-85-9	0.0035 mg/kg	118	----	60	120	----	----
		EP321-PFC: PFNA	275-95-1	0.0035 mg/kg	89.6	----	60	120	----	----
		EP321-PFC: PFDcA	225-76-3	0.0035 mg/kg	115	----	60	120	----	----

Sub-Matrix: nOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP231: Perfu(ort| I Hed Cos po(	d- 7QCLoH 3108aa0) FSo| H(ed									
EM1210769-041	AF67 (0.05)	EP321-PFC: PFUnA	3058-94-8	0.0035 mg/kg	63.8	----	60	120	----	----
		EP321-PFC: PFDoA	207-55-1	0.0035 mg/kg	99.6	----	60	120	----	----
		EP321-PFC: PFTriA	73639-94-8	0.0035 mg/kg	137	----	60	120	----	----
		EP321-PFC: PFTeA	276-06-7	0.0135 mg/kg	# 128	----	60	120	----	----
EP231: Perfu(ort	I Hed Cos po(	d- 7QCLoH 3108aa1)								
EM1210769-063	AF10 (0.2)	EP321: PFOS	1762-32-1	0.0035 mg/kg	78.0	----	54	146	----	----
		EP321: PFOA	225-67-1	0.0035 mg/kg	94.8	----	54	124	----	----
		EP321: 6:3 Fluorotelomer sulfonate (6:3 FtS)	37619-97-3	0.0135 mg/kg	116	----	56	128	----	----
EP231: Perfu(ort	I Hed Cos po(	d- 7QCLoH 3108aa2)								
EM1210769-063	AF10 (0.2)	EP321-PFC: 8:3 Fluorotelomer sulfonate	29108-24-4	0.0135 mg/kg	138	----	60	120	----	----
		EP321-PFC: PFOSA	754-91-6	0.0035 mg/kg	77.3	----	60	120	----	----
		EP321-PFC: N-Me-FOSA	21506-23-8	0.0135 mg/kg	136	----	60	120	----	----
		EP321-PFC: N-Et-FOSA	4151-50-3	0.0135 mg/kg	96.8	----	60	120	----	----
		EP321-PFC: N-Me-FOSE	3448-09-7	0.0135 mg/kg	92.6	----	60	120	----	----
		EP321-PFC: N-Et-FOSE	1691-99-3	0.0135 mg/kg	117	----	60	120	----	----
		EP321-PFC: PFBS	275-72-5	0.0035 mg/kg	# 123	----	60	120	----	----
		EP321-PFC: PFHxS	2871-99-6	0.0035 mg/kg	113	----	60	120	----	----
		EP321-PFC: PFDcS	67906-43-7	0.0035 mg/kg	104	----	60	120	----	----
		EP321-PFC: PFHxA	207-34-4	0.0035 mg/kg	117	----	60	120	----	----
		EP321-PFC: PFHpA	275-85-9	0.0035 mg/kg	117	----	60	120	----	----
		EP321-PFC: PFNA	275-95-1	0.0035 mg/kg	115	----	60	120	----	----
		EP321-PFC: PFDcA	225-76-3	0.0035 mg/kg	114	----	60	120	----	----
		EP321-PFC: PFUnA	3058-94-8	0.0035 mg/kg	# 53.0	----	60	120	----	----
		EP321-PFC: PFDoA	207-55-1	0.0035 mg/kg	100	----	60	120	----	----
		EP321-PFC: PFTriA	73639-94-8	0.0035 mg/kg	132	----	60	120	----	----
		EP321-PFC: PFTeA	276-06-7	0.0135 mg/kg	96.0	----	60	120	----	----

Sub-Matrix: WATER

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP231: Perfu(ort	I Hed Cos po(	d- 7QCLoH 3108aa3)								
EM1210769-060	QC07	EP321: PFOS	1762-32-1	0.5 µg/L	133	----	70	126	----	----
		EP321: PFOA	225-67-1	0.5 µg/L	138	----	73	124	----	----
		EP321: 6:3 Fluorotelomer sulfonate (6:3 FtS)	37619-97-3	3.5 µg/L	114	----	61	145	----	----
EP231: Perfu(ort	I Hed Cos po(	d- 7QCLoH 3108aai)								
EM1210769-060	QC07	EP321-PFC: 8:3 Fluorotelomer sulfonate	29108-24-4	3.5 µg/L	118	----	----	----	----	----
		EP321-PFC: PFOSA	754-91-6	0.5 µg/L	132	----	----	----	----	----
		EP321-PFC: N-Me-FOSA	21506-23-8	3.5 µg/L	75.4	----	----	----	----	----
		EP321-PFC: N-Et-FOSA	4151-50-3	3.5 µg/L	110	----	----	----	----	----

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP231: Perfu(ort| l He d Cos po(| d- 7QCLoH 3108aai) FSo| H| (ed										
EM1210769-060	QC07	EP321-PFC: N-Me-FOSE	3448-09-7	3.5 µg/L	114	----	----	----	----	----
		EP321-PFC: N-Et-FOSE	1691-99-3	3.5 µg/L	132	----	----	----	----	----
		EP321-PFC: PFBS	275-72-5	0.5 µg/L	96.0	----	----	----	----	----
		EP321-PFC: PFHxS	2871-99-6	0.5 µg/L	79.6	----	----	----	----	----
		EP321-PFC: PFDcS	67906-43-7	0.5 µg/L	67.6	----	----	----	----	----
		EP321-PFC: PFHxA	207-34-4	0.5 µg/L	79.6	----	----	----	----	----
		EP321-PFC: PFHpA	275-85-9	0.5 µg/L	86.0	----	----	----	----	----
		EP321-PFC: PFNA	275-95-1	0.5 µg/L	84.8	----	----	----	----	----
		EP321-PFC: PFDcA	225-76-3	0.5 µg/L	74.8	----	----	----	----	----
		EP321-PFC: PFUnA	3058-94-8	0.5 µg/L	70.0	----	----	----	----	----
		EP321-PFC: PFDoA	207-55-1	0.5 µg/L	132	----	----	----	----	----
		EP321-PFC: PFTriA	73639-94-8	0.5 µg/L	72.3	----	----	----	----	----
		EP321-PFC: PFTeA	276-06-7	3.5 µg/L	66.3	----	----	----	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **EM131068s**	Page	: 1 of 10
A| eHd| eH+	: **1**		
Client	: CARDNO LANE PIPER PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: Fiskville		
C-O-C number	: ----	Date Samples Received	: 11-OCT-2013
Sampler	: MDR	Issue Date	: 13-DEC-2013
Order number	: ----		
		No. of samples received	: 76
Quote number	: MEBQ/115/13	No. of samples analysed	: 74

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

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **nOIL** 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
EA0cc: Mot- -pre CoH eH							
nHl B LoSk gl ( )EA0ccPl032							

Matrix: **nOIL**

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
EA0cc: Mot- -pre CoHeH+FCoHtHped								
AF07 (0.05),	AF08,	10fOCTff 013	ffff	----	----	1afOCTff 013	24-OCT-2013	✓
AF09,	AF10 (0.05),							
AF11,	AF12 (0.05),							
AF19,	AF20 (0.05),							
AF21,	AF22,							
AF23,	AF24,							
AF29,	AF30 (0.05),							
AF31,	AF32,							
AF33 (0.05),	AF35,							
AF36,	AF37,							
AF42 (0.05),	AF43,							
AF46 (0.05),	AF50,							
AF51,	AF52,							
AF53,	AF54,							
AF55,	AF56,							
AF57,	AF58,							
AF59,	AF60,							
AF61,	AF62,							
AF63,	AF64,							
AF65,	AF66,							
AF67 (0.05),	AF68,							
AF69,	AF70,							
AF71 (0.05),	AF72,							
AF73,	AF74,							
AF75,	AF76,							
AF77,	AF78,							
AF79,	AF80,							
AF82,	AF83,							
AF84,	AF85,							
AF86,	AF07 (0.3),							
AF10 (0.3),	AF12 (0.3),							
AF20 (0.3),	AF30 (0.3),							
AF67 (0.3),	AF71 (0.3),							
QC15_101013,	QC17_101013,							
QC21_101013								

Matrix: nOIL

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
EPf 31: PerDportHl ·ed Co| BopHd-							
nHl B LoSk gl ( )EPf 312							
AF07 (0.05), AF08, AF09, AF10 (0.05), AF11, AF12 (0.05), AF19, AF20 (0.05), AF21, AF22, AF23, AF24, AF29, AF30 (0.05), AF31, AF32, AF33 (0.05), AF35, AF36, AF37, AF42 (0.05), AF43, AF46 (0.05), AF50, AF51, AF52, AF53, AF54, AF55, AF56, AF57, AF58, AF59, AF60, AF61, AF62, AF63, AF64, AF65, AF66, AF67 (0.05), AF68, AF69, AF70, AF71 (0.05), AF72, AF73, AF74, AF75, AF76, AF77, AF78, AF79, AF80, AF82, AF83, AF84, AF85, AF86, AF07 (0.3), AF10 (0.3), AF12 (0.3), AF20 (0.3), AF30 (0.3), AF67 (0.3), AF71 (0.3), QC15_101013, QC17_101013, QC21_101013	**10FOCTff013**	**ff FOCTff013**	08-APR-2014	✓	**ff FOCTff013**	01-DEC-2013	✓

Matrix: nOIL

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
EPf 31: PerDportHl ·ed Co| BopHd-							
nHl B LoSk gl ( )EPf 31fPmC2							
AF07 (0.05), AF08, AF09, AF10 (0.05), AF11, AF12 (0.05), AF19, AF20 (0.05), AF21, AF22, AF23, AF24, AF29, AF30 (0.05), AF31, AF32, AF33 (0.05), AF35, AF36, AF37, AF42 (0.05), AF43, AF46 (0.05), AF50, AF51, AF52, AF53, AF54, AF55, AF56, AF57, AF58, AF59, AF60, AF61, AF62, AF63, AF64, AF65, AF66, AF67 (0.05), AF68, AF69, AF70, AF71 (0.05), AF72, AF73, AF74, AF75, AF76, AF77, AF78, AF79, AF80, AF82, AF83, AF84, AF85, AF86, AF07 (0.3), AF10 (0.3), AF12 (0.3), AF20 (0.3), AF30 (0.3), AF67 (0.3), AF71 (0.3), QC15_101013, QC17_101013, QC21_101013	**10fOCTff013**	**ff fOCTff013**	08-APR-2014	✓	**ff fOCTff013**	01-DEC-2013	✓

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

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
EPf 31: PerDportHl ▪ed Co| BopHd-								
4. PE)Ho PTmE2)EPf 312								
QC07		**0sfOCTff 013**	**fff**	08-APR-2014	----	**f f fOCTff 013**	08-APR-2014	✓
4. PE)Ho PTmE2)EPf 312								
QC22_101013,	QC24_101013,	**10fOCTff 013**	**fff**	08-APR-2014	----	**f f fOCTff 013**	08-APR-2014	✓
QC23_101013,	QC25_101013							
EPf 31: PerDportHl ▪ed Co| BopHd-								
4. PE)Ho PTmE2)EPf 31fPmC2								
QC07		**0sfOCTff 013**	**fff**	08-APR-2014	----	**f f fOCTff 013**	08-APR-2014	✓
4. PE)Ho PTmE2)EPf 31fPmC2								
QC22_101013,	QC24_101013,	**10fOCTff 013**	**fff**	08-APR-2014	----	**f f fOCTff 013**	08-APR-2014	✓
QC23_101013,	QC25_101013							

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: **nOIL**

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)							
Moisture Content	EA055-103	7	69	**10%**	**10%**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorinated Compounds by LCMSMS	EP231-PFC	7	69	**10%**	**10%**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	7	69	**10%**	**10%**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	4	69	**5%**	**5%**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	4	69	**5%**	**5%**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	4	69	**5%**	**5%**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	4	69	**5%**	**5%**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	4	69	**5%**	**5%**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	4	69	**5%**	**5%**	✓	NEPM 2013 Schedule B(3) and 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*	
Laboratory Duplicates (DUP)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	5	**0%**	**10%**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	5	**0%**	**10%**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	5	**0%**	**5%**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	5	**0%**	**5%**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	5	**0%**	**5%**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	5	**0%**	**5%**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	5	**0%**	**5%**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	5	**0%**	**5%**	✓	NEPM 2013 Schedule B(3) and 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
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 (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
Perfluorinated Compounds by LCMSMS	EP231-PFC	SOIL	In-House. A portion of soil is extracted with MTBE. The extract is taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
PFOS and PFOA	EP231	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorped onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.
Perfluorinated Compounds by LCMSMS	EP231-PFC	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorped onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.

Preparation Methods	Method	Matrix	Method Descriptions
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House

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 SW 846 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: nOIL

Compound Group Name	Laboratory Sample ID	Client Sample ID	AHIuy+e	CAS Number	Data	Limits	Co| | eH+
LI xorI +ory CoH+rounBtke)LCn2ReSoverte-							
EP231: Perfluorinated Compounds	3704926-002	---	PnOnA	754-91-6	135 %	60-130%	ReSovery (rel +er +hI HpBBer SoH+rou ut| t+
EP231: Perfluorinated Compounds	3704926-002	---	NFMeFnOnA	31506-32-8	138 %	60-130%	ReSovery (rel +er +hI HpBBer SoH+rou ut| t+
EP231: Perfluorinated Compounds	3704925-007	---	Pm4wA	307-24-4	130 %	60-130%	ReSovery (rel +er +hI HpBBer SoH+rou ut| t+
MI +rtwnBtke)Mn2ReSoverte-							
EP231: Perfluorinated Compounds	EM1310769-041	AF67 (0.05)	PnOnA	754-91-6	57.2 %	60-130%	ReSovery ue- - +hI Hwqer dI +I bpI ut+y oxjeS+tve
EP231: Perfluorinated Compounds	EM1310769-041	AF67 (0.05)	NFMeFnOnE	2448-09-7	44.6 %	60-130%	ReSovery ue- - +hI Hwqer dI +I bpI ut+y oxjeS+tve
EP231: Perfluorinated Compounds	EM1310769-041	AF67 (0.05)	NfE+FnOnE	1691-99-2	52.0 %	60-130%	ReSovery ue- - +hI Hwqer dI +I bpI ut+y oxjeS+tve
EP231: Perfluorinated Compounds	EM1310769-062	AF10 (0.3)	Pngn	375-73-5	132 %	60-130%	ReSovery (rel +er +hI HpBBer dI +I bpI ut+y oxjeS+tve
EP231: Perfluorinated Compounds	EM1310769-001	AF07 (0.05)	PnNA	375-95-1	131 %	60-130%	ReSovery (rel +er +hI HpBBer dI +I bpI ut+y oxjeS+tve
EP231: Perfluorinated Compounds	EM1310769-062	AF10 (0.3)	PnUHA	2058-94-8	52.0 %	60-130%	ReSovery ue- - +hI Hwqer dI +I bpI ut+y oxjeS+tve
EP231: Perfluorinated Compounds	EM1310769-021	AF42 (0.05)	PnTrtA	72629-94-8	133 %	60-130%	ReSovery (rel +er +hI HpBBer dI +I bpI ut+y oxjeS+tve
EP231: Perfluorinated Compounds	EM1310769-041	AF67 (0.05)	PnTeA	376-06-7	138 %	60-130%	ReSovery (rel +er +hI HpBBer dI +I bpI ut+y oxjeS+tve

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- mor I uu\| I +rtSe- , Ho . pBuSI +e op+uter- oSSpr7

Regular Sample Surrogates

- mor I ure(pu r -I \| Bue \| I +rtSe- , Ho - prro(I +e reSovery op+uter- oSSpr7

Outliers : Analysis Holding Time Compliance

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

- No AHI uy- t- 4 oudtH(Tt\| e Op+uter- ewt- +7

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.

Received 17/10/13 15:33 R-7

CARDNO LANE PIPER (LANECON)

REBATCH TABLE: EM1310688 & EM1310628 **CONTACT: MARCUS BOYD / LEIGH MCDONALD** **PROJECT: 212163.31**

New sample #	Client ID	Previous work order #	Sample #	Sampling Date	Tray	Containers	Analysis	Holding time
1	D4WE2.7/081013	EM1310628	3	8/10/2013	SV21	250mL HDPE	PFOS/PFOA 6:2 FTS	
2	AF81	EM1310688	7	9/10/2013	SV21	Snap lock bag	PFOS/PFOA 6:2 FTS	
3	AF87	EM1310688	8	9/10/2013	SV21	Snap lock bag	PFOS/PFOA 6:2 FTS	
4	AF44	EM1310688	9	9/10/2013	SV21	Snap lock bag	PFOS/PFOA 6:2 FTS	

Environmental Division
Melbourne
Work Order
EM1310980

Telephone : +61-3-8549 9600

Client aware of holding time issues.
Client aware of issues with Volatiles as samples have already been mixed.

Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: **EM1310620**		
Client	: **CAR9 NO LANE PIPER PTD LT9**	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31 REBATCH OF EM1310628 & EM1310688	Page	: 1 of 3
Order number	: ----		
C-O-C number	: ----	Quote number	: EM2013LANECON0039 (MEBQ/115/13)
Site	: Fiskville		
Sampler	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 17-OCT-2013	Issue Date	: 18-OCT-2013 11:38
Client Requested Due Date	: 28-OCT-2013	Scheduled Reporting Date	: **Y28OCT8Y013**

Delivery Details

Mode of Delivery	: Samples on hand	Temperature	: ----
No. of coolers/boxes	: ----	No. of samples received	: 4
Security Seal	: N/A	No. of samples analysed	: 4

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
- **S- a mpel resed ed ov - mmromro- rept mrerre- red - vd mrel eri ed sovn- overl y**
- **Ppe- l e re.er ro rhe Pro- smi e uopdovg Tca e Remornn- bpe bepox x hosh l f a a - rd el bre- shel o. resoa a evded hopdovg rca el rh- nh- i e ossf rred mroor ro l - a mpel qvl mf smovl beovg resed ed - n rhe p bor- rort y The - bl evse o. rhd l f a a - rt n- bpe ovdos- rel rh- n- ppl - a mpel h- i e beev resed ed x ohov rhe resoa a evded hopdovg rca el .or rhe - v- pt l d reHf el redy**
- **Ppe- l e dcresn- vt Hf erel rep- red ro l - a mpe sovdcrov qvf a berovg qbre- k- gel ro Perer R- i psy**
- **Av- pt rns- px ork .or rhd x ork order x qpbe sovdf sred - nALS St dvet y**
- Sample Disposal - Aqueous (14 days), Solid (60 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.

- **No l - a mpe sovn- over qmrel eri - rcov vov8soa mpe- vse e4d ny**

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 - EA055-103 Moisture Content	SOIL - EP231 Perfluorooctyl Acids and Sulfonates by LC/MS/MS
EM1310980-002	09-OCT-2013 15:00	AF81	✓	✓
EM1310980-003	09-OCT-2013 15:00	AF87	✓	✓
EM1310980-004	09-OCT-2013 15:00	AF44	✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP231 Perfluorooctyl Acids and Sulfonates by LC/MS/MS
EM1310980-001	08-OCT-2013 15:00	D4WE2.7/081013	✓

Proactive Holding Time Report

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

Requested Deliverables

ALL INVOICES		
- A4 - AU Tax Invoice (INV)	Email	payables@lanepiper.com.au
LEIGu MC9 ONAL9		
- *AU Certificate of Analysis - NATA (COA)	Email	Leigh.Mcdonald@cardno.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	Leigh.Mcdonald@cardno.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	Leigh.Mcdonald@cardno.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	Leigh.Mcdonald@cardno.com.au
- Chain of Custody (CoC) (COC)	Email	Leigh.Mcdonald@cardno.com.au
- EDI Format - ESDAT (ESDAT)	Email	Leigh.Mcdonald@cardno.com.au
MS MARIA 9 E LOS REDES		
- *AU Certificate of Analysis - NATA	Email	maria.delosreyes@cardno.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep)	Email	maria.delosreyes@cardno.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA	Email	maria.delosreyes@cardno.com.au
- A4 - AU Sample Receipt Notification - Environmental HT	Email	maria.delosreyes@cardno.com.au
- Chain of Custody (CoC)	Email	maria.delosreyes@cardno.com.au
- EDI Format - ESDAT	Email	maria.delosreyes@cardno.com.au

Raymond Thai

From: Marcus Boyd (Cardno LP) [Marcus.Boyd@cardno.com.au]
Sent: Thursday, 17 October 2013 3:33 PM
To: Carol Walsh
Cc: Leigh McDonald
Subject: 212163.31 Cardno Lane Piper; Further Analysis

Afternoon Carol,

Can you please schedule the following samples for analysis as follows:

- EM1310688:
  - AF81, AF87, AF44 for PFC (PFOS, PFOA, 6:2FtS) analysis
- EM1310628:
  - Given D4WE0.2 is missing
  - Schedule D4WE2.7 for PFC (PFOS, PFOA, 6:2FtS) analysis

Thanks for your assistance.

Regards,

Marcus Boyd
ENVIRONMENTAL ENGINEER
CARDNO LANE PIPER

Cardno LanePiper
Shaping the Future

Phone +61 3 9888 0100 Fax +61 3 9808 3511 Direct +61 3 9831 6162 Mobile +61 411 300 608
Address Bldg 2, 154 Highbury Road, Burwood, Victoria 3125 Australia
Email Marcus.Boyd@cardno.com.au Web www.cardno.com Web www.lanepiper.com.au

CERTIFICATE OF ANALYSIS

Work Order	: **EM1310980**	Page	: 1 of L
i lreEy	: **CARDNO LANE PIPER PTY LTD**	bat orayorC	: v EmroED eEyal MmmsroE c elt ourEe
i oEyal y	: bv GHO c i MNAWbM	i oEyal y	: i arol h alsd
W55ress	: 14L OGHOBURY RNWM BURh NNM VG , WUSTRWbGV2134	W55ress	: L h esyall R5 SprnEgmale VG Wusyralra 2171
v-Darl	: bergd.c l 5oEal5@l ar5Eo.l oD.au	v-Darl	: l arol.walsd@alsglot al.l oD
TelepdoEe	: +61 02 98880100	TelepdoEe	: +61-2-84L9 9608
Fal srDrne	: +61 02 98082411	Fal srDrne	: +61-2-84L9 9601
Projel y	: 313162 21 RvBWTi O NF v c 1210638 Q v c 1210688	(i benel	: Av Pc 3012 SI de5ule B)2qaE5 WbS (i S2 rekurreD eEy
Nr5er EuDt er	: ----		
i -N-i EuDt er	: ----	Maye SaDples Rel erme5	: 17-Ni T-3012
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- HeEeral i oDDeEys
- WEalOyrl al Resulys

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Wl re5nye5 for l oDplraEl e wryd GSNzGi 17034.

Signatories

Tdrs 5ol uDeEy das t eeE elel yroErl allC srgEe5 t C yde auydorr&e5 srgEayorres rE5rl aye5 t elow. v lel yroErl srgErEg das t eeE l arrre5 ouyrE l oDplraEl e wryd prol e5ures spel rfre5 rE 31 i FR Pary11.

Signatories	*Position*	*Accreditation Category*
baEa AguCeE	SeEror bi c S i deDrsy	SC5EeCNrgaErl s
Pdala/ GEyda/ soEe	bat orayorCc aEager - NrgaErl s	SC5EeCGEorgaErl s

General Comments

Tde aEalQyrl al prol e5ures use5 t C yde v EmrroEDeEyal MmmsmoE dame teeE 5emelope5 froD esyat lnsde5 nEyerEayroEallC rel ogEr8e5 prol e5ures sul d as ydose put lnsde5 t C yde USv PW, WPOW, WS aE5 Av Pc . GE douse 5emelope5 prol e5ures are eDploCe5 nE yde at seEl e of 5ol uDeEye5 syaE5ar5s or t Cl lreEyrekuesy.

h dere Dorsyure 5eyerDrnEayroE das t eeE perforDe5, resulys are reporye5 oE a 5rCwergdyt asrs.

h dere a reporye5 less ydaE)<qresulyrs drgder ydaE yde bNR, ydrs DaCt e 5ue yo prrDarCsaDple exyral yz5rgesyaye 5rluyroE aE5zor nEsuffrlreEysaDple for aEalQsrs.

h dere yde bNR of a reporye5 resuly5rffers froD syaE5ar5 bNR, ydrs DaCt e 5ue yo drgd Dorsyure l oEyeEy, nEsuffrlreEysaDple)re5ul e5 wergdyeDploCe5qor Dayrx nEyerfereEl e.

h deE saDplrEg yrDe nEforDayroE rs Eoypromr5e5 t Cyde l lreEy, saDplrEg 5ayes are sdowE wrydouya yrDe l oDpoEeEy. GE ydese nEsyaEl es, yde yrDe l oDpoEeEydas t eeE assuDe5 t Cyde lat orayorCfor prol essrEg purposes.

KeC: i WS AuDt er = i WS regrsyrCEuDt er froD 5ayat ase DarEyarEe5 t Ci deDrl al Wt syral ys Serrnl es. Tde i deDrl al Wt syral ys Serrnl e rs a 5rnrsmoE of yde WDerrlaE i deDrl al SolreyC.
bNR = bnDry of reporyrEg
^ = Tdrs resulyrs l oDpuye5 froD nE5rnr5ual aEalQye 5eyel yroEs ayor at orne yde lemel of reporyrEg

- **EP231: PFOA and PFOS results are reported as an aggregate of linear and branched isomers.**
- **PFOS/PFOA/6:2FtS (EP231) conducted by ALS Sydney, NATA accreditation no. 825, site no 10911.**

Analytical Results

Sut -c ayrnx: SOIL (c ayrnx: SOIL)			Client sample ID	AF81	AF87	AF44	----	----
			Client sampling date / time	09-Ni T-3012 14:00	09-Ni T-3012 14:00	09-Ni T-3012 14:00	----	----
Compound	CAS Number	LOR	Unit	EM1310980-002	EM1310980-003	EM1310980-004	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	**36.7**	**27.2**	**39.5**	----	----
EP231: Perfluorinated Compounds								
PFOS	1762-32-1	0.0004	Dgz/g	**0.0016**	<0.0004	**0.218**	----	----
PFOA	224-67-1	0.0004	Dgz/g	<0.0004	<0.0004	**0.0028**	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	37619-97-3	0.004	Dgz/g	<0.004	<0.004	**0.006**	----	----

Analytical Results

Sut -c ayrnx: WATER (c ayrnx: WATER)				Client sample ID	D4WE2.7/081013	----	----	----	----
				Client sampling date / time	08-Ni T-3012 14:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*		**EM1310980-001**	**----**	**----**	**----**	**----**
EP231: Perfluorinated Compounds									
PFOS	1762-32-1	0.03	µgzb		**2.07**	----	----	----	----
PFOA	224-67-1	0.03	µgzb		**0.49**	----	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	37619-97-3	0.1	µgzb		**3.8**	----	----	----	----

QUALITY CONTROL REPORT

Work Order	: **EM1310680**	Page	: 1 of 7
Client	: **CARDNO LANE PIPER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 175 HIGH4BUR UOAD 4BUWOOD YICVAB, TUALIA S137	Address	: 5 Westall Ud , 2ringvale YIC Australia S1p1
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Tele2hone	: +61 0S 98880100	Tele2hone	: +61-S-8759 9608
Facsimile	: +61 0S 9808S711	Facsimile	: +61-S-8759 9601
Project	: 31316S S1 UE4ATCH OF EM1S10638 Q EM1S10688	(C Level	: NEPM 301S , chedule 4)Sqand AL, (C, S rekuirement
, ite	: Fis/ ville		
C-O-C number	: ----	Date , am2les Ueceived	: 1p-OCT-301S
, am2ler	: ----	Issue Date	: 38-OCT-301S
Order number	: ----		
		No. of sam2les received	: 5
(uote number	: ME4(;117;1S	No. of sam2les analysed	: 5

This re2ort su2ersedes any 2revious re2ort)sq with this reference. Uesults a22ly to the sam2le)sq as submitted. All 2ages of this re2ort have been chec/ ed and a22roved for release.

This (uality Control Ue2ort contains the following information:

- Laboratory Du2licate)DBPqUe2ortxUelative Percentage Difference)UPDqand Acce2tance Limits
- Method 4lan/)M4qand Laboratory Control , 2i/ e)LC, qUe2ortxUecovery and Acce2tance Limits
- Matriz , 2i/ e)M, qUe2ortxUecovery and Acce2tance Limits

NATA Accredited Laboratory 837

Accredited for com2liance with I, O;IEC 1p037.

Signatories

This document has been electronically signed by the authori&ed signatories indicated below. Electronic signing has been carried out ir com2liance with 2rocedures s2ecified in 31 CFU Part 11.

Signatories	*Position*	*Accreditation Category*
Lana Nguyen	, enior LCM, Chemist	, ydney Organics
Phala/ Intha/ sone	Laboratory Manager - Organics	, ydney Inorganics

General Comments

The analytical 2rocedures used by the Environmental Division have been develo2ed from established internationally recogni&ed 2rocedures such as those 2ublished by the B, EPAV APHAV A, and NEPM. In house develo2ed 2rocedures are em2loyed in the absence of documented standards or by client rekuest.

Where moisture determination has been 2erformedVresults are re2orted on a dry weight basis.

Where a re2orted less than)<qresult is higher than the LOUVthis may be due to 2rimary sam2le eztract;digestate dilution and;or insufficient sam2le for analysis.

Where the LOU of a re2orted result differs from standard LOUVthis may be due to high moisture contentVinsufficient sam2le)reduced weight em2loyedqor matriz interference.

Key : Anonymous = Uefers to sam2les which are not s2ecifically 2art of this wor/ order but formed 2art of the (C 2rocess lot
CA, Number = CA, registry number from database maintained by Chemical Abstracts , ervices. The Chemical Abstracts , ervice is a division of the American Chemical , ociety.
LOU = Limit of re2orting
UPD = Uelative Percentage Difference
# = Indicates failed (C

Laboratory Duplicate (DUP) Report

The kuality control term Laboratory Du2licate refers to a randomly selected intralaboratory s2lit. Laboratory du2licates 2rovide information regarding method 2recision and sam2le heterogeneity. The 2ermitted ranges for the Uelative Percent Deviation)UPDq of Laboratory Du2licates are s2ecified in AL, Method (WI-EN;S8 and are de2endent on the magnitude of results in com2arison to the level of re2orting: Uesult < 10 times LOU:- No LimitxUesult between 10 and 30 times LOU:- 0% - 70%xUesult > 30 times LOU:- 0% - 30%.

, ub-Matriz: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA044: Moisture Content (QC Lot: 3114769)									
EM1S1097p-003	Anonymous	EA077-10S: Moisture Content)dried @ 10S°Cq	----	1.0	%	<1.0	<1.0	0.0	No Limit
E, 1S33703-030	Anonymous	EA077-10S: Moisture Content)dried @ 10S°Cq	----	1.0	%	6.9	p.5	6.6	No Limit
EP231: Perfluorinated Compounds (QC Lot: 3114440)									
EM1S10980-003	AF81	EP3S1: PFO,	1p6S-3S-1	0.0007	mg;/g	0.0016	0.001p	6.9	No Limit
		EP3S1: PFOA	SS7-6p-1	0.0007	mg;/g	<0.0007	<0.0007	0.0	No Limit
		EP3S1: 6:3 Fluorotelomer sulfonate)6:3 Ft, q	3p619-9p-3	0.007	mg;/g	<0.007	<0.007	0.0	No Limit

, ub-Matriz: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP231: Perfluorinated Compounds (QC Lot: 3114496)									
EM1S10915-001	Anonymous	EP3S1: PFO,	1p6S-3S-1	0.03	µg;L	<0.03	<0.03	0.0	No Limit
		EP3S1: PFOA	SS7-6p-1	0.03	µg;L	<0.03	<0.03	0.0	No Limit
		EP3S1: 6:3 Fluorotelomer sulfonate)6:3 Ft, q	3p619-9p-3	0.1	µg;L	<0.1	<0.1	0.0	No Limit

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

The kuality control term Method ; Laboratory 4lan/ refers to an analyte free matriz to which all reagents are added in the same volumes or 2ro2ortions as used in standard sam2le 2re2aration. The 2ur2ose of this (C 2arameter is to monitor 2otential laboratory contamination. The kuality control term Laboratory Control , am2le)LC, q refers to a certified reference materialV or a /nown interference free matriz s2i/ ed with target analytes. The 2ur2ose of this (C 2arameter is to monitor method 2recision and accuracy inde2endent of sam2le matriz. Dynamic Uecovery Limits are based on statistical evaluation of 2rocessed LC, .

, ub-Matriz: **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
EP231: Perfluorinated Compounds (QCLot: 3114440)								
EP3S1: PFO,	1p6S-3S-1	0.0007	mg;/ g	<0.0007	0.0037 mg;/ g	98.6	75	156
EP3S1: PFOA	SS7-6p-1	0.0007	mg;/ g	<0.0007	0.0037 mg;/ g	p6.8	75	1S5
EP3S1: 6:3 Fluorotelomer , ulfonate)6:3 Ft, q	3p619-9p-3	0.007	mg;/ g	<0.007	0.0137 mg;/ g	90.8	76	1S8

, ub-Matriz: **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
EP231: Perfluorinated Compounds (QCLot: 3114496)								
EP3S1: PFO,	1p6S-3S-1	0.03	µg;L	<0.03	0.37 µg;L	130	p0	1S6
EP3S1: PFOA	SS7-6p-1	0.03	µg;L	<0.03	0.37 µg;L	88.8	p3	1S5
EP3S1: 6:3 Fluorotelomer , ulfonate)6:3 Ft, q	3p619-9p-3	0.1	µg;L	<0.1	1.37 µg;L	13p	61	157

Matrix Spike (MS) Report

The kuality control term Matriz , 2i/ e)M, q refers to an intralaboratory s2lit sam2le s2i/ ed with a re2resentative set of target analytes. The 2ur2ose of this (C 2arameter is to monitor 2otential matriz effects on analyte recoveries. , tatic Uecovery Limits as 2er laboratory Data (uality Objectives)D(Osq Ideal recovery ranges stated may be waived in the event of sam2le matriz interference.

, ub-Matriz: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EP231: Perfluorinated Compounds (QCLot: 3114440)							
EM1S10980-003	AF81	EP3S1: PFO,	1p6S-3S-1	0.0037 mg;/ g	131	75	156
		EP3S1: PFOA	SS7-6p-1	0.0037 mg;/ g	131	75	1S5
		EP3S1: 6:3 Fluorotelomer sulfonate)6:3 Ft, q	3p619-9p-3	0.0137 mg;/ g	11p	76	1S8

, ub-Matriz: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EP231: Perfluorinated Compounds (QCLot: 3114496)							
EM1S10915-001	Anonymous	EP3S1: PFO,	1p6S-3S-1	0.37 µg;L	118	p0	1S6
		EP3S1: PFOA	SS7-6p-1	0.37 µg;L	86.0	p3	1S5
		EP3S1: 6:3 Fluorotelomer sulfonate)6:3 Ft, q	3p619-9p-3	1.37 µg;L	99.0	61	157

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The kuality control term Matriz , 2i/ e)M, q and Matriz , 2i/ e Du2licate)M, Dq refers to intralaboratory s2lit sam2les s2i/ ed with a re2resentative set of target analytes. The 2ur2ose of these (C 2arameters are to monitor 2otential matriz effects on analyte recoveries. , tatic Uecovery Limits as 2er laboratory Data (uality Objectives)D(Osq Ideal recovery ranges stated may be waived in the event of sam2le matriz interference.

, ub-Matriz: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP231: Perfluorinated Compounds (QCLot: 3114440)										
EM1S10980-003	AF81	EP3S1: PFO,	1p6S-3S-1	0.0037 mg;/ g	131	----	75	156	----	----
		EP3S1: PFOA	SS7-6p-1	0.0037 mg;/ g	131	----	75	1S5	----	----
		EP3S1: 6:3 Fluorotelomer sulfonate)6:3 Ft, q	3p619-9p-3	0.0137 mg;/ g	11p	----	76	1S8	----	----

, ub-Matriz: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP231: Perfluorinated Compounds (QCLot: 3114496)										
EM1S10915-001	Anonymous	EP3S1: PFO,	1p6S-3S-1	0.37 µg;L	118	----	p0	1S6	----	----
		EP3S1: PFOA	SS7-6p-1	0.37 µg;L	86.0	----	p3	1S5	----	----
		EP3S1: 6:3 Fluorotelomer sulfonate)6:3 Ft, q	3p619-9p-3	1.37 µg;L	99.0	----	61	157	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **EM1310980**	Page	: 1 of 5
Client	: CARDNO LANE PIPER PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31 REBATCH OF EM1310628 & EM1310688	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: Fiskville		
C-O-C number	: ----	Date Samples Received	: 17-OCT-2013
Sampler	: ----	Issue Date	: 28-OCT-2013
Order number	: ----		
		No. of samples received	: 4
Quote number	: MEBQ/115/13	No. of samples analysed	: 4

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

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

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 (EA055-103)							
AF81, AF87, AF44	**09-OCT-2013**	**----**	----	----	**22-OCT-2013**	23-OCT-2013	✓
EP231: Perfluorinated Compounds							
Snap Lock Bag (EP231)							
AF81, AF87, AF44	**09-OCT-2013**	**22-OCT-2013**	07-APR-2014	✓	**22-OCT-2013**	01-DEC-2013	✓

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
EP231: Perfluorinated Compounds							
HDPE (no PTFE) (EP231)							
D4WE2.7/081013	**08-OCT-2013**	**---**	06-APR-2014	----	**21-OCT-2013**	06-APR-2014	✓

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)							
Moisture Content	EA055-103	2	20	**10.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	3	**33.3**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	3	**33.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	3	**33.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	3	**33.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and 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*	
Laboratory Duplicates (DUP)							
PFOS and PFOA	EP231	1	7	**14.3**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PFOS and PFOA	EP231	1	7	**14.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PFOS and PFOA	EP231	1	7	**14.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PFOS and PFOA	EP231	1	7	**14.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and 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
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 (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	SOIL	In-House. A portion of soil is soaked in sodium hydroxide followed by extraction with methanol. The extract is neutralised with HCl and an aliquot taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM.
PFOS and PFOA	EP231	WATER	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorped onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.

Preparation Methods	Method	Matrix	Method Descriptions
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House

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 SW 846 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.

- **No Analysis Holding Time Outliers exist.**

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.**

Cardno LanePiper

Tony.

metals = As Cd Cr Cu Ni Pb Zn Hg Ca Mg Na K

nutrients = TDS, Alkalinity, Turbidity, TDS, TSS, Nitrogen levels

PM Name: Leigh McDonald **Field Staff:** Maria Delos Reyes

Phone: 03 9888 0100 **Fax:** 03 9808 3511 **Mobile:** 0424278497

Address: Building 2, 154 Highbury Rd, Burwood, Vic, 3125

PM Email: Leigh.Mcdonald@cardno.com.au, Maria.delosreyes@cardno.com.au

Project Number: 212163.31 **Site:** Fiskville

Laboratory (name, phone,fax no & contact person)

MGT

Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Sample Matrix: Water	Sample preservation: Ice bricks	NaOH	HNO3	H2SO4	Na2S2O3	Analysis: PFCs: PFOS PFOA, 6:2 FTS	BTEX	METALS (Total)	TPH	nutrients
QC04_081013		NUTRIENTS metals preserved and unpreserved 2x vials Amber PFOS	8/10/13		X	X	X	X	X	X	X				

Sampler: I attest that the proper field sampling proceedures were used during the collection of these samples.

Sampler name: (print and signature) Date:

Relinquished by (Sampler): (print and signature)	Date	Time		Date
			9/10/13 11.23	
Relinquished by: (print and signature)	Date	Time		Date
Relinquished by: (print and signature)	Date	Time		Date
Tony W				9/10/13 12:04 pm.

Report: 395583

Please supply results electronically in spreadsheet and ESDAT files.

Turn around time: (24 hour/48 hour/3 days/5 days) Please circle

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NATA # 1261
Site # 1254 & 14271

Sydney
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Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Sample Receipt Advice

Company name:	**Cardno Lane Piper Pty Ltd**
Contact name:	Leigh McDonald
Client job number:	FISKVILLE 212163.31
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Oct 9, 2013 12:04 PM
Eurofins | mgt reference:	**395583**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Organic samples had Teflon liners.

☑ Sample containers for volatile analysis received with zero headspace.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Andrew Thexton on Phone : (+61) (3) 8564 5000 or by e.mail: AndrewThexton@eurofins.com.au

Results will be delivered electronically via e.mail to Leigh McDonald - leigh.mcdonald@cardno.com.au.

Eurofins | mgt Sample Receipt

Company Name:	Cardno Lane Piper Pty Ltd	**Order No.:**		**Received:**	Oct 9, 2013 12:04 PM
Address:	Building 2, 154 Highbury Road	**Report #:**	395583	**Due:**	Oct 16, 2013
	Burwood	**Phone:**	9888 0100	**Priority:**	5 Day
	VIC 3125	**Fax:**	9808 3511	**Contact Name:**	Leigh McDonald
Client Job No.:	FISKVILLE 212163.31				

Eurofins | mgt Client Manager: Andrew Thexton

Sample Detail					PFOS/PFOA
boratory where analysis is conducted					
elbourne Laboratory - NATA Site # 1254 & 14271					
ydney Laboratory - NATA Site # 18217					
risbane Laboratory - NATA Site # 20794					
ternal Laboratory					X
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
C04_081013	Oct 08, 2013		Water	M13-Oc06889	X

mgt

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2-5 Kingston Town Close
Vic 3166 Oakleigh
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Person in charge Mr. B. Homburg
ASM Mr. B. Homburg

Report date 21.10.2013

Analytical report AR-13-GF-029963-01

Sample Code 710-2013-20643001

Reference	Water QC04_081013
Sample sender	Tammy Lakeland
Reception date time	12.10.2013
Client Purchase order nr.	13/1141 395583
Purchase order date	08.10.2013
Client sample code	M13-Oc06889
Packaging	plastic bottle with screw closure
Number of containers	1
Reception temperature	cooled
End analysis	19.10.2013

Test results

GF06J PFC (10 + H4PFOS) ~ environment (°) (#)
Method Internal method, LC-MS/MS

Perfluorooctane sulfonate (PFOS)	13100	ng/l
Perfluorooctanoic acid (PFOA)	1590	ng/l
total PFOS / PFOA excl. LOQ	14700	ng/l
total PFOS / PFOA incl. LOQ	14700	ng/l
Perfluorbutansulfonate (PFBS)	1480	ng/l
Perfluorobutanoic acid (PFBA)	1630	ng/l
Perfluoropentane acid (PFPeA)	5280	ng/l
Perfluorohexane sulfonate (PFHxS)	8800	ng/l
Perfluorohexanoic acid (PFHxA)	8260	ng/l
Perfluorheptanoic acid (PFHpA)	1400	ng/l
Perfluorononanoic acid (PFNA)	158	ng/l
Perfluordecanoic acid (PFDA)	< 100	ng/l
6:2 Fluorotelomer sulfonate (FTS)	32600	ng/l
total PFC compounds excl. LOQ	74300	ng/l

total PFC compounds incl. LOQ	74400	ng/l

(°) = The test was performed at the site Hamburg.
(#) = Eurofins GfA Lab Service Gmbh (Hamburg) is accredited for this test.

< - Concentration below the indicated limit of quantification (LOQ)

This electronically generated test report has been checked and approved. It is also valid without signature.

Joachim Fuchs
(Analytical Services Manager)

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025.
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Cardno Lane Piper Pty Ltd
Building 2, 154 Highbury Road
Burwood
VIC 3125

Attention: **Leigh McDonald**

Report **395583-W**
Client Reference FISKVILLE 212163.31
Received Date Oct 09, 2013

Client Sample ID			**QC04_081013**
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**M13-Oc06889**
Date Sampled			**Oct 08, 2013**
Test/Reference	LOR	Unit	
PFOS/PFOA			See attached

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

Description	Testing Site	Extracted	Holding Time

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised By

Andrew Thexton Client Services

Glenn Jackson
Laboratory Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

Cardno LanePiper

Tony.

1 of 1

PM Name: Leigh McDonald Field Staff: Maria Delos Reyes

Phone: 03 9888 0100 Fax: 03 9808 3511 Mobile: 0424278497

Address: Building 2, 154 Highbury Rd, Burwood, Vic, 3125

PM Email: Leigh.Mcdonald@cardno.com.au, Maria.delosreyes@cardno.com.au

Project Number: 212163.31 Site: Fiskville

Laboratory (name, phone, fax no & contact person) MGT

Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Sample Matrix: Water	Sample Matrix: Sediment	Sample Matrix: Soil	Ice bricks	NaOH	HNO3	H2SO4	Na2S2O3	Analysis: PFCs: PFOS, PFOA, 6:2FTS	Analysis
	pFOS	1L plastic, Amber	9/10/13					X					.	
QC06_091013	X2 vials	metals x2 cyanide x2	↓		X			↓	X	X	X	X	X	
QC10-091013		X2 Jar + 1 bag	↓			X		↓					X	no JARS received
QC12-091013		1 bag	↓				X	↓					X	
QC14-091013		1 bag	↓				X	↓					X	

10OCT13PM 2:03

Sampler: I attest that the proper field sampling proceedures were used during the collection of these samples.

Sampler name: (print and signature) Maria Delos Reyes Date: 9/10/13

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by (Sampler): (print and signature) Maria Delos Reyes	9/10/13		10/10/13		
Relinquished by: (print and signature)					
Relinquished by: (print and signature)			Tony W	10/10/13	2:03pm

Please supply results electronically in spreadsheet and ESDAT files.

Turn around time: (24 hour/48 hour/3 days/5 days) Please circle

Report: 395933

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NATA # 1261
Site # 1254 & 14271

Sydney
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16 Mars Road
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Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Sample Receipt Advice

Company name:	**Cardno Lane Piper Pty Ltd**
Contact name:	Leigh McDonald
Client job number:	FISKVILLE 212163.31
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Oct 11, 2013 2:03 PM
Eurofins | mgt reference:	**395933**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☒ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Organic samples had Teflon liners.

☑ Sample containers for volatile analysis received with zero headspace.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Notes

Extra sample QC11 received, sent back as email requested.

Contact notes

If you have any questions with respect to these samples please contact:

Andrew Thexton on Phone : (+61) (3) 8564 5000 or by e.mail: AndrewThexton@eurofins.com.au

Results will be delivered electronically via e.mail to Leigh McDonald - leigh.mcdonald@cardno.com.au.

Eurofins | mgt Sample Receipt

Company Name:	Cardno Lane Piper Pty Ltd	**Order No.:**		**Received:**	Oct 11, 2013 2:03 PM
Address:	Building 2, 154 Highbury Road	**Report #:**	395933	**Due:**	Oct 18, 2013
	Burwood	**Phone:**	9888 0100	**Priority:**	5 Day
	VIC 3125	**Fax:**	9808 3511	**Contact Name:**	Leigh McDonald
Client Job No.:	FISKVILLE 212163.31				

Eurofins | mgt Client Manager: Andrew Thexton

Sample Detail					PFOS/PFOA
boratory where analysis is conducted					
elbourne Laboratory - NATA Site # 1254 & 14271					
ydney Laboratory - NATA Site # 18217					
isbane Laboratory - NATA Site # 20794					
ternal Laboratory					X
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
C06_091013	Oct 09, 2013		Water	M13-Oc09130	X
C10_091013	Oct 09, 2013		Soil	M13-Oc09131	X
C12_091013	Oct 09, 2013		Soil	M13-Oc09132	X
C14_091013	Oct 09, 2013		Soil	M13-Oc09133	X

eurofins | mgt

Certificate of Analysis

Attention:Leigh McDonald

Cardno Lane Piper Pty Ltd
Building 2, 154 Highbury Road
Burwood
VIC 3125

Report	**395933**
Client Reference	FISKVILLE 212163.31
Received Date	Oct 11, 2013

Client Sample ID			**QC06_091013**	**QC10_091013**	**QC12_091013**	**QC14_091013**
Sample Matrix			**Water**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M13-Oc09130**	**M13-Oc09131**	**M13-Oc09132**	**M13-Oc09133**
Date Sampled			**Oct 09, 2013**	**Oct 09, 2013**	**Oct 09, 2013**	**Oct 09, 2013**
Test/Reference	LOR	Unit				
PFOS/PFOA			See attached	See attached	See attached	See attached

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	**Testing Site**	**Extracted**	**Holding Time**

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	Yes

Authorised By

Andrew Thexton Client Services

Glenn Jackson
Laboratory Manager

- Indicates Not Requested
* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

Authorised

Michael Wright
Senior Principal Chemist
NATA Signatory

Andrew Thexton
Client Manager
NATA Signatory

Andrew Cook
Chief Inorganic Chemist

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AUSTRALIEN

Person in charge Mr. B. Homburg
ASM Mr. B. Homburg

Report date 22.10.2013

Analytical report AR-13-GF-030303-01

Sample Code 710-2013-21203001

Reference	Water QC06_091013
Sample sender	Tammy Lakeland
Reception date time	18.10.2013
Client Purchase order nr.	13/1152 395933
Purchase order date	14.10.2013
Client sample code	M13-Oc09130
Packaging	plastic bottle with screw closure
Number of containers	1
Reception temperature	cooled
End analysis	22.10.2013

Test results

GF06J PFC (10 + H4PFOS) ~ environment (°) (#)
Method Internal method, LC-MS/MS

Perfluorooctane sulfonate (PFOS)	< 5.0	ng/l
Perfluorooctanoic acid (PFOA)	< 5.0	ng/l
total PFOS / PFOA excl. LOQ	ND	ng/l
total PFOS / PFOA incl. LOQ	10.0	ng/l
Perfluorbutansulfonate (PFBS)	< 7.5	ng/l
Perfluorobutanoic acid (PFBA)	< 7.3	ng/l
Perfluoropentane acid (PFPeA)	< 5.0	ng/l
Perfluorohexane sulfonate (PFHxS)	< 7.5	ng/l
Perfluorohexanoic acid (PFHxA)	< 5.0	ng/l
Perfluorheptanoic acid (PFHpA)	< 5.0	ng/l
Perfluorononanoic acid (PFNA)	< 5.0	ng/l
Perfluordecanoic acid (PFDA)	< 5.0	ng/l
6:2 Fluorotelomer sulfonate (FTS)	< 7.5	ng/l

Analytical report AR-13-GF-030303-01

Sample Code 710-2013-21203001

total PFC compounds excl. LOQ	ND	ng/l
total PFC compounds incl. LOQ	64.8	ng/l

(°) = The test was performed at the site Hamburg.
(#) = Eurofins GfA Lab Service Gmbh (Hamburg) is accredited for this test.

< - Concentration below the indicated limit of quantification (LOQ)
ND - not determined since none of the corresponding congeners was above the LOQ

This electronically generated test report has been checked and approved. It is also valid without signature.

Burkhard Homburg
(Analytical Services Manager)

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Person in charge Mr. B. Homburg
ASM Mr. B. Homburg

Report date 22.10.2013

Analytical report AR-13-GF-030303-01

Sample Code 710-2013-21203001

Reference	Water QC06_091013
Sample sender	Tammy Lakeland
Reception date time	18.10.2013
Client Purchase order nr.	13/1152 395933
Purchase order date	14.10.2013
Client sample code	M13-Oc09130
Packaging	plastic bottle with screw closure
Number of containers	1
Reception temperature	cooled
End analysis	22.10.2013

Test results

GF06J PFC (10 + H4PFOS) ~ environment (°) (#)
Method Internal method, LC-MS/MS

Perfluorooctane sulfonate (PFOS)	< 5.0	ng/l
Perfluorooctanoic acid (PFOA)	< 5.0	ng/l
total PFOS / PFOA excl. LOQ	ND	ng/l
total PFOS / PFOA incl. LOQ	10.0	ng/l
Perfluorbutansulfonate (PFBS)	< 7.5	ng/l
Perfluorobutanoic acid (PFBA)	< 7.3	ng/l
Perfluoropentane acid (PFPeA)	< 5.0	ng/l
Perfluorohexane sulfonate (PFHxS)	< 7.5	ng/l
Perfluorohexanoic acid (PFHxA)	< 5.0	ng/l
Perfluorheptanoic acid (PFHpA)	< 5.0	ng/l
Perfluorononanoic acid (PFNA)	< 5.0	ng/l
Perfluordecanoic acid (PFDA)	< 5.0	ng/l
6:2 Fluorotelomer sulfonate (FTS)	< 7.5	ng/l

Analytical report AR-13-GF-030303-01

Sample Code 710-2013-21203001

total PFC compounds excl. LOQ	ND	ng/l
total PFC compounds incl. LOQ	64.8	ng/l

(°) = The test was performed at the site Hamburg.
(#) = Eurofins GfA Lab Service Gmbh (Hamburg) is accredited for this test.

< - Concentration below the indicated limit of quantification (LOQ)
ND - not determined since none of the corresponding congeners was above the LOQ

This electronically generated test report has been checked and approved. It is also valid without signature.

Burkhard Homburg
(Analytical Services Manager)

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Person in charge Mr. B. Homburg
ASM Mr. B. Homburg

Report date 25.10.2013

Analytical report AR-13-GF-030762-01

Sample Code 710-2013-21212001

Reference	Soil QC10_091013
Sample sender	Tammy Lakeland
Reception date time	18.10.2013
Client Purchase order nr.	13/1152 395933
Purchase order date	14.10.2013
Client sample code	M13-Oc09131
Packaging	plastic bottle with screw closure
Number of containers	1
Reception temperature	cooled
End analysis	25.10.2013

Test results

CYP07 dry matter (°) (#)
Method Internal method, produce dry matter of original sample

dry residue	80.54	%

GF06J PFC (10 + H4PFOS) ~ environment (°) (#)
Method Internal method, LC-MS/MS

Perfluorooctane sulfonate (PFOS)	82.4	µg/kg dm
Perfluorooctanoic acid (PFOA)	2.6	µg/kg dm
total PFOS / PFOA excl. LOQ	85.0	µg/kg dm
total PFOS / PFOA incl. LOQ	85.0	µg/kg dm
Perfluorbutansulfonate (PFBS)	< 2.5	µg/kg dm
Perfluorobutanoic acid (PFBA)	< 1.6	µg/kg dm
Perfluoropentane acid (PFPeA)	< 2.3	µg/kg dm
Perfluorohexane sulfonate (PFHxS)	8.7	µg/kg dm
Perfluorohexanoic acid (PFHxA)	4.9	µg/kg dm
Perfluorheptanoic acid (PFHpA)	< 1.6	µg/kg dm
Perfluorononanoic acid (PFNA)	< 1.6	µg/kg dm

Perfluordecanoic acid (PFDA)	< 1.6	µg/kg dm
6:2 Fluorotelomer sulfonate (FTS)	14.1	µg/kg dm
total PFC compounds excl. LOQ	113	µg/kg dm
total PFC compounds incl. LOQ	124	µg/kg dm

(°) = The test was performed at the site Hamburg.
(#) = Eurofins GfA Lab Service Gmbh (Hamburg) is accredited for this test.

< - Concentration below the indicated limit of quantification (LOQ)

This electronically generated test report has been checked and approved. It is also valid without signature.

Joachim Fuchs
(Analytical Services Manager)

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2-5 Kingston Town Close
Vic 3166 Oakleigh
AUSTRALIEN

Person in charge Mr. B. Homburg
ASM Mr. B. Homburg

Report date 25.10.2013

Analytical report AR-13-GF-030763-01

Sample Code 710-2013-21212002

Reference	Soil QC12_091013
Sample sender	Tammy Lakeland
Reception date time	18.10.2013
Client Purchase order nr.	13/1152 395933
Purchase order date	14.10.2013
Client sample code	M13-Oc09132
Packaging	plastic bottle with screw closure
Number of containers	1
Reception temperature	cooled
End analysis	25.10.2013

Test results

CYP07 dry matter (°) (#)
Method Internal method, produce dry matter of original sample

dry residue	79.40	%

GF06J PFC (10 + H4PFOS) ~ environment (°) (#)
Method Internal method, LC-MS/MS

Perfluorooctane sulfonate (PFOS)	µ 2.3	<g/kg dm
Perfluorooctanoic acid (PFOA)	µ 2.3	<g/kg dm
total PFOS / PFOA excl. LOQ	ND	<g/kg dm
total PFOS / PFOA incl. LOQ	4.6	<g/kg dm
Perfluorbutansulfonate (PFBS)	µ 3.5	<g/kg dm
Perfluorobutanoic acid (PFBA)	µ 2.3	<g/kg dm
Perfluoropentane acid (PFPeA)	µ 2.3	<g/kg dm
Perfluorohexane sulfonate (PFHxS)	µ 3.5	<g/kg dm
Perfluorohexanoic acid (PFHxA)	µ 2.3	<g/kg dm
Perfluorheptanoic acid (PFHpA)	µ 2.3	<g/kg dm
Perfluorononanoic acid (PFNA)	µ 2.3	<g/kg dm

Perfluordecanoic acid (PFDA)	µ 2.3	<g/kg dm
6:2 Fluorotelomer sulfonate (FTS)	µ 3.5	<g/kg dm
total PFC compounds excl. LOQ	ND	<g/kg dm
total PFC compounds incl. LOQ	28.8	<g/kg dm

(°) = The test was performed at the site Hamburg.
(#) = Eurofins GfA Lab Service Gmbh (Hamburg) is accredited for this test.

µ - Concentration below the indicated limit of quantification (LOQ)
ND - not determined since none of the corresponding congeners was above the LOQ

This electronically generated test report has been checked and approved. It is also valid without signature.

Joachim Fuchs
(Analytical Services Manager)

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attn. Results
2-5 Kingston Town Close
Vic 3166 Oakleigh
AUSTRALIEN

Person in charge Mr. B. Homburg
ASM Mr. B. Homburg

Report date 25.10.2013

Analytical report AR-13-GF-030764-01

Sample Code 710-2013-21212003

Reference	Soil QC14_091013
Sample sender	Tammy Lakeland
Reception date time	18.10.2013
Client Purchase order nr.	13/1152 395933
Purchase order date	14.10.2013
Client sample code	M13-Oc09133
Packaging	plastic bottle with screw closure
Number of containers	1
Reception temperature	cooled
End analysis	25.10.2013

Test results

CYP07 dry matter (°) (#)
Method Internal method, produce dry matter of original sample

dry residue	80.48	%

GF06J PFC (10 + H4PFOS) ~ environment (°) (#)
Method Internal method, LC-MS/MS

Perfluorooctane sulfonate (PFOS)	47.8	µg/kg dm
Perfluorooctanoic acid (PFOA)	< 2.2	µg/kg dm
total PFOS / PFOA excl. LOQ	47.8	µg/kg dm
total PFOS / PFOA incl. LOQ	50.0	µg/kg dm
Perfluorbutansulfonate (PFBS)	< 3.4	µg/kg dm
Perfluorobutanoic acid (PFBA)	< 2.2	µg/kg dm
Perfluoropentane acid (PFPeA)	< 2.2	µg/kg dm
Perfluorohexane sulfonate (PFHxS)	8.6	µg/kg dm
Perfluorohexanoic acid (PFHxA)	3.8	µg/kg dm
Perfluorheptanoic acid (PFHpA)	< 2.2	µg/kg dm
Perfluorononanoic acid (PFNA)	8.0	µg/kg dm

Perfluordecanoic acid (PFDA)	< 2.2	µg/kg dm
6:2 Fluorotelomer sulfonate (FTS)	< 3.4	µg/kg dm
total PFC compounds excl. LOQ	68.1	µg/kg dm
total PFC compounds incl. LOQ	86.0	µg/kg dm

(°) = The test was performed at the site Hamburg.
(#) = Eurofins GfA Lab Service Gmbh (Hamburg) is accredited for this test.

< - Concentration below the indicated limit of quantification (LOQ)

This electronically generated test report has been checked and approved. It is also valid without signature.

Joachim Fuchs
(Analytical Services Manager)

Cardno LanePiper

COURIER

PM Name: Leigh McDonald Field Staff: Maria Delos Reyes
Phone: 03 9888 0100 Fax: 03 9808 3511 Mobile: 0424278497
Address: Building 2, 154 Highbury Rd, Burwood, Vic, 3125
PM Email: Leigh.Mcdonald@cardno.com.au, Maria.delosreyes@cardno.com.au
Project Number: 212163.31 Site: Fiskville
Laboratory (name, phone, fax no & contact person) MGT

Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Water	Soil			Ice bricks	NaOH	HNO3	H2SO4	Na2S2O3	PFCs: PFOS, PFOA, 6:2FTS											
QC20_091013		1 bag				x			x					x											
QC18_091013						x			↓					↓											
QC16_091013						x																			

Sample Matrix / Sample preservation / Analysis

Sampler: I attest that the proper field sampling proceedures were used during the collection of these samples.
Sampler name: (print and signature) Maria Delos Reyes [signature] Date: 4/10/13

Relinquished by (Sampler): (print and signature)	Date	Time		Date	
M. Delos Reyes [signature]	4/10/13	2:35pm	[signature] (0069)	11/10/13	
Relinquished by: (print and signature)	Date	Time	Catherine EF/mgt	Date 11/10	3.08 pm
Relinquished by: (print and signature)	Date	Time		Date	

Please supply results electronically in spreadsheet and ESDAT files.

Turn around time: (24 hour/48 hour/3 days/5 days) Please circle

396098

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com.au web : www.eurofins.com.au

Melbourne
3-5 Kingston Town Close
Oakleigh Vic 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F6, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Sample Receipt Advice

Company name:	**Cardno Lane Piper Pty Ltd**
Contact name:	Leigh McDonald
Client job number:	FISKVILLE 212163.31
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Oct 11, 2013 3:08 PM
Eurofins | mgt reference:	**396098**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

E All samples have been received as described on the above COC.

E COC has been completed correctly.

E¶ Attempt to chill was evident.

E Appropriately preserved sample containers have been used.

E All samples were received in good condition.

E Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

E Organic samples had Teflon liners.

E Some samples have been subcontracted.

>œ>> Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Andrew Thexton on Phone : (+61) (3) 8564 5000 or by e.mail: AndrewThexton@eurofins.com.au

Results will be delivered electronically via e.mail to Leigh McDonald - leigh.mcdonald@cardno.com.au.

Eurofins | mgt Sample Receipt

Company Name:	Cardno Lane Piper Pty Ltd	**Order No.:**		**Received:**	Oct 11, 2013 3:08 PM
Address:	Building 2, 154 Highbury Road	**Report #:**	396098	**Due:**	Oct 18, 2013
	Burwood	**Phone:**	9888 0100	**Priority:**	5 Day
	VIC 3125	**Fax:**	9808 3511	**Contact Name:**	Leigh McDonald
Client Job No.:	FISKVILLE 212163.31				

Eurofins | mgt Client Manager: Andrew Thexton

Sample Detail					PFOS/PFOA
boratory where analysis is conducted					
elbourne Laboratory - NATA Site # 1254 & 14271					
dney Laboratory - NATA Site # 18217					
isbane Laboratory - NATA Site # 20794					
ternal Laboratory					X
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
C70_091013	Oct 09, 2013		Soil	M13-Oc09979	X
C18_091013	Oct 09, 2013		Soil	M13-Oc09980	X
C16_091013	Oct 09, 2013		Soil	M13-Oc09981	X

mgt

eurofins

Certificate of Analysis

Attention:Leigh McDonald

Cardno Lane Piper Pty Ltd
Building 2, 154 Highbury Road
Burwood
VIC 3125

Report	**396098**
Client Reference	FISKVILLE 212163.31
Received Date	Oct 11, 2013

Client Sample ID			**QC70_091013**	**QC18_091013**	**QC16_091013**
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M13-Oc09979**	**M13-Oc09980**	**M13-Oc09981**
Date Sampled			**Oct 09, 2013**	**Oct 09, 2013**	**Oct 09, 2013**
Test/Reference	LOR	Unit			
PFOS/PFOA			See attached	See attached	See attached

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	**Testing Site**	**Extracted**	**Holding Time**

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
Sample correctly preserved	Yes
Organic samples had Teflon liners	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	Yes

Authorised By

Andrew Thexton Client Services

Glenn Jackson
Laboratory Manager

- Indicates Not Requested
* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

Authorised

Michael Wright
Senior Principal Chemist
NATA Signatory

Andrew Thexton
Client Manager
NATA Signatory

Andrew Cook
Chief Inorganic Chemist

Eurofins | mgt 2-5 Kingston Town Close, Oakleigh, Victoria, Australia, 3166
ABN : 50 005 085 521 Telephone: +61 3 8564 5000 Facsimile: +61 3 8564 5090

Certificate of Analysis

Attention:Maria De Los Reyes

Cardno Lane Piper Pty Ltd
Building 2, 154 Highbury Road
Burwood
VIC 3125

Report	**396098-V2**
Client Reference	**FISKVILLE 212163.31**
Received Date	**Oct 11, 2013**

Client Sample ID			**QC20_091013**	**QC18_091013**	**QC16_091013**
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M13-Oc09979**	**M13-Oc09980**	**M13-Oc09981**
Date Sampled			**Oct 09, 2013**	**Oct 09, 2013**	**Oct 09, 2013**
Test/Reference	LOR	Unit			
PFOS/PFOA			See attached	See attached	See attached

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	**Testing Site**	**Extracted**	**Holding Time**

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
Sample correctly preserved	Yes
Organic samples had Teflon liners	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	Yes

Authorised By

Andrew Thexton Client Services

Glenn Jackson
Laboratory Manager

Authorised

- Indicates Not Requested
* Indicates NATA accreditation does not cover the performance of this service
Uncertainty data is available on request

Michael Wright
Senior Principal Chemist
NATA Signatory

Andrew Thexton
Client Manager
NATA Signatory

Andrew Cook
Chief Inorganic Chemist

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attn. Results
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Vic 3166 Oakleigh
AUSTRALIEN

Person in charge Mr. B. Homburg
ASM Mr. B. Homburg

Report date 25.10.2013

Analytical report AR-13-GF-030765-01

Sample Code 710-2013-21213001

Reference	Soil QC70_091013
Sample sender	Tammy Lakeland
Reception date time	18.10.2013
Client Purchase order nr.	13/1162 396098
Purchase order date	14.10.2013
Client sample code	M13-Oc09979
Packaging	plastic bottle with screw closure
Number of containers	1
Reception temperature	cooled
End analysis	25.10.2013

Test results

CYP07 dry matter (°) (#)
Method Internal method, produce dry matter of original sample

dry residue	79.98	%

GF06J PFC (10 + H4PFOS) ~ environment (°) (#)
Method Internal method, LC-MS/MS

Perfluorooctane sulfonate (PFOS)	µ 2.0	<g/kg dm
Perfluorooctanoic acid (PFOA)	µ 2.0	<g/kg dm
total PFOS / PFOA excl. LOQ	ND	<g/kg dm
total PFOS / PFOA incl. LOQ	4.0	<g/kg dm
Perfluorbutansulfonate (PFBS)	µ 3.0	<g/kg dm
Perfluorobutanoic acid (PFBA)	µ 2.0	<g/kg dm
Perfluoropentane acid (PFPeA)	µ 2.0	<g/kg dm
Perfluorohexane sulfonate (PFHxS)	µ 3.0	<g/kg dm
Perfluorohexanoic acid (PFHxA)	µ 2.0	<g/kg dm
Perfluorheptanoic acid (PFHpA)	µ 2.0	<g/kg dm
Perfluorononanoic acid (PFNA)	µ 2.0	<g/kg dm

Perfluordecanoic acid (PFDA)	µ 2.0	<g/kg dm
6:2 Fluorotelomer sulfonate (FTS)	µ 3.0	<g/kg dm
total PFC compounds excl. LOQ	ND	<g/kg dm
total PFC compounds incl. LOQ	24.9	<g/kg dm

(°) = The test was performed at the site Hamburg.
(#) = Eurofins GfA Lab Service Gmbh (Hamburg) is accredited for this test.

µ - Concentration below the indicated limit of quantification (LOQ)
ND - not determined since none of the corresponding congeners was above the LOQ

This electronically generated test report has been checked and approved. It is also valid without signature.

Joachim Fuchs
(Analytical Services Manager)

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2-5 Kingston Town Close
Vic 3166 Oakleigh
AUSTRALIEN

Person in charge Mr. B. Homburg
ASM Mr. B. Homburg

Report date 25.10.2013

Analytical report AR-13-GF-030766-01

Sample Code 710-2013-21213002

Reference	Soil QC18_091013
Sample sender	Tammy Lakeland
Reception date time	18.10.2013
Client Purchase order nr.	13/1162 396098
Purchase order date	14.10.2013
Client sample code	M13-Oc09980
Packaging	plastic bottle with screw closure
Number of containers	1
Reception temperature	cooled
End analysis	25.10.2013

Test results

CYP07 dry matter (°) (#)
Method Internal method, produce dry matter of original sample

dry residue	82.93	%

GF06J PFC (10 + H4PFOS) ~ environment (°) (#)
Method Internal method, LC-MS/MS

Perfluorooctane sulfonate (PFOS)	µ 2.0	<g/kg dm
Perfluorooctanoic acid (PFOA)	µ 2.0	<g/kg dm
total PFOS / PFOA excl. LOQ	ND	<g/kg dm
total PFOS / PFOA incl. LOQ	4.0	<g/kg dm
Perfluorbutansulfonate (PFBS)	µ 3.0	<g/kg dm
Perfluorobutanoic acid (PFBA)	µ 2.0	<g/kg dm
Perfluoropentane acid (PFPeA)	µ 2.0	<g/kg dm
Perfluorohexane sulfonate (PFHxS)	µ 3.0	<g/kg dm
Perfluorohexanoic acid (PFHxA)	µ 2.0	<g/kg dm
Perfluorheptanoic acid (PFHpA)	µ 2.0	<g/kg dm
Perfluorononanoic acid (PFNA)	µ 2.0	<g/kg dm

Perfluordecanoic acid (PFDA)	µ 2.0	<g/kg dm
6:2 Fluorotelomer sulfonate (FTS)	µ 3.0	<g/kg dm
total PFC compounds excl. LOQ	ND	<g/kg dm
total PFC compounds incl. LOQ	25.2	<g/kg dm

(°) = The test was performed at the site Hamburg.
(#) = Eurofins GfA Lab Service Gmbh (Hamburg) is accredited for this test.

µ - Concentration below the indicated limit of quantification (LOQ)
ND - not determined since none of the corresponding congeners was above the LOQ

This electronically generated test report has been checked and approved. It is also valid without signature.

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(Analytical Services Manager)

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attn. Results
2-5 Kingston Town Close
Vic 3166 Oakleigh
AUSTRALIEN

Person in charge Mr. B. Homburg
ASM Mr. B. Homburg

Report date 25.10.2013

Analytical report AR-13-GF-030767-01

Sample Code 710-2013-21213003

Reference	Soil QC16_091013
Sample sender	Tammy Lakeland
Reception date time	18.10.2013
Client Purchase order nr.	13/1162 396098
Purchase order date	14.10.2013
Client sample code	M13-Oc09981
Packaging	plastic bottle with screw closure
Number of containers	1
Reception temperature	cooled
End analysis	25.10.2013

Test results

CYP07 dry matter (°) (#)
Method Internal method, produce dry matter of original sample

dry residue	84.17	%

GF06J PFC (10 + H4PFOS) ~ environment (°) (#)
Method Internal method, LC-MS/MS

Perfluorooctane sulfonate (PFOS)	µ 2.7	<g/kg dm
Perfluorooctanoic acid (PFOA)	µ 2.0	<g/kg dm
total PFOS / PFOA excl. LOQ	ND	<g/kg dm
total PFOS / PFOA incl. LOQ	4.8	<g/kg dm
Perfluorbutansulfonate (PFBS)	µ 3.1	<g/kg dm
Perfluorobutanoic acid (PFBA)	µ 2.0	<g/kg dm
Perfluoropentane acid (PFPeA)	µ 2.0	<g/kg dm
Perfluorohexane sulfonate (PFHxS)	µ 3.1	<g/kg dm
Perfluorohexanoic acid (PFHxA)	µ 2.0	<g/kg dm
Perfluorheptanoic acid (PFHpA)	µ 2.0	<g/kg dm
Perfluorononanoic acid (PFNA)	µ 2.0	<g/kg dm

Perfluordecanoic acid (PFDA)	µ 2.0	<g/kg dm
6:2 Fluorotelomer sulfonate (FTS)	µ 3.1	<g/kg dm
total PFC compounds excl. LOQ	ND	<g/kg dm
total PFC compounds incl. LOQ	26.2	ng/kg dm

(°) = The test was performed at the site Hamburg.
(#) = Eurofins GfA Lab Service Gmbh (Hamburg) is accredited for this test.

µ - Concentration below the indicated limit of quantification (LOQ)
ND - not determined since none of the corresponding congeners was above the LOQ

This electronically generated test report has been checked and approved. It is also valid without signature.

Joachim Fuchs
(Analytical Services Manager)

Deutsche Akkreditierungsstelle GmbH

The granted contractor according to § 8 para.1 Accreditation Body Act [AkkStelleG] in agreement with § 1 para. 1 Accreditation Body Act [AkkStelleGBV]
Signatory to the multilateral agreements
of EA, ILAC and IAF for mutual recognition

Accreditation

The Deutsche Akkreditierungsstelle GmbH herewith confirms that the testing laboratory

Eurofins GfA Lab Service GmbH

at the sites

Neuländer Kamp 1, 21079 Hamburg, Germany
Otto-Hahn-Straße 22, 48161 Münster, Germany

has the competence to perform tests in the following areas, according to DIN EN 150/IEC 17025:2005:

selected physical-chemical and chemical examinations on waste, exhaust gas, waste water, ash, external air, soils, biota, blood, fire residues, chemicals, landfill leachate, depositions, solids, filter dust, feeding stuffs, feed additives, groundwater, wood, human specimens, immission samples, indoor air, sewage sludge, compost, plastics, foodstuffs, air, mineral oils, surface water, plants, vegetal and animal material, residues, soot, slag, sludge, sediments, dust, combustion residues from waste incineration plants, textiles, animal and vegetal fats and oils, animal feed, water, utilisation and pulp products;
Technical modules water, waste as well as soil and contaminated sites;
Module immission control

The accreditation certificate only applies in conjunction with the notification from 19 December 2012 with the accreditation number D-PL-14629-01 and is valid until 18 December 2017. It is composed of this cover sheet, the back side of the cover sheet and the following enclosure with a total of 27 pages.

Registration number of the certificate: **D-PL-14629-01-00**

p.p.
Andrea Valbuena
Head of Department

Berlin, 19 December 2012

Information: see reverse

Deutsche Akkreditierungsstelle GmbH

Office Berlin
Spittelmarkt 10
D-10117 Berlin, Germany

Gartenstraße 6
D-60594 Frankfurt on the Main,
Germany

Bundesallee 100
D-38116 Braunschweig,
Germany

Office Frankfurt on the Main

Office Braunschweig

The publication of extracts of this accreditation certificate requires the previous written authorisation of the Deutsche Akkreditierungsstelle GmbH (DAkkS). Exception to this is the separate distribution of the cover sheet in unmodified form by the overleaf listed conformity assessment body.

The impression must not be given that the accreditation also covers areas that go beyond the accreditation scope confirmed by the DAkkS.

The accreditation entered into force according to the Accreditation Body Act [AkkStelleG] of 31 July 2009 (Federal Law Gazette [BGBl.] 1 p. 2625) as well as Regulation (EC) No. 765/2008 of the European Parliament and the Council of 9 July 2008 on the regulations regarding accreditation and market surveillance in connection with the marketing of products (Official Journal L 218 of 9 July 2008, p. 30).
The DAkkS is signatory to the multilateral agreement on mutual recognition of the European co-operation for Accreditation (EA), the International Accreditation Forum (IAF) and the International Laboratory Accreditation Cooperation (ILAC). The signatories to this agreement mutually recognise their accreditations.

The current status of the members is available on the following websites:
EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu

As publicly ordered and generally certified translator in Bavaria for the English language, I hereby confirm that this translation of the document submitted to me as a copy and written in the German language is true and correct. The translation consists of two pages in A4 size.

Als in Bayern öffentlich bestellte und allgemein beeidigte Übersetzerin für die englische Sprache bestätige ich: Vorstehende Übersetzung des mir als Kopie vorgelegten, in deutscher Sprache abgefassten Dokuments, ist richtig und vollständig. Die Übersetzung umfasst zwei A4-Seiten.

Garbsen, 21 January 2013

Kathrin Meyer
Im Tiefenbruch 11
D-30827 Garbsen

Öffentlich bestellte u. beeidigte Übersetzerin für die englische Sprache
Kathrin Meyer
Im Tiefenbruch 11
30827 Garbsen

DAkkS
Deutsche
Akkreditierungsstelle

Deutsche Akkreditierungsstelle GmbH

Beliehene gemäß § 8 Absatz 1 AkkStelleG i.V.m. § 1 Absatz 1 AkkStelleGBV
Unterzeichnerin der Multilateralen Abkommen
von EA, ILAC und IAF zur gegenseitigen Anerkennung

Akkreditierung

Die Deutsche Akkreditierungsstelle GmbH bestätigt hiermit, dass das Prüflaboratorium

Eurofins GfA Lab Service GmbH

an den Standorten

Neuländer Kamp 1, 21079 Hamburg
Otto-Hahn-Straße 22, 48161 Münster

die Kompetenz nach DIN EN ISO/IEC 17025:2005 besitzt, Prüfungen in folgenden Bereichen durchzuführen:

ausgewählte physikalische-chemische und chemische Untersuchungen von Abfall, Abgas, Abwasser, Aschen, Außenluft, Böden, Biota, Blut, Brandrückständen, Chemikalien, Deponiesickerwasser, Depositionen, Feststoffen, Filterstaub, Futtermitteln, Futtermittelzusatzstoffen, Grundwasser, Holz, Humanproben, Immissionsproben, Innenraumluft, Klärschlamm, Kompost, Kunststoffen, Lebensmitteln, Luft, Mineralölen, Oberflächenwasser, Pflanzen, pflanzlichem und tierischem Material, Reststoffen, Ruß, Schlacken, Schlamm, Sedimenten, Stäuben, Verbrennungsrückständen aus Müllverbrennungsanlagen, Textilien, tierischen und pflanzlichen Fetten und Ölen, Tiernahrung, Wasser, Verwertung und Zellstoffprodukten;
Fachmodule Wasser, Abfall sowie Boden und Altlasten;
Modul Immissionsschutz

Die Akkreditierungsurkunde gilt nur in Verbindung mit dem Bescheid vom 19.12.2012 mit der Akkreditierungsnummer D-PL-14629-01 und ist gültig bis 18.12.2017. Sie besteht aus diesem Deckblatt, der Rückseite des Deckblatts und der folgenden Anlage mit insgesamt 27 Seiten.

Registrierungsnummer der Urkunde: **D-PL-14629-01-00**

Im Auftrag

Andrea Valbuena
Abteilungsleiterin

Berlin, 19.12.2012

Siehe Hinweise auf der Rückseite

Deutsche Akkreditierungsstelle GmbH

Standort Berlin
Spittelmarkt 10
10117 Berlin

Standort Frankfurt am Main
Gartenstraße 6
60594 Frankfurt am Main

Standort Braunschweig
Bundesallee 100
38116 Braunschweig

Es darf nicht der Anschein erweckt werden, dass sich die Akkreditierung auch auf Bereiche erstreckt, die über den durch die DAkkS bestätigten Akkreditierungsbereich hinausgehen.

Die Akkreditierung erfolgte gemäß des Gesetzes über die Akkreditierungsstelle (AkkStelleG) vom 31. Juli 2009 (BGBl. I S. 2625) sowie der Verordnung (EG) Nr. 765/2008 des Europäischen Parlaments und des Rates vom 9. Juli 2008 über die Vorschriften für die Akkreditierung und Marktüberwachung im Zusammenhang mit der Vermarktung von Produkten (Abl. L 218 vom 9. Juli 2008, S. 30).
Die DAkkS ist Unterzeichnerin der Multilateralen Abkommen zur gegenseitigen Anerkennung der European co-operation for Accreditation (EA), des International Accreditation Forum (IAF) und der International Laboratory Accreditation Cooperation (ILAC). Die Unterzeichner dieser Abkommen erkennen ihre Akkreditierungen gegenseitig an.

Der aktuelle Stand der Mitgliedschaft kann folgenden Webseiten entnommen werden:
EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu

CARD20/131015
Due 5/11/13 NN

Cardno LanePiper

Chain of Custody

Sheet 1 of 1

PM Name: Leigh McDonald **Field Staff:** Maria Delos Reyes

Phone: 03 9888 0100 **Fax:** 03 9808 3511 **Mobile:** 0424 278 497

Address: Building 2, 154 Highbury Rd, Burwood, Vic, 3125

PM Email: leigh.mcdonald@cardno.com.au; maria.delosreyes@cardno.com.au

Project Number: 212163.31 **Site:** Fiskville

Laboratory (name, phone,fax no & contact person); Gavin Stevenson; National Measurement Institute (NMI); 105 Delhi Rd, Riverside Corporate Park, North Ryde, NSW; (02) 9449 0140

	Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Sample Matrix: Grass	Sample preservation: Ice Bricks	Analysis: PFCs: PFOS, PFOA, 6:2FTS
N13/026355	AF01G		1 x snap lock back	10/10/2013		X	X	X
N13/026356	AF04G			10/10/2013		X	X	X
N13/026357	AF07G			10/10/2013		X	X	X
N13/026358	AF10G			10/10/2013		X	X	X
N13/026359	AF14G			10/10/2013		X	X	X
N13/026360	AF16G			10/10/2013		X	X	X
N13/026361	AF20G			10/10/2013		X	X	X
N13/026362	AF30G			10/10/2013		X	X	X
N13/026363	AF33G			10/10/2013		X	X	X
N13/026364	AF42G			10/10/2013		X	X	X
N13/026365	AF44G			10/10/2013		X	X	X
N13/026366	AF46G			10/10/2013		X	X	X
N13/026367	AF67G			10/10/2013		X	X	X
N13/026368	AF69G			10/10/2013		X	X	X
N13/026369	AF71G			10/10/2013		X	X	X
N13/026370	QC19			10/10/2013		X	X	X

Sampler: I attest that the proper field sampling proceedures were used during the collection of these samples.

Sampler name: (print and signature) MARCUS BOYD for Maria Delos Reyes **Date:** 10/10/2013

	Date	Time		Date	Time
Relinquished by (Sampler): (print and signature) MARCUS BOYD	15/10/13	10AM	Received by (Courier/Lab): (print and signature)		
Relinquished by: (print and signature)			Received by: (print and signature)		
Relinquished by: (print and signature)			Received by: (print and signature)		

Please supply results electronically in spreadsheet and ESDAT files.

Turn around time: (24 hour/48 hour/3 days/5 days) (15 DAYS) Please circle

3x ESKIES.

RECEIVED 15 OCT 2013 BY: NN 12:00

Australian Government

National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

To: CARDNO ECOLOGY LAB
Attn: LEIGH McDONALD
From: Laboratory Services Unit
Date: 15-OCT-2013
Email: Ecologylab@cardno.com.au, Marcus.Lincolnsmith@cardno.com.au

If you have any queries or wish to make any adjustments to analyses requested, please contact Susanne Neuman immediately on 02 9449 0181

Project: 212163.31 FISKVILLE
Order No.: Not Provided
NMI Job No: CARD20/131015
Total Number of Samples: 16
Date received by NMI: 15-OCT-2013
Estimated Report Date: 5-NOV-2013

LRNs	Sample Ref	Description
N13/026355X	AF01G	GRASS FISKVILLE PROJECT: 212163.31
N13/026356X	AF04G	GRASS FISKVILLE PROJECT: 212163.31
N13/026357X	AF07G	GRASS FISKVILLE PROJECT: 212163.31
N13/026358X	AF10G	GRASS FISKVILLE PROJECT: 212163.31
N13/026359X	AF14G	GRASS FISKVILLE PROJECT: 212163.31
N13/026360X	AF16G	GRASS FISKVILLE PROJECT: 212163.31
N13/026361X	AF20G	GRASS FISKVILLE PROJECT: 212163.31
N13/026362X	AF30G	GRASS FISKVILLE PROJECT: 212163.31
N13/026363X	AF33G	GRASS FISKVILLE PROJECT: 212163.31
N13/026364X	AF42G	GRASS FISKVILLE PROJECT: 212163.31
N13/026365X	AF44G	GRASS FISKVILLE PROJECT: 212163.31
N13/026366X	AF46G	GRASS FISKVILLE PROJECT: 212163.31
N13/026367X	AF67G	GRASS FISKVILLE PROJECT: 212163.31
N13/026368X	AF69G	GRASS FISKVILLE PROJECT: 212163.31
N13/026369X	AF71G	GRASS FISKVILLE PROJECT: 212163.31
N13/026370X	QC19	GRASS FISKVILLE PROJECT: 212163.31

SAMPLE RECEIPT NOTIFICATION

To: CARDNO ECOLOGY LAB
Attn: LEIGH McDONALD
From: Laboratory Services Unit
Date: 15-OCT-2013
Email: Ecologylab@cardno.com.au, Marcus.Lincolnsmith@cardno.com.au

NMI Reference: CARD20/131015

Comments:

ALL OK

Samples received	Chilled
NMI quotation number provided	Not Applicable
Complete documentation received	Yes

If NO please contact Susanne Neuman on 02 9449 0181 to clarify. Note: incomplete or unclear information about samples or required testing will delay the start of the analysis work

Unless advised otherwise sample analysis will commence regardless of integrity issues
Relevant non-conformances will be recorded on the final report.

CERTIFICATE OF ANALYSIS

Work Order	: **EM1312752**	Page	: 1 of 6
Client	: **CARDNO LANE PIPER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31 REBATCH OF EM1310629 and EM1310688	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 03-DEC-2013
Sampler	: ----	Issue Date	: 13-DEC-2013
Site	: ----		
		No. of samples received	: 6
Quote number	: MEBQ/115/13	No. of samples analysed	: 6

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*
Eric Chau	Metals Team Leader	Melbourne Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Nanthini Coilparampil	Laboratory Manager - Inorganics	Sydney 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.

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

- **ASLP (EN60a) and leachable PFOS/PFOA/6:2FtS (EP231) on samples 1-4 (ALS IDs) conducted by ALS Sydney, NATA accreditation no. 825, site no 10911.**
- **EP231: PFOA & PFOS results are reported as an aggregate of linear and branched isomers.**

Analytical Results

Sub-Matrix: **ASLP LEACHATE** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Client sample ID	D4SI 0.1/081013	D4SK 0.1/091013	D4SH 0.1/081013	D4SE 0.1/081013	D4SD 0.1/081013
				Client sampling date / time	10-DEC-2013 12:00	10-DEC-2013 12:00	10-DEC-2013 12:00	10-DEC-2013 12:00	05-DEC-2013 09:07
					EM1312752-001	EM1312752-002	EM1312752-003	EM1312752-004	EM1312752-005
EG005C: Leachable Metals by ICPAES									
Arsenic	7440-38-2	0.1	mg/L		----	----	----	----	<0.1
Cadmium	7440-43-9	0.05	mg/L		----	----	----	----	<0.05
Chromium	7440-47-3	0.1	mg/L		----	----	----	----	<0.1
Copper	7440-50-8	0.1	mg/L		----	----	----	----	<0.1
Lead	7439-92-1	0.1	mg/L		----	----	----	----	<0.1
Nickel	7440-02-0	0.1	mg/L		----	----	----	----	<0.1
Zinc	7440-66-6	0.1	mg/L		----	----	----	----	<0.1
EG035C: Leachable Mercury by FIMS									
Mercury	7439-97-6	0.0010	mg/L		----	----	----	----	<0.0010
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.02	µg/L		**6.40**	**6.77**	**1.76**	**0.21**	----
PFOA	335-67-1	0.02	µg/L		**0.16**	**0.05**	**0.05**	<0.02	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L		**0.7**	<0.1	**0.6**	<0.1	----

Analytical Results

Sub-Matrix: ASLP LEACHATE (Matrix: WATER)				Client sample ID	D4SH 0.1/081013	----	----	----	----
				Client sampling date / time	05-DEC-2013 09:07	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1312752-006	----	----	----	----
EG005C: Leachable Metals by ICPAES									
Arsenic	7440-38-2	0.1	mg/L		<0.1	----	----	----	----
Cadmium	7440-43-9	0.05	mg/L		<0.05	----	----	----	----
Chromium	7440-47-3	0.1	mg/L		<0.1	----	----	----	----
Copper	7440-50-8	0.1	mg/L		<0.1	----	----	----	----
Lead	7439-92-1	0.1	mg/L		<0.1	----	----	----	----
Nickel	7440-02-0	0.1	mg/L		<0.1	----	----	----	----
Zinc	7440-66-6	0.1	mg/L		**0.1**	----	----	----	----
EG035C: Leachable Mercury by FIMS									
Mercury	7439-97-6	0.0010	mg/L		<0.0010	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	D4SI 0.1/081013	D4SK 0.1/091013	D4SH 0.1/081013	D4SE 0.1/081013	D4SD 0.1/081013
			Client sampling date / time	08-OCT-2013 15:00	09-OCT-2013 15:00	08-OCT-2013 15:00	08-OCT-2013 15:00	08-OCT-2013 15:00
Compound	CAS Number	LOR	Unit	EM1312752-001	EM1312752-002	EM1312752-003	EM1312752-004	EM1312752-005
EN60: ASLP Leaching Procedure								
Initial pH	---	0.1	pH Unit	**7.0**	**7.0**	**6.0**	**7.0**	**7.0**
After HCl pH	---	0.1	pH Unit	**1.6**	**1.6**	**1.6**	**1.6**	**1.2**
Extraction Fluid pH	---	0.1	pH Unit	<2.9	<2.9	<2.9	<2.9	**5.0**
Final pH	---	0.1	pH Unit	**5.0**	**5.0**	**4.9**	**5.0**	**5.0**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	D4SH 0.1/081013	----	----	----	----
			Client sampling date / time	08-OCT-2013 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1312752-006	----	----	----	----
EN60: ASLP Leaching Procedure								
Initial pH	----	0.1	pH Unit	**6.9**	----	----	----	----
After HCl pH	----	0.1	pH Unit	**1.2**	----	----	----	----
Extraction Fluid pH	----	0.1	pH Unit	**5.0**	----	----	----	----
Final pH	----	0.1	pH Unit	**4.9**	----	----	----	----

QUALITY CONTROL REPORT

Work Order	: **EM1312752**	Page	: 1 of 5
Client	: **CARDNO LANE PIPER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31 REBATCH OF EM1310629 and EM1310688	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 03-DEC-2013
Sampler	: ----	Issue Date	: 13-DEC-2013
Order number	: ----		
		No. of samples received	: 6
Quote number	: MEBQ/115/13	No. of samples analysed	: 6

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 ir compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Eric Chau	Metals Team Leader	Melbourne Inorganics
Lana Nguyen	Senior LCMS Chemist	Sydney Organics
Nanthini Coilparampil	Laboratory Manager - Inorganics	Sydney 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: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005C: Leachable Metals by ICPAES (QC Lot: 3195270)									
EB1329363-001	Anonymous	EG005C: Cadmium	7440-43-9	0.05	mg/L	<0.05	<0.05	0.0	No Limit
		EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.0	No Limit
		EG005C: Chromium	7440-47-3	0.1	mg/L	<0.1	<0.1	0.0	No Limit
		EG005C: Copper	7440-50-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
		EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	<0.1	0.0	No Limit
		EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	<0.1	0.0	No Limit
		EG005C: Zinc	7440-66-6	0.1	mg/L	5.3	5.6	5.2	0% - 20%
EG035C: Leachable Mercury by FIMS (QC Lot: 3195654)									
EM1312752-005	D4SD 0.1/081013	EG035C: Mercury	7439-97-6	0.0010	mg/L	<0.0010	<0.0010	0.0	No Limit
EP231: Perfluorinated Compounds (QC Lot: 3205527)									
EM1312752-001	D4SI 0.1/081013	EP231: PFOS	1763-23-1	0.02	µg/L	6.40	6.33	1.1	0% - 20%
		EP231: PFOA	335-67-1	0.02	µg/L	0.16	0.16	0.0	No Limit
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	0.7	0.7	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: **WATER**

				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
EG005C: Leachable Metals by ICPAES (QCLot: 3195270)								
EG005C: Arsenic	7440-38-2	0.1	mg/L	<0.1	1.00 mg/L	105	90	120
EG005C: Cadmium	7440-43-9	0.05	mg/L	<0.05	1.00 mg/L	103	90	116
EG005C: Chromium	7440-47-3	0.1	mg/L	<0.1	1.00 mg/L	98.4	92	114
EG005C: Copper	7440-50-8	0.1	mg/L	<0.1	1.00 mg/L	104	89	121
EG005C: Lead	7439-92-1	0.1	mg/L	<0.1	1.00 mg/L	111	90	116
EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	1.00 mg/L	104	91	113
EG005C: Zinc	7440-66-6	0.1	mg/L	<0.1	1.00 mg/L	105	88	118
EG035C: Leachable Mercury by FIMS (QCLot: 3195654)								
EG035C: Mercury	7439-97-6	0.001	mg/L	<0.0010	0.0100 mg/L	104	85	115
EP231: Perfluorinated Compounds (QCLot: 3205527)								
EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	0.25 µg/L	112	70	136
EP231: PFOA	335-67-1	0.02	µg/L	<0.02	0.25 µg/L	96.4	72	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	1.25 µg/L	90.0	61	145

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: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005C: Leachable Metals by ICPAES (QCLot: 3195270)							
EB1329478-001	Anonymous	EG005C: Arsenic	7440-38-2	1.00 mg/L	102	89	123
		EG005C: Cadmium	7440-43-9	1.00 mg/L	99.5	88	116
		EG005C: Chromium	7440-47-3	1.00 mg/L	104	89	115
		EG005C: Copper	7440-50-8	1.00 mg/L	104	93	121
		EG005C: Lead	7439-92-1	1.00 mg/L	108	87	117
		EG005C: Nickel	7440-02-0	1.00 mg/L	99.5	88	116
		EG005C: Zinc	7440-66-6	1.00 mg/L	109	85	121
EG035C: Leachable Mercury by FIMS (QCLot: 3195654)							
EM1312752-006	D4SH 0.1/081013	EG035C: Mercury	7439-97-6	0.0100 mg/L	102	81	119
EP231: Perfluorinated Compounds (QCLot: 3205527)							
EM1312752-001	D4SI 0.1/081013	EP231: PFOS	1763-23-1	0.25 µg/L	# Not Determined	70	136

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Recovery Limits (%) Low	Matrix Spike (MS) Report: Recovery Limits (%) High
EP231: Perfluorinated Compounds (QCLot: 3205527) - continued							
EM1312752-001	D4SI 0.1/081013	EP231: PFOA	335-67-1	0.25 µg/L	95.2	72	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	1.25 µg/L	98.6	61	145

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are 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: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report: Spike Concentration	Spike Recovery (%) MS	Spike Recovery (%) MSD	Recovery Limits (%) Low	Recovery Limits (%) High	RPDs (%) Value	RPDs (%) Control Limit
EG005C: Leachable Metals by ICPAES (QCLot: 3195270)										
EB1329478-001	Anonymous	EG005C: Arsenic	7440-38-2	1.00 mg/L	102	----	89	123	----	----
		EG005C: Cadmium	7440-43-9	1.00 mg/L	99.5	----	88	116	----	----
		EG005C: Chromium	7440-47-3	1.00 mg/L	104	----	89	115	----	----
		EG005C: Copper	7440-50-8	1.00 mg/L	104	----	93	121	----	----
		EG005C: Lead	7439-92-1	1.00 mg/L	108	----	87	117	----	----
		EG005C: Nickel	7440-02-0	1.00 mg/L	99.5	----	88	116	----	----
		EG005C: Zinc	7440-66-6	1.00 mg/L	109	----	85	121	----	----
EG035C: Leachable Mercury by FIMS (QCLot: 3195654)										
EM1312752-006	D4SH 0.1/081013	EG035C: Mercury	7439-97-6	0.0100 mg/L	102	----	81	119	----	----
EP231: Perfluorinated Compounds (QCLot: 3205527)										
EM1312752-001	D4SI 0.1/081013	EP231: PFOS	1763-23-1	0.25 µg/L	# Not Determined	----	70	136	----	----
		EP231: PFOA	335-67-1	0.25 µg/L	95.2	----	72	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	1.25 µg/L	98.6	----	61	145	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **EM1312752**	Page	: 1 of 5
Client	: CARDNO LANE PIPER PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: LEIGH MCDONALD	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: Leigh.Mcdonald@cardno.com.au	E-mail	: carol.walsh@alsglobal.com
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9608
Facsimile	: +61 03 98083511	Facsimile	: +61-3-8549 9601
Project	: 212163 31 REBATCH OF EM1310629 and EM1310688	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 03-DEC-2013
Sampler	: ----	Issue Date	: 13-DEC-2013
Order number	: ----		
		No. of samples received	: 6
Quote number	: MEBQ/115/13	No. of samples analysed	: 6

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

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

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
EG005C: Leachable Metals by ICPAES							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG005C)							
D4SD 0.1/081013, D4SH 0.1/081013	**05-DEC-2013**	**05-DEC-2013**	03-JUN-2014	✓	**05-DEC-2013**	03-JUN-2014	✓
EG035C: Leachable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035C)							
D4SD 0.1/081013, D4SH 0.1/081013	**05-DEC-2013**	**----**	----	----	**05-DEC-2013**	02-JAN-2014	✓
EN60: ASLP Leaching Procedure							
Lab Split : Leach for Hg, Cr(VI) and other metal (EN60a)							
D4SD 0.1/081013, D4SH 0.1/081013	**08-OCT-2013**	**---**	05-NOV-2013	----	**04-DEC-2013**	05-NOV-2013	×
LabSplit: Leach for organics and other tests (EN60a)							
D4SI 0.1/081013, D4SH 0.1/081013, D4SE 0.1/081013	**08-OCT-2013**	**---**	22-OCT-2013	----	**10-DEC-2013**	22-OCT-2013	×
LabSplit: Leach for organics and other tests (EN60a)							
D4SK 0.1/091013	**09-OCT-2013**	**---**	23-OCT-2013	----	**10-DEC-2013**	23-OCT-2013	×
EP231: Perfluorinated Compounds							
HDPE (no PTFE) (EP231)							
D4SI 0.1/081013, D4SK 0.1/091013, D4SH 0.1/081013, D4SE 0.1/081013	**10-DEC-2013**	**---**	08-JUN-2014	----	**11-DEC-2013**	08-JUN-2014	✓

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: **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)							
Leachable Mercury by FIMS	EG035C	1	2	**50.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Leachable Metals by ICPAES	EG005C	1	9	**11.1**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	4	**25.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Leachable Mercury by FIMS	EG035C	1	2	**50.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Leachable Metals by ICPAES	EG005C	1	9	**11.1**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	4	**25.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Leachable Mercury by FIMS	EG035C	1	2	**50.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Leachable Metals by ICPAES	EG005C	1	9	**11.1**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	4	**25.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Leachable Mercury by FIMS	EG035C	1	2	**50.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Leachable Metals by ICPAES	EG005C	1	9	**11.1**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	4	**25.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and 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
Leachable Metals by ICPAES	EG005C	SOIL	APHA 21st ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises leachate sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3) (Appdx. 2)
Leachable Mercury by FIMS	EG035C	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 (2013) Schedule B(3) (Appdx. 2)
PFOS and PFOA	EP231	SOIL	In-house: Direct injection analysis of fresh and diluted saline waters. In order to meet standard reporting limits, saline waters may be adsorped onto a solid phase extraction medium, the salt washed out and the sample eluted for analysis. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM.

Preparation Methods	Method	Matrix	Method Descriptions
ASLP for Non & Semivolatile Analytes	EN60a	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 SW 846 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							
EP231: Perfluorinated Compounds	EM1312752-001	D4SI 0.1/081013	**PFOS**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

- **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**
EN60: ASLP Leaching Procedure							
Lab Split : Leach for Hg, Cr(VI) and other metal							
D4SD 0.1/081013,	D4SH 0.1/081013	----	----	----	04-DEC-2013	05-NOV-2013	**29**
LabSplit: Leach for organics and other tests							
D4SI 0.1/081013, D4SE 0.1/081013	D4SH 0.1/081013,	----	----	----	10-DEC-2013	22-OCT-2013	**49**
LabSplit: Leach for organics and other tests							
D4SK 0.1/091013		----	----	----	10-DEC-2013	23-OCT-2013	**48**

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.**

Received 03/12/13 11:57 R.T

LANECON

REBATCH TABLE: EM1310629 / EM1310688 **CONTACT: LEIGH McDONALD** **PROJECT: 212163.31**

New sample #	Client ID	Previous work order #	Sample #	Sampling Date	Tray	Containers	Analysis	Holding time
1	D4SI 0.1/081013	EM1310629	11	8/10/2013	SYD: S482	2 X 250mL jars	ASLP: PFOS/PFOA 6:2FTS (EP231)	6 MONTHS
2	D4SK 0.1/091013	EM1310688	41	9/10/2013	SYD: S483-484	Snap lock bag	ASLP: PFOS/PFOA 6:2FTS (EP231)	6 MONTHS
3	D4SH 0.1/081013	EM1310629	9	8/10/2013	SYD: S482	2 X 250mL jars	ASLP: PFOS/PFOA 6:2FTS (EP231)	6 MONTHS
4	D4SE 0.1/081013	EM1310629	3	8/10/2013	SYD: S482	2 X 250mL jars	ASLP: PFOS/PFOA 6:2FTS (EP231)	6 MONTHS
5	D4SD 0.1/081013	EM1310629	1	8/10/2013	melb: 2552-2553	2 X 250mL jars	ASLP: 8 metals	6 MONTHS
6	D4SH 0.1/081013	EM1310629	9	8/10/2013	melb: 2552-2553	2 X 250mL jars	ASLP: 8 metals	6 MONTHS

Environmental Division
Melbourne
Work Order
EM1312752

Telephone : +61-3-8549 9600

Client aware of holding time issues.
Client aware of issues with Volatiles as samples have already been mixed.

MS → 3082 to 83

Raymond Thai

From: Leigh McDonald [leigh.mcdonald@cardno.com.au]
Sent: Tuesday, 3 December 2013 11:57 AM
To: Carol Walsh
Cc: Maria De los Reyes (Cardno LP)
Subject: 212163.31 - Further Analysis

Hi Carol,

Could you please arrange for ASLP analysis on the following samples (ALS number in brackets)

PFOS, PFOA, 6:2FtS
D4SI/0.1 (EM1310629-011), D4SK/0.1 (EM1310688-041), D4SH/0.1 (EM1310629-009), D4SE/0.1 (EM1310629-003)

metals (8)
D4SD/0.1 (EM1310629-001), D4SH/0.1 (EM1310629-009)

Regards,

Leigh McDonald
SENIOR ASSOCIATE ENVIRONMENTAL GEOSCIENTIST
CARDNO LANE PIPER

Cardno LanePiper
Shaping the Future

Phone +61 3 9888 0100 Fax +61 3 9808 3511 Direct +61 3 9831 6105 Mobile +61 408 550 635
Address Bldg 2, 154 Highbury Road, Burwood, Victoria 3125 Australia
Email leigh.mcdonald@cardno.com.au Web www.cardno.com Web www.lanepiper.com.au

Australian Government
National Measurement Institute

CERTIFICATE OF ANALYSIS # DAU13_225

Client	Cardno Building 2, 154 Highbury Rd Burwood, Vic, 3125	**Job No.**	CARD20/131015
		Sampled by	Client
		Date Sampled	10-Oct-2013
Contact	Leigh McDonald	**Date Received**	15-Oct-2013

The results relate only to the sample(s) tested.

Method AUTL_07 **Date Reported** 12-Nov-2013

Details

The method is for determination of Perfluoroalkyl substances (PFASs) in solid samples by High Performance Liquid Chromatography tandem Mass Spectrometry (UPLC-MSMS). All results are corrected for labelled surrogates and are reported on a dry weight basis.

Prior to extraction the sample is spiked with a range of isotopically labelled surrogate standards. Extraction is by organic solvent followed by purification with activated carbon. An aliquot of extract is injected onto the UPLC and detected using mass spectrometry.

Authorisation

Gavin Stevenson
Manager
Dioxin Analysis Unit

Dr Alan Yates
Senior Analyst
Dioxin Analysis Unit

Sample Details : Job No. CARD20/131015			
Laboratory Reg. No.	Client Sample Ref.	Matrix	Description
N13/026355	AF01G	Grass	Collected 10/10/13
N13/026356	AF04G	Grass	Collected 10/10/13
N13/026357	AF07G	Grass	Collected 10/10/13
N13/026358	AF10G	Grass	Collected 10/10/13
N13/026359	AF14G	Grass	Collected 10/10/13
N13/026360	AF16G	Grass	Collected 10/10/13
N13/026361	AF20G	Grass	Collected 10/10/13
N13/026362	AF30G	Grass	Collected 10/10/13
N13/026362dup	Duplicate sample	Grass	Collected 10/10/13
N13/026362spk	Spiked sample	Grass	All analytes 53 ng/g, 6:2 FTS 11 ng/g

Project Details	
Project Name	*Fiskville Study*
Project Number	*212163.31*

Key		
Analytes		**Surrogate**
PFHxA	Perfluoro-n-hexanoic acid	Perfluoro-n-[1,2-$^{13}C_2$]hexanoic acid Surrogate
PFHpA	Perfluoro-n-heptanoic acid	
PFOA	Perfluoro-n-octanoic acid	Perfluoro-n-[1,2,3,4-$^{13}C_4$]octanoic acid
PFNA	Perfluoro-n-nonanoic acid	Perfluoro-n-[1,2,3,4,5-$^{13}C_5$]nonanoic acid
PFDA	Perfluoro-n-decanoic acid	Perfluoro-n-[1,2-$^{13}C_2$]decanoic acid
PFUdA	Perfluoro-n-undecanoic acid	Perfluoro-n-[1,2-$^{13}C_2$]undecanoic acid
PFDoA	Perfluoro-n-dodecanoic acid	Perfluoro-n-[1,2-$^{13}C_2$]dodecanoic acid
PFOS	Perfluoro-n-octanesulfonate	Perfluoro-n-[1,2,3,4-$^{13}C_4$]octanesulfonate
6:2 FTS	1H,1H,2H,2H-perfluoro-n-octane sulfonate	1H,1H,2H,2H-perfluoro-n-[1,2-$^{13}C_2$]octane sulfonate
Units & Abbreviations		
ng/g	nanograms per gram dry weight basis	
<	level less than limit of reporting (LOR)	
⚑	surrogate recovery outside normal method range (25-125%)	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026355

Client Sample Ref. AF01G
Matrix Grass
Description Collected 10/10/13
Extraction Date 18-Oct-13
Analysis Date 23-Oct-13

	Level ng/g	Labelled Surrogate recovery	
PFHxA	<20	25	
PFHpA	<5		
PFOA	<1	58	
PFNA	<0.5	67	
PFDA	<0.5	41	
PFUdA	<1	31	
PFDoA	<0.5	10	
PFOS	<0.5	59	
6:2 FTS	<1	82	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026356

Client Sample Ref. AF04G
Matrix Grass
Description Collected 10/10/13
Extraction Date 18-Oct-13
Analysis Date 23-Oct-13

	Level ng/g	Labelled Surrogate recovery	
PFHxA	<20	42	
PFHpA	<5		
PFOA	<1	68	
PFNA	<0.5	87	
PFDA	<0.5	44	
PFUdA	<1	31	
PFDoA	<0.5	16	
PFOS	1.1	82	
6:2 FTS	<1	91	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026357

Client Sample Ref. AF07G
Matrix Grass
Description Collected 10/10/13
Extraction Date 18-Oct-13
Analysis Date 23-Oct-13

	Level ng/g	Labelled Surrogate recovery	
PFHxA	<20	30	
PFHpA	<5		
PFOA	<1	59	
PFNA	<0.5	84	
PFDA	<0.5	61	
PFUdA	<1	38	
PFDoA	<0.5	13	
PFOS	6.0	51	
6:2 FTS	<1	68	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026358

Client Sample Ref. AF10G
Matrix Grass
Description Collected 10/10/13
Extraction Date 18-Oct-13
Analysis Date 23-Oct-13

	Level ng/g	Labelled Surrogate recovery	
PFHxA	<20	32	
PFHpA	<5		
PFOA	<1	70	
PFNA	<0.5	125	
PFDA	<0.5	31	
PFUdA	<1	131	
PFDoA	<0.5	48	
PFOS	1.0	90	
6:2 FTS	<1	99	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026359

Client Sample Ref. AF14G
Matrix Grass
Description Collected 10/10/13
Extraction Date 18-Oct-13
Analysis Date 23-Oct-13

	Level ng/g	Labelled Surrogate recovery	
PFHxA	<20	31	
PFHpA	<5		
PFOA	<1	75	
PFNA	<0.5	116	
PFDA	<0.5	97	
PFUdA	<1	102	
PFDoA	<0.5	50	
PFOS	10	100	
6:2 FTS	<1	109	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026360

Client Sample Ref. AF16G
Matrix Grass
Description Collected 10/10/13
Extraction Date 18-Oct-13
Analysis Date 23-Oct-13

	Level ng/g	Labelled Surrogate recovery	
PFHxA	<20	62	
PFHpA	<5		
PFOA	<1	84	
PFNA	<0.5	112	
PFDA	<0.5	89	
PFUdA	<1	93	
PFDoA	<0.5	60	
PFOS	1.8	95	
6:2 FTS	<1	107	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026361

Client Sample Ref. AF20G
Matrix Grass
Description Collected 10/10/13
Extraction Date 18-Oct-13
Analysis Date 23-Oct-13

	Level ng/g	Labelled Surrogate recovery	
PFHxA	<20	39	
PFHpA	<5		
PFOA	<1	85	
PFNA	<0.5	123	
PFDA	<0.5	100	
PFUdA	<1	125	
PFDoA	<0.5	31	
PFOS	<1	87	
6:2 FTS	<1	89	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026362

Client Sample Ref. AF30G
Matrix Grass
Description Collected 10/10/13
Extraction Date 18-Oct-13
Analysis Date 23-Oct-13

	Level ng/g	Labelled Surrogate recovery	
PFHxA	<20	33	
PFHpA	<5		
PFOA	<1	85	
PFNA	<0.5	122	
PFDA	<0.5	95	
PFUdA	<1	110	
PFDoA	<0.5	37	
PFOS	<1	86	
6:2 FTS	<1	95	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026362dup

Client Sample Ref. Duplicate sample
Matrix Grass
Description Collected 10/10/13
Extraction Date 18-Oct-13
Analysis Date 23-Oct-13

	Level ng/g	Labelled Surrogate recovery	
PFHxA	<20	33	
PFHpA	<5		
PFOA	<1	80	
PFNA	<0.5	111	
PFDA	<0.5	94	
PFUdA	<1	100	
PFDoA	<0.5	29	
PFOS	<1	75	
6:2 FTS	<1	92	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026362spk

Client Sample Ref. Spiked sample
Matrix Grass
Description All analytes 53 ng/g, 6:2 FTS 11 ng/g
Extraction Date 18-Oct-13
Analysis Date 23-Oct-13

	Level ng/g	Labelled Surrogate recovery	
PFHxA	47	32	
PFHpA	31		
PFOA	42	80	
PFNA	47	96	
PFDA	45	89	
PFUdA	38	107	
PFDoA	42	33	
PFOS	36	74	
6:2 FTS	9.8	95	

Australian Government
National Measurement Institute

CERTIFICATE OF ANALYSIS # DAU13_229

Client	Cardno Building 2, 154 Highbury Rd Burwood, Vic, 3125	**Job No.**	CARD20/131015
		Sampled by	Client
		Date Sampled	10-Oct-2013
Contact	Leigh McDonald	**Date Received**	15-Oct-2013

The results relate only to the sample(s) tested.

Method AUTL_07 **Date Reported** 29-Nov-2013

Details

The method is for determination of Perfluoroalkyl substances (PFASs) in solid samples by High Performance Liquid Chromatography tandem Mass Spectrometry (UPLC-MSMS). All results are corrected for labelled surrogates and are reported on an dry weight basis.

Prior to extraction the sample is spiked with a range of isotopically labelled surrogate standards. Extraction is by organic solvent followed be purification with activated carbon. An aliquot of extract is injected onto the UPLC and detected using mass spectrometry.

Authorisation

Gavin Stevenson
Manager
Dioxin Analysis Unit

Dr Alan Yates
Senior Analyst
Dioxin Analysis Unit

Sample Details : Job No. CARD20/131015			
Laboratory Reg. No.	Client Sample Ref.	Matrix	Description
N13/026363	AF33G	Grass	Collected 10/10/13
N13/026364	AF42G	Grass	Collected 10/10/13
N13/026365	AF44G	Grass	Collected 10/10/13
N13/026366	AF46G	Grass	Collected 10/10/13
N13/026367	AF67G	Grass	Collected 10/10/13
N13/026368	AF69G	Grass	Collected 10/10/13
N13/026369	AF71G	Grass	Collected 10/10/13
N13/026370	QC19	Grass	Collected 10/10/13
N13/026370dup	Duplicate sample	Grass	Collected 10/10/13

Project Details	
Project Name	*Fiskville Study*
Project Number	*212163.31*

Key		
Analytes		**Surrogate**
PFPeA	Perfluoro-n-pentanoic acid	
PFHxA	Perfluoro-n-hexanoic acid	Perfluoro-n-[1,2-$^{13}C_2$]hexanoic acid Surrogate
PFHpA	Perfluoro-n-heptanoic acid	
PFOA	Perfluoro-n-octanoic acid	Perfluoro-n-[1,2,3,4-$^{13}C_4$]octanoic acid
PFNA	Perfluoro-n-nonanoic acid	Perfluoro-n-[1,2,3,4,5-$^{13}C_5$]nonanoic acid
PFDA	Perfluoro-n-decanoic acid	Perfluoro-n-[1,2-$^{13}C_2$]decanoic acid
PFUdA	Perfluoro-n-undecanoic acid	Perfluoro-n-[1,2-$^{13}C_2$]undecanoic acid
PFDoA	Perfluoro-n-dodecanoic acid	Perfluoro-n-[1,2-$^{13}C_2$]dodecanoic acid
PFOS	Perfluoro-n-octanesulfonate	Perfluoro-n-[1,2,3,4-$^{13}C_4$]octanesulfonate
6:2 FTS	1H,1H,2H,2H-perfluoro-n-octane sulfonate	1H,1H,2H,2H-perfluoro-n-[1,2-$^{13}C_2$]octane sulfonate
Units & Abbreviations		
ng/g	nanograms per gram dry weight basis	
<	level less than limit of reporting (LOR)	
⚑	surrogate recovery outside normal method range (25-125%)	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026363

Client Sample Ref. AF33G
Matrix Grass
Description Collected 10/10/13
Extraction Date 14-Nov-13
Analysis Date 18-Nov-13

	Level ng/g	Labelled Surrogate recovery	
PFPeA	<20		
PFHxA	<20	50	
PFHpA	<10		
PFOA	<1	57	
PFNA	<1	183	
PFDA	<1	179	
PFUdA	<1	168	
PFDoA	<1	65	
PFOS	10	124	
6:2 FTS	<5	114	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026364

Client Sample Ref. AF42G
Matrix Grass
Description Collected 10/10/13
Extraction Date 14-Nov-13
Analysis Date 18-Nov-13

	Level ng/g	Labelled Surrogate recovery	
PFPeA	<20		
PFHxA	<20	46	
PFHpA	<10		
PFOA	<1	51	
PFNA	<1	123	
PFDA	<1	110	
PFUdA	<1	106	
PFDoA	<1	37	
PFOS	<5	83	
6:2 FTS	<5	87	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026365

Client Sample Ref. AF44G
Matrix Grass
Description Collected 10/10/13
Extraction Date 14-Nov-13
Analysis Date 18-Nov-13

	Level ng/g	Labelled Surrogate recovery	
PFPeA	90		
PFHxA	70	79	
PFHpA	<10		
PFOA	<1	63	
PFNA	<1	122	
PFDA	<1	143	
PFUdA	<1	69	
PFDoA	<1	58	
PFOS	36	118	
6:2 FTS	<5	70	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026366

Client Sample Ref. AF46G
Matrix Grass
Description Collected 10/10/13
Extraction Date 14-Nov-13
Analysis Date 18-Nov-13

	Level ng/g	Labelled Surrogate recovery	
PFPeA	<20		
PFHxA	<20	73	
PFHpA	<10		
PFOA	<1	74	
PFNA	<1	169	
PFDA	<1	172	
PFUdA	<1	150	
PFDoA	<1	73	
PFOS	<5	136	
6:2 FTS	<5	142	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026367

Client Sample Ref. AF67G
Matrix Grass
Description Collected 10/10/13
Extraction Date 14-Nov-13
Analysis Date 18-Nov-13

	Level ng/g	Labelled Surrogate recovery	
PFPeA	<20		
PFHxA	<20	56	
PFHpA	<10		
PFOA	<1	52	
PFNA	<1	236	
PFDA	<1	236	
PFUdA	<1	223	
PFDoA	<1	82	
PFOS	<1	154	
6:2 FTS	<5	133	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026368

Client Sample Ref. AF69G
Matrix Grass
Description Collected 10/10/13
Extraction Date 14-Nov-13
Analysis Date 18-Nov-13

	Level ng/g	Labelled Surrogate recovery	
PFPeA	<20		
PFHxA	<20	65	
PFHpA	<10		
PFOA	<1	54	
PFNA	<1	90	
PFDA	<1	96	
PFUdA	<1	120	
PFDoA	<1	84	
PFOS	<1	87	
6:2 FTS	<5	75	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026369

Client Sample Ref. AF71G
Matrix Grass
Description Collected 10/10/13
Extraction Date 14-Nov-13
Analysis Date 18-Nov-13

	Level ng/g	Labelled Surrogate recovery	
PFPeA	<20		
PFHxA	<20	56	
PFHpA	<10		
PFOA	<1	63	
PFNA	<1	171	
PFDA	<1	72	
PFUdA	<1	178	
PFDoA	<1	105	
PFOS	<1	114	
6:2 FTS	<5	94	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026370

Client Sample Ref. QC19
Matrix Grass
Description Collected 10/10/13
Extraction Date 14-Nov-13
Analysis Date 18-Nov-13

	Level ng/g	Labelled Surrogate recovery	
PFPeA	<20		
PFHxA	<20	61	
PFHpA	<10		
PFOA	<1	66	
PFNA	<1	187	
PFDA	<1	99	
PFUdA	<1	192	
PFDoA	<1	113	
PFOS	<1	154	
6:2 FTS	<5	83	

Results : Job No. CARD20/131015

Laboratory Reg. No. N13/026370dup

Client Sample Ref. Duplicate sample
Matrix Grass
Description Collected 10/10/13
Extraction Date 14-Nov-13
Analysis Date 18-Nov-13

	Level ng/g	Labelled Surrogate recovery	
PFPeA	<20		
PFHxA	<20	103	
PFHpA	<10		
PFOA	<1	78	
PFNA	<1	273	
PFDA	<1	105	
PFUdA	<1	290	
PFDoA	<1	186	
PFOS	<1	221	
6:2 FTS	<5	109	

Data Quality Review - Environmental Sampling and PFC Analysis Program

Adjacent Land, Fiskville Vic

This appendix reviews the Quality Assurance (QA) and Quality Control (QC) process for the field work and laboratory analysis. Quality assurance encompasses the actions, procedures, checks and decisions undertaken to ensure sample integrity and representativeness, and the reliability and accuracy of analysis results. The QA documentation also includes an indication of the Data Quality Objectives sought in relation to each significant action, test or process involved in the assessment.

QC activities measure the effectiveness of the QA procedures by undertaking testing, and then comparing results to previously established objectives. QC work includes the internal laboratory testing as well as results of QC samples such as trip blanks and duplicates. The quality of the information and/or data is deemed satisfactory when the QC results demonstrate that agreed objectives have been met.

The findings are summarised below:

QA/QC Aspects	Evidence & Evaluation
QA Documentation	
Project Quality Plan/Work Plan and Data Quality Objectives	The Cardno Lane Piper was engaged by Ashurst ("the Client") on 13 September 2013, to assess the concentrations of PFCs in soil, sediments, vegetation and drinking water on site. Cardno Lane Piper provided work plans during the course of the assessment and further scopes of work were outlined in correspondence. A quality control program was implemented during the Assessment and the quality assurance procedures used have been reiterated in the reports. In addition, a health and safety plan was also included as part of the Assessment report. The soil sediment, surface water, tank water and grass assessments were carried out in accordance with relevant guidelines for the site and a work plan has also been provided for the site assessment works. The Data Quality Objectives were expressed in terms of the purpose of the assessment and the relevant assessment criteria.
Data Validation Report	This Data validation report was produced in December 2013 for the October 2013 Sampling Program.
Data Representativeness	
Use of Composites	No composite sampling was used during the assessment.
Holding Times	**Sediment:** Chain of custody and laboratory reports provides evidence of holding times. Holding times were in conformance with Table 4 in AS4482.1-2005. **Soil**: Chain of custody and laboratory reports provide evidence of holding times. Holding times were in conformance with Table 4 in AS4482.1-2005. **Surface Water**: Chain of custody and laboratory reports provide evidence of holding times. Holding times were in conformance with Table 4 in AS4482.1-2005. **Tank Water**: Chain of custody and laboratory reports provide evidence of holding times. Holding times were in conformance with Table 4 in

QA/QC Aspects	Evidence & Evaluation
	AS4482.1-2005.
Offsite samples	No offsite samples were collected during the assessment, for the assessment was conducted to determine the impacts of the neighbouring firefighting training activities onto the site.
Verification of field procedures	The methodology conducted during the assessment was in conformance with the work plan and the requirements of the field work standard practice. Appropriate OH&S and site controls was in place in the field in addition to methods of decontamination for non-disposable equipment were decontaminated between each sampling location with decon 90 and deionised water. New pair of nitrile rubber gloves was worn at each sampling location and during equipment cleaning, thereby further reducing the possibility of cross contamination. Samples where then stored in labelled sampling containers, glass jars, plastic zip-lock bags and/or plastic bottles, provided by a NATA accredited laboratory, and placed in ice during transit.
Data Precision & Accuracy	
QC Testing – Blind Replicates (Primary Lab)	***Soil*** • Acceptance Criteria: RPD < 50% • Soil Samples Analysed: 97 • Blind Replicate Samples Analysed: 4 • Blind Replicate Analyte Pairs: 80 • Number of Analyte Pairs Exceeding Criteria: 4 • Percentage of Analyte Pairs Exceeding Criteria: 5.0% The RPD exceedances are confined to PFOA (75%), PFBS (67%), PFHpA (55%) and PFOS (64%). The exceedance is generally minor, and is most likely related sample heterogeneity and low analyte concentrations, with some instances in which one sample has reported below the limit of reporting. ***Sediment*** • Acceptance Criteria: RPD < 50% • Sediment Samples Analysed: 10 • Blind Replicate Samples Analysed: 1 • Blind Replicate Analyte Pairs: 20 • Number of Analyte Pairs Exceeding Criteria: 1 • Percentage of Analyte Pairs Exceeding Criteria: 5.0% The RPD exceedance is for 8:2 Fluorotelomer sulfonate (67%). The exceedance is generally minor, and it is most likely related to sample heterogeneity, since the analytical method does not change in this instance (i.e.: intra laboratory analysis). ***Surface Water*** • Acceptance Criteria: RPD < 50% • Surface Water Samples Analysed: 6 • Blind Replicate Samples Analysed: 1 • Blind Replicate Analyte Pairs: 3

QA/QC Aspects	Evidence & Evaluation
	• Number of Analyte Pairs Exceeding Criteria: 1 • Percentage of Analyte Pairs Exceeding Criteria: 16% RPD exceedance is for PFOS, and the exceedance resulting in 16% of the total analysis is due to the low number of analyte pairs for this analysis. The concentration for PFOS reported in the intra-laboratory sample is similar to the concentration reported for the inter-laboratory sample (i.e.: 15.3 and 13.1 µg/L respectively). ***Drinking Water Tank*** • Acceptance Criteria: RPD < 50% • Tank Samples Analysed: 4 • Blind Replicate Samples Analysed: 1 • Blind Replicate Analyte Pairs: 20 • Number of Analyte Pairs Exceeding Criteria: 0 • Percentage of Analyte Pairs Exceeding Criteria: 0 There are no RPD exceedances ***Grass*** • Acceptance Criteria: RPD < 50% • Grass Samples Analysed: 15 • Blind Replicate Samples Analysed: 1 • Blind Replicate Analyte Pairs: 9 • Number of Analyte Pairs Exceeding Criteria: 0 • Percentage of Analyte Pairs Exceeding Criteria: 0 There are no RPD exceedances
QC Testing – Split Replicates (Secondary Lab)	***Soil*** • Acceptance Criteria: RPD < 50% • Soil Samples Analysed: 97 • Blind Replicate Samples Analysed: 5 • Blind Replicate Analyte Pairs: 45 • Number of Analyte Pairs Exceeding Criteria: 12 • Percentage of Analyte Pairs Exceeding Criteria: 27% The RPD exceedances are confined to Perfluorooctanoate (66.7%), PFBS (140%), PFHpA (96%), PFHxA (120%), PFHxS (150% and 70%), PFNA (58.1%), and PFOS (56%). The exceedance is most likely related sample heterogeneity and low analyte concentrations, with instances in which one sample has reported below the limit of reporting. ***Sediment*** • Acceptance Criteria: RPD < 50% • Sediment Samples Analysed: 18 • Blind Replicate Samples Analysed: 1

QA/QC Aspects	Evidence & Evaluation
	• Blind Replicate Analyte Pairs: 9 • Number of Analyte Pairs Exceeding Criteria: 4 • Percentage of Analyte Pairs Exceeding Criteria: 44% The RPD exceedances are confined to PFOA (60%), PFBS (86%), PFDcA (137%) and PFNA (78%). The exceedance is generally minor, and it is most related to differences in the laboratory LOR (e.g.: PFBS, PFDcA and PFNA). Sample heterogeneity may also influence the different results. ***Surface Water*** • Acceptance Criteria: RPD < 50% • Surface Water Samples Analysed: 6 • Blind Replicate Samples Analysed: 1 • Blind Replicate Analyte Pairs: 3 • Number of Analyte Pairs Exceeding Criteria: 2 • Percentage of Analyte Pairs Exceeding Criteria: 67% RPD exceedance is PFOS, the exceedance is discussed in the intra-laboratory review above. ***Tank*** • Acceptance Criteria: RPD < 50% • Tank Samples Analysed: 4 • Blind Replicate Samples Analysed: 1 • Blind Replicate Analyte Pairs: 20 • Number of Analyte Pairs Exceeding Criteria: 0 • Percentage of Analyte Pairs Exceeding Criteria: 0 There are no RPD exceedances ***Grass*** A Split Replicate was not collected, as a duplicate replicate was deemed sufficient for this assessment
Trip Blanks	Seven trip blank was collected over the course of the assessment (one or more trip blanks collected each day of sampling) Three trip blanks collected on the 10 October 2013 were analysed and reported below the laboratory LOR.

QA/QC Aspects	Evidence & Evaluation
Laboratory Internal QC	Evidence of the laboratories internal QC testing is present and complete in the corresponding laboratory reports. ALS (Primary laboratory) and NMI (Grass sample laboratory) performed internal QC with adequate testing and satisfactory results for matrix spikes, method blanks and laboratory duplicates. **ALS** • All Duplicate samples reported low RPDs • All Method blanks reported below the limit of reporting • 10 Matrix spikes reported outside the acceptable recovery limit of 70-130%. Analytes that reported outside the acceptable recovery range include PFOSA (57.25), N-Me-FOSE (56.8% and 44.6%), N-Et-FOSE (56% and 52%), PFDcS (138%), PFBS (1325), PFNA (131%), PFUnA (52%), PFHxA (138%), PFDcA(132%), PFTriA (135% and 133%) and PFTeA (138%) reported recoveries outside the acceptable recovery limit of 70-130%, however it is generally minor and is not considered to impact the overall assessment. Whilst PFOS, 6:2 FTs, PFOSA. Laboratory reports have reported matrix spikes could not be determined due to background levels greater than or equal to 4x spike levels. • 5 Laboratory Control Spikes reported outside the acceptable recovery limit of 70-130%. Analytes that reported outside the acceptable recovery range include PFOSA (135%), N-Me-FOSA (138%), PFHxA (130%) and PFUnA (134%). **Eurofins | MGT** • MGT did not report any internal Quality control test. Personal communication with Eurofin (13/12/2013) noted that Eurofin uses isotope dilution and does not report surrogate recoveries **National Measurement Institute (NMI)** • All Duplicate samples reported low RPDs • All Matrix spikes reported below the acceptable recovery range of 70%-130%.
Laboratory Method Detection Limit	Not Applicable, as samples were not compared against any assessment criteria.
NATA endorsement of laboratory reports	ALS Laboratory reports are NATA accredited for all analysis including extended PFCs compounds. Eurofins | MGT Laboratory are Dakks Accredited for all analysis conducted on the samples. DAkk Accreditation is the German equivalent to NATA and the reference document is attached in Appendix F NMI has its own internal standard management. However, the process is not NATA accredited.
Calibration of Field Equipment	All equipment used during the sediment and surface water assessment was calibrated by the supplier prior to use. The equipment calibration certificate and records are provided in Appendix E.
Decontamination and Equipment Blanks	Three Rinsate blanks were collected during the course of the assessment. Two rinsate collected on the 9 October 2013 and 10 October 2013 where analysed and reported concentrations below the laboratory LOR.

QA/QC Aspects	Evidence & Evaluation
Data Comparability	
Standard Procedures	Fieldwork procedures are detailed in the reports and are suitable for this phase of the assessment.
Qualified Personnel	The reports have indicated that the staff involved in managing and reviewing the project and those involved in fieldwork are qualified personnel.
Volatile Losses	Not applicable.
Sample Integrity	Field Chain of Custody/Laboratory request forms can be found in the Appendix D.
Data Completeness	
Completeness of test program	The scope of work undertaken was generally consistent with that required to characterise the site as set out in the Work Plan. The discrepancies associated with %RPD are considered to be due to sample heterogeneity and low analyte concentrations (with one sample reporting below the limit of reporting) and should not have a significant impact on the overall work conducted. Therefore the data set used as the basis of the sediment and surface water assessment is considered valid.
Validity of Data Set	The data quality review indicates no significant systematic errors in the data collection process for sediment, soil, surface water, tank water and grass samples therefore, the data set used as the basis for the assessment is considered valid and complete.

Appendix G
9 Pages

Fieldwork Record Sheets

Field Sheets

Quality Control Register

Grass and Soil Sample GPS Coordinates

Calibration Certificates