Appendix I

121 Pages

Supplementary Surface Water and Sediment Sampling Downstream. CFA Fiskville Training College, 4549 Geelong-Ballan Rd, Fiskville, Victoria

Cardno LanePiper
Shaping the Future

Our Ref: 212163.9Report02.3

28 February 2014

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Dear Rob,

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Supplementary Surface Water and Sediment Sampling Downstream
CFA Fiskville Training College, 4549 Geelong-Ballan Rd, Fiskville, Victoria

1 INTRODUCTION

1.1 Background

Cardno Lane Piper Pty Ltd (Cardno Lane Piper) was engaged by Ashurst (the Client) on behalf of the Country Fire Authority (CFA), to conduct a further round of sampling of water and sediment offsite along a reach of the Beremboke Creek just south of Lake Fiskville and extending to 1.2 km downstream of the CFA Fiskville Training College, 4549 Geelong-Ballan Rd, Fiskville, Victoria (the Site) The location of the Fiskville Training College and the reach of the Beremboke Creek sampled in this event are shown on Figure 1, Appendix A.

This additional sampling event was carried out on 19 June 2013 and was requested to supplement the results presented in the Cardno Lane Piper report titled "*Surface Water and Sediment Contamination Assessment*". Therefore, this report is considered as a supplementary report to the *Surface Water and Sediment Contamination Assessment* report.

1.2 Purpose & Objectives

The objectives of this additional assessment are as follows:

- Investigate concentrations of PFOS, PFOA including extended PFC screen, and selected metals offsite downstream of Lake Fiskville; and
- To provide data to be used as the basis of ecological and human health risk assessments being undertaken at the site.

1.3 Scope of Assessment

Cardno Lane Piper carried out the following tasks in order to address the objectives of this Assessment:

- Preparation of a work plan;

- Review of aerial photography and topographical maps to assess of the presence of dams, tanks or drainage lines where water may be used for stock watering;
- Liaise with neighbouring property owners to establish access to dams on two private properties downstream of Lake Fiskville;
- Surface water and sediment sampling at 8 locations; including photography, GPS and field notes to record locations where water could be potentially used as a water source;
- Analytical laboratory testing of additional samples was conducted as follows:
  a) Water samples: Major anions/cations, extended PFC screen including PFOS, PFOA, 6:2 FtS, and Metals (As, Cd, Cr, Cu, Hg, Ni, Pb and Zn); and
  b) Sediment samples: extended PFC screen including PFOA, PFOS, 6:2 FtS and Metals (As, Cd, Cr, Cu, Hg, Ni, Pb, and Zn).
- In-situ measurement of surface water parameters collected including pH, dissolved oxygen, conductivity, temperature, oxidation potential and turbidity;
- The results for water and sediment in the water systems downstream included in this supplementary report; including a brief comparison of data collected for both sampling events along this reach of the Beremboke Creek; and
- Discussion with regards to protected beneficial uses of surface water is not provided in this report unless the results differ from those of the original report to an extent that the original interpretation may be varied.

2 SITE DESCRIPTION AND SAMPLE LOCATIONS

2.1 Geographic Setting

A detailed review of the site geographic setting is presented in the *Surface Water and Sediment Contamination Assessment* by Cardno Lane Piper (2013).

2.2 Field Observations

Field observations during the collection of samples include:

- Beremboke Creek was not flowing during the sampling effort; small pools of water were visible along some reaches of the creek channel. The pools of water varied in depth and size and were relatively shallow with an estimated maximum depth of 0.5 m. Larger water pools were noted at sample locations CKD, CKE and CKT which are l dams built across the creek for farm water supply- stock watering;
- The water appeared turbid at sample locations CKB, CKS, CKU and SKV;
- No livestock was observed drinking from the dams during the field sampling event; however, livestock on the adjacent properties access dams as a source of drinking water; and
- A roll of fencing wire was observed between sample locations CKU and CKV along with a section of broken down wire fence.

2.3 Sample Locations

This round of sampling focused on the offsite locations extending approximately 1.2 km to the south of the Site, shown in Figure 1 (Appendix A). Water in this reach of the Beremboke Creek is derived from overflow from Lake Fiskville and run-off from the adjoining catchment. At the time of the fieldwork (19 June 2013) the lake was not overflowing and there was no visible flow in the creek below the lake. The ephemeral nature of the Beremboke Creek was discussed in

the *Surface Water and Sediment Contamination Assessment* report (Cardno Lane Piper 2013).

The sample locations along this reach of the Beremboke Creek were selected primarily due to its proximity to the Site. Sample locations CKB, CKC, CKD and CKE which were included in the original sampling program in August 2012, were re-sampled. Additional sample points CKS, CKT, CKU and CKV were selected along between sample locations CKD and CKE as shown in Figure 2-1.

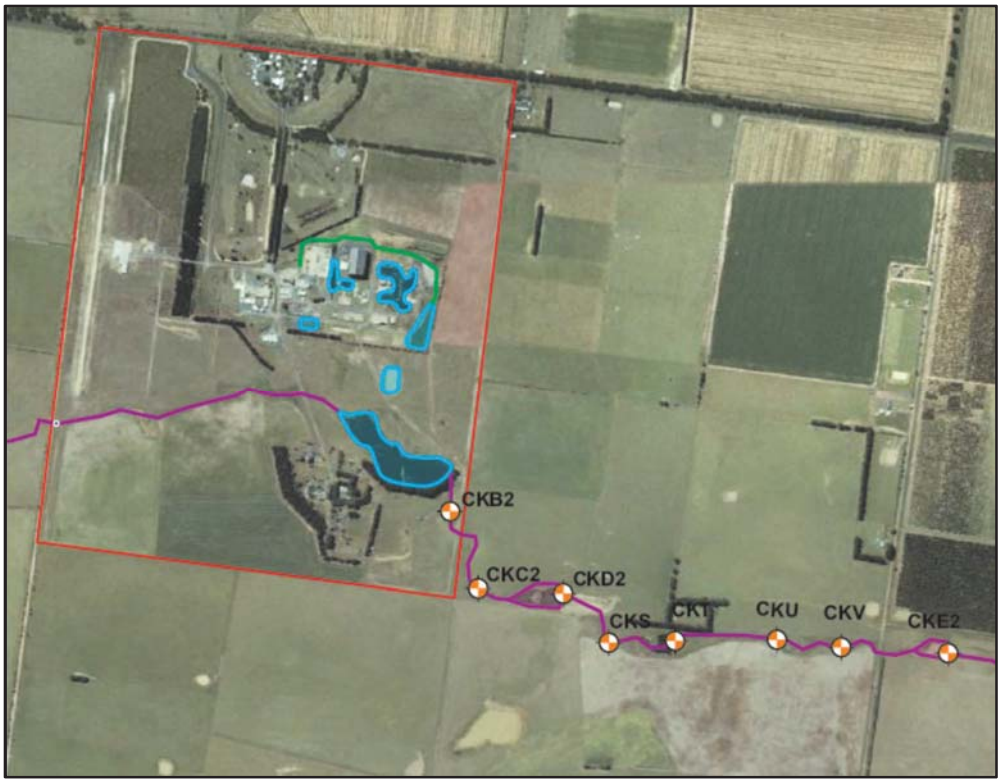


Figure 2-1: Sample Locations along Beremboke Creek

3 INVESTIGATION METHODOLOGY

3.1 Water & Sediment Sampling

Surface water and sediment samples were collected into sampling container from the edge of the creek or dam sampling location, using the sample methodology adopted during the first campaign of sampling in August 2012 and reported in the report titled *Surface Water and Sediment Contamination Assessment* (Cardno Lane Piper 2013).

All re-usable field equipment was decontaminated and rinsed with de-ionised water prior to moving to a subsequent sampling location. The details of the testing program for each work component are described in the following sections.

3.2 Laboratory Analysis – Surface Water

The contaminants of interest (COI) and the analytical schedule selected are based on the *Surface Water and Sediment Contamination Assessment* report (Cardno Lane Piper 2013). An extended PFC screen was included in this assessment for the purpose of the risk assessment.

The primary laboratory was ALS Laboratory Group (ALS) in Clayton, Melbourne, and the secondary laboratory (i.e. quality control) was MGT Labmark (MGT[1]) in Oakleigh, Melbourne. Both ALS and MGT are National Association of Testing Authorities (NATA) accredited for the analyses conducted. Copies of the NATA accredited laboratory reports, Cardno Lane Piper's chain of custody (COC) and sample receipt records are included in Appendix D.

The analysis undertaken is summarised in Table 3-1.

Physicochemical parameters were recorded in-situ and the field record sheets are included in Appendix E.

Table 3-1: Laboratory Testing Program – Surface Water Samples, First Field Event

Location	Samples Analysed	Analysis Conducted
CKB, CKC, CKD, CKE, CKS, CKT, CKU and CKV	CKWB2, CKWC2, CKWD2, CKWE2, CKWS, CKWT, CKWU and CKWV,	Major anions/cations, PFC extended screen including PFOS, PFOA, 6:2 FtS, and Metals (As, Cd, Cr, Cu, Hg, Ni, Pb and Zn).

TPH compounds have not been included in the suite of analysis for this round of sampling. The supplementary data was to confirm and assess the concentrations of PFCs and metals downstream along the reach of the Beremboke Creek between sample locations CKD and CKE, shown in Figure 2-1.

Tabulated laboratory results are presented in Table 2a in Appendix B. The quality control and quality assurance (QA/QC) summary review of the surface water sampling program is discussed in Section 3.4.

3.3 Laboratory Analysis - Sediments

A total of 8 sediment samples were collected and submitted for laboratory testing and the corresponding analysis as shown in Table 3-2. The analytical schedule was based on the COI for potential contamination and as discussed in the surface water and sediment report (Cardno Lane Piper 2013).

Table 3-2 : Laboratory Testing Program – Sediment Samples

Location	Samples Analysed	Analysis Conducted
CKB, CKC, CKD, CKE, CKS, CKT, CKU and CKV	CKSB2, CKSC2, CKSD2, CKSE2, CKSS, CKST, CKSU, CKSV	Extended PFC Screen including PFOA, PFOS, 6:2 FtS; and Metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn).

3.4 Quality Control / Quality Assurance

A critical aspect of an assessment 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;

[1] Eurofins | mgt.

- Data Representativeness;
- Data Precision and 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 D, and the data obtained for this work and used as the basis for the assessment is considered acceptable, valid and complete.

4 DISCUSSION OF SURFACE WATER RESULTS

4.1 Criteria Adopted

The criteria adopted for this investigation are consistent with the criteria adopted for the *Surface Water and Sediment Contamination Assessment* (Cardno Lane Piper 2013). Additional discussion regarding the adopted PFC criteria are provided in Appendix B and included in the corresponding table of results provided in Appendix B – Table 1.

4.2 Surface Water Results

Table 4-1 provides a summary of the surface water results for the COI, and Figure 2, Appendix A shows the results posted on the sample location plan.

Table 4-1: Summary of Water Results

Analytes	*Units*	Criteria	Sample Locations							
			CKB2	*CKC2*	*CKD2*	*CKS*	*CKT*	*CKU*	*CKV*	*CKE2*
PFOS	µg/L	5.1 [1]	10.6	5.2	7.38	3.82	7.06	1.52	1.63	6.92
PFOA		1,700 [2]	1.27	0.58	0.4	0.11	0.52	0.18	0.15	0.3
6:2 FtS		5.1 [1]	9.1	0.7	< 0.5	< 0.5	3.5	< 0.5	< 0.5	3.9
Copper	mg/L [3]	0.0014	0.011	0.004	0.006	0.005	0.002	0.004	0.006	0.004
Zinc		0.008	0.032	0.007	0.023	0.01	< 0.005	0.016	0.027	0.007

Notes:

1. Ecological 95% (Geisy, 2009)
2. MPCA (2007) – *Surface Water Quality Criterion for Perfluorooctanoic Acid.* STS Project 200604796. August 2007. Minnesota Pollution Control Agency. Directive.
3. ANZECC 2000 – ISQG-Low

The contaminants listed above (with the exception of 6:2Fts) exceeded the following criteria at all locations tested:

- ADWG 2011 Aesthetic
- ANZECC 1992 Agriculture/Irrigation
- ANZECC 1992 Primary Contact Recreation
- ANZECC 2000 Fresh Water (95%)

The surface water test results and criteria listed above are presented in Table 1, Appendix B.

The COI of interest were above the laboratory limit of reporting (LOR) for most sample locations, as follows:

4.2.1 Perfluoro Compounds – PFOS, PFOA and 6:2 FtS

The concentration of PFOS, PFOA and 6:2 FtS in surface water are higher at locations where larger pools of surface water were present. The results show that:

- PFOS and PFOA were detected at all sample locations; and
- 6:2 FtS was detected at locations CKB2, CKC2, CKT and CK3;

Figure 4-1 compares the concentrations for PFOS, PFOA and 6:2 FtS for samples taken in August 2012 and June 2013.

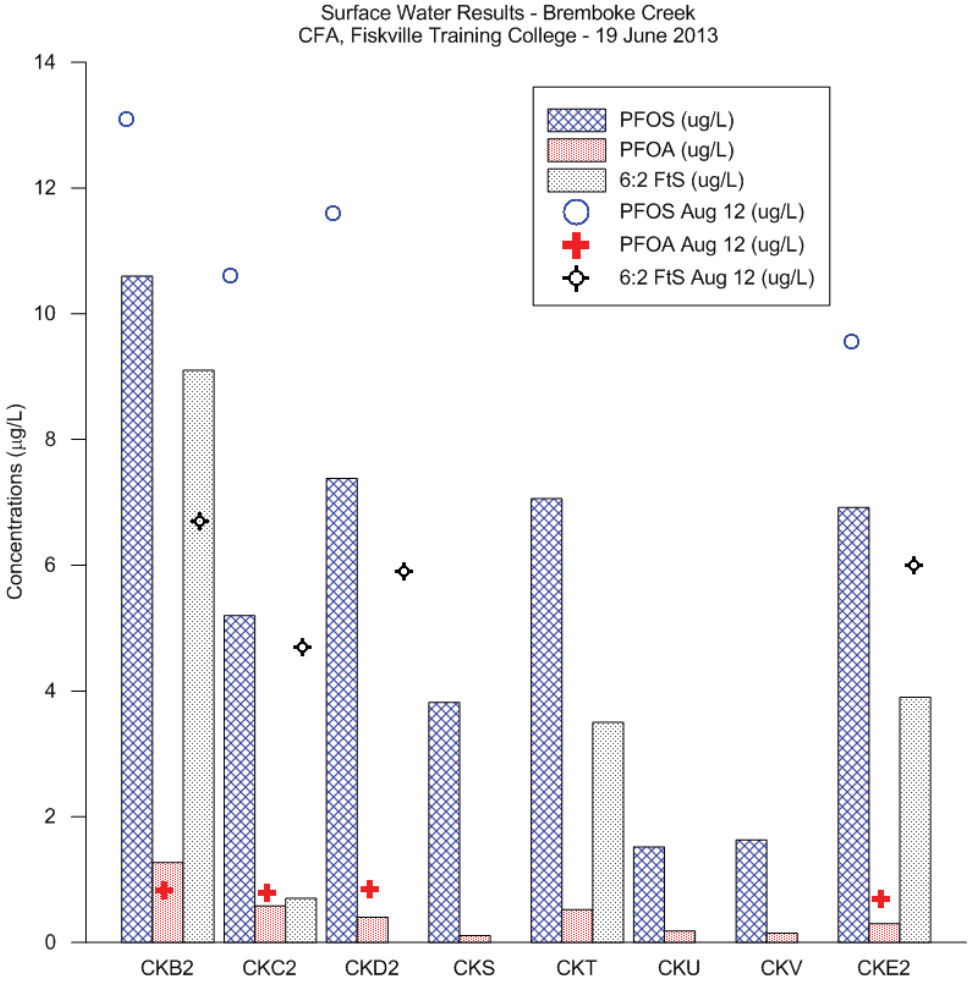


Figure 4-1: PFC Concentrations in Water – June 2013 & August 2012

Table 4-2 summarizes the extended PFC analysis suite which reported surface water concentration above the laboratory LOR. These COI were not included in the August 2012 investigation therefore no comparison can be made. The extended PFC analysis was conducted to provide additional information further assessment of risks to the downstream environment.

Table 4-2: Summary of Extended PFC Water Results

Sample Locations	Units	Analytes				
		PFBS	*PFHpA*	*PFHxA*	*PFHxS*	*PFNA*
CKB2	µg/L	1.35	2.78	10.1	9.86	0.29
CKC2		1.02	1.82	4.62	6.2	0.16
CKD2		0.49	1.14	2.76	3.52	0.13
CKS		0.06	0.36	0.7	0.63	0.09
CKT		0.32	0.73	3.34	3.44	0.11
CKU		0.23	0.6	1.9	1.09	0.03
CKV		0.16	0.45	1.08	1.23	0.06
CKE2		0.25	0.48	2.28	2.46	0.11

4.2.2 Metals

The metal results for copper and zinc does not show any major differences from the previous monitoring round of August 2012, and is summarized as follows:

- Copper was detected at all sample locations; and
- Zinc was detected all sample locations with the exception of location CKT.

5 DISCUSSION OF SEDIMENT RESULTS

5.1 Criteria Adopted

The criteria adopted for this investigation are consistent with the criteria adopted for the *Surface Water and Sediment Contamination Assessment* (Cardno Lane Piper 2013). Additional discussion regarding the adopted PFC criteria are provided in Appendix B and included in the corresponding table of results provided in Appendix B – Table 2.

5.2 Sediment Results

The sediment water results included the extended PFC compounds are presented in Table 2, Appendix B. Due to the low water volume along the remaining pools on the Beremboke Creek, it is unlikely that the repeating sediment sample locations (i.e. CKB, CKC, CKD and CKE) would have been in close proximity even though the field staff attempted to locate previous sample points with the aid of a GPS.

Table 5-1 section provides a summary of selected COI (i.e. PFOS, PFOA, 6:2 FtS, copper and zinc) for the sediment samples downstream of the site. Figure 3, Appendix A shows the results and corresponding locations.

Table 5-1: Summary of Sediment Results

Analytes	*Units*	Criteria	Sample Locations							
			CKB2	*CKC2*	*CKD2*	*CKS*	*CKT*	*CKU*	*CKV*	*CKE2*
PFOS	µg/kg [1]	67 µg/kg	11.4	10.8	25.9	28	29.6	26.4	22.2	19

Analytes	*Units*	Criteria	Sample Locations							
			CKB2	*CKC2*	*CKD2*	*CKS*	*CKT*	*CKU*	*CKV*	*CKE2*
PFOA		-	0.5	<0.5	1.3	<0.5	1	1.1	0.5	<0.5
6:2 FtS		67 µg/kg	<5	<5	<5	<5	9	<5	<5	<5
Copper	mg/kg [2]	65 mg/kg	35	11	11	8	10	8	8	6
Zinc		200 mg/kg	256	37	36	19	26	38	13	11

Notes:
1. US EPA (2009)
2. ANZECC 2000 – ISQG-Low

However the results for PFOA listed did not exceeded the criteria adopted. Three locations reported elevated concentrations above the ANZECC 2000 ISQG-Low 2 criteria as follows:

- CKB2 reported concentrations of Lead and Zinc
- CKC2 reported concentrations of Arsenic, Cadmium and Nickel
- CKSV reported concentrations of Cadmium

The sediment test results and criteria above are presented in Table 1, Appendix B.

5.2.1 Perfluoro Compounds – PFOS, PFOA and 6:2 FtS

The COI of interest were above the laboratory LOR for PFOS and PFOA at most sample locations, and 6:2 FtS was reported above the laboratory LOR at one sample location, as follows:

- PFOS was detected at all sample locations;
- PFOA was detected in 5 locations (i.e. CKB2, CKD2, CKT, CKU and CKV), and below LOR at locations CKC2, CKE2 and CKE2 (i.e. < 0.5 µg/kg); and
- 6:2 FtS was above the laboratory LOR at location CKT with reported concentration of 9 µg/kg.

The concentration of PFOS, PFOA and 6:2 FtS in sediments reported for this sampling event differs in concentration from the previous sampling event (August 2012) primarily for PFOS at sample locations CKSB and CKSC (Cardno Lane Piper 2013).

Figure 5-1 presents a comparison of the concentration of PFOS, PFOA and 6:2 FtS at sample locations between August 2012 and June 2013; this comparison is only applicable to sample locations CKB, CKC, CKD and CKE.

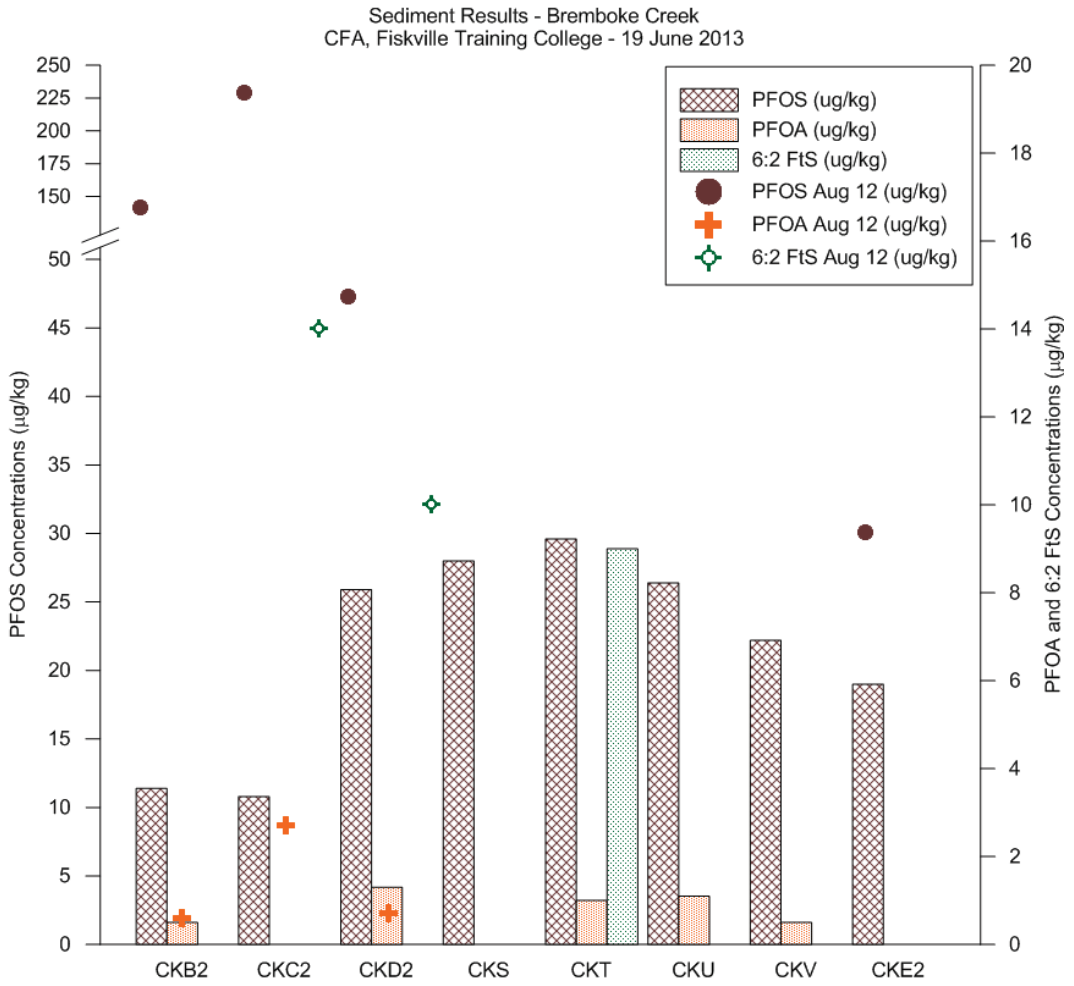


Figure 5-1: PFC Concentrations in Sediment - August 2012 & June 2013

For the purpose of this assessment, and extended PFC screening suite was conducted to provide additional information for the assessment of risk for the downstream environment. The results for the extended PFC analysed is summarized in Table 5-2. These COI were not included in the August 2012 investigation therefore no comparison can be made.

Table 5-2: Summary of Extended PFC Results - Sediment

Sample Locations	Units	Analytes							
		PFBS	***PFHpA***	***PFHxA***	***PFHxS***	***PFNA***	***PFDcS***	***PFUnA***	***8:2 FtS***
CKB2	µg/kg	0.4	1.1	3.1	4.3	< 0.2	< 0.2	< 0.2	< 1.0
CKC2		0.3	0.6	1.2	3.4	< 0.2	< 0.2	< 0.2	< 1.0
CKD2		1.3	2.7	4.7	10.6	0.7	0.3	0.4	1.0
CKS		< 0.2	0.3	1.3	1.1	0.4	0.2	0.3	2.0
CKT		0.6	1.5	4.7	12.4	0.4	0.2	0.4	2.0
CKU		0.6	2.4	4.7	11.7	0.5	< 0.2	0.2	< 1.0
CKV		0.5	1.5	3.4	8.2	0.2	< 0.2	< 0.2	< 1.0
CKE2		< 0.2	0.4	1.2	3.3	< 0.2	< 0.2	< 0.2	< 1.0

5.2.2 Metals

The metal results for copper and zinc do not show any major differences from the previous monitoring round of August 2012 (Cardno Lane Piper 2013) with the exception of sample location CKB2, and is summarized as follows:

- Copper was detected at all sample locations with concentrations ranging from 6 to 35 mg/kg. The concentration of copper reported at sample location CKSB2 was higher than the previous sampling effort for this location; and
- Zinc was detected all sample locations with concentrations ranging from 13 to 256 mg/kg. The concentration of zinc was higher at sample locations CKSB2 and CKSD2 than in the August 2012 sampling round.

With the exception of the higher detection for copper and zinc, the remaining sample locations did not show any significant differences in concentration of copper and zinc between August 2012 and June 2013.

6 CONCLUSIONS

The surface water and sediment result shows that this portion of the Beremboke Creek has been impacted by the discharge of contaminants in effluent discharged to Lake Fiskville and the surface waters downstream as detailed in the following conclusions:

Surface Water Samples

- Elevated concentrations for PFOS, PFOA, Copper and zinc were reported above the adopted criteria indicating the presence of PFCs and metals offsite.
- The results for PFOS, PFOA and 6:2 FtS showed that the pooled water along the creek reflects the contaminants found in Lake Fiskville. The concentration of PFOS is relatively constant with smaller water pools showing lower PFOS concentrations (i.e. CKC, CKS, CKU and CKV) than larger pools. This may be in part due to recent surface runoff from the surrounding catchment having a higher dilution effect in the smaller pools;
- The results for copper showed no noticeable concentration change from the previous sampling event; and
- Results for zinc shows increased concentration for the recent sampling event at sample locations CKB and CKD. However, for sample locations CKC and CKE, the second sampling event reported lower concentrations than the first event.

Sediment Samples

The results for the sediment samples have lower concentrations for PFOS and PFOA than the first sampling event in August 2012. It is acknowledged that it is difficult to obtain sediment samples from the exact locations sampled in the previous work. This is due in part to the water levels being much lower in June 2013 than in August 2012, and differences in results are noted as follows:

- PFOS concentrations in sediments is relatively constant down to sample location CKE. This is consistent with the results of the first sampling event;
- PFOA concentration was below the laboratory LOR in the previous assessment at location CKE (Cardno Lane Piper 2013). However, with the increased sample density for locations CKS to CKU it showed that PFOA concentrations are detected at sample locations CKT, CKU and CKV; extending further south than previously reported (Cardno Lane Piper 2013);
- 6:2 FtS was below the laboratory LOR for all samples, except CKST;

- The presence of other further PFCs (extended suite) reported in this assessment shows these are present in sediments as a result of AFFF use at FTC site. Larger chain Fluorotelomer may break down and can potentially form PFOA, although the assessment of PFC persistence and changes in the environment is outside the scope of this assessment; and
- The results for copper and zinc did not show a major change from the previous assessment data (Cardno Lane Piper 2013) with the exception of the increased in concentration for copper and zinc at sample location CKSB.

7 RECOMMENDATIONS

It is recommended that:

1. As noted in the *Surface Water and Sediment Contamination Assessment* report (Cardno Lane Piper 2013) and it is reiterated here that all reasonable measures should be undertaken to reduce or stop further discharge of contaminated water from the water management system at the site, including Lake Fiskville, from discharging to surface waters downstream, including monitoring data of surface water flows from Lake Fiskville (time, volumes and duration);
2. Consideration should be given to include extended PFC analysis for future surface water and sediment assessment at the Site; and
3. Delineate the level of PFC concentrations in water and sediment extending downstream between sample location CKE and the confluence of the Beremboke and Eclipse Creeks.

Yours faithfully
Cardno Lane Piper

Alan Bull *CEnvP, CChem-RACI*
Project Manager

Approved:

Anthony P Lane *CEnvP*
Senior Principal

Appendices

Appendix A
4 Pages

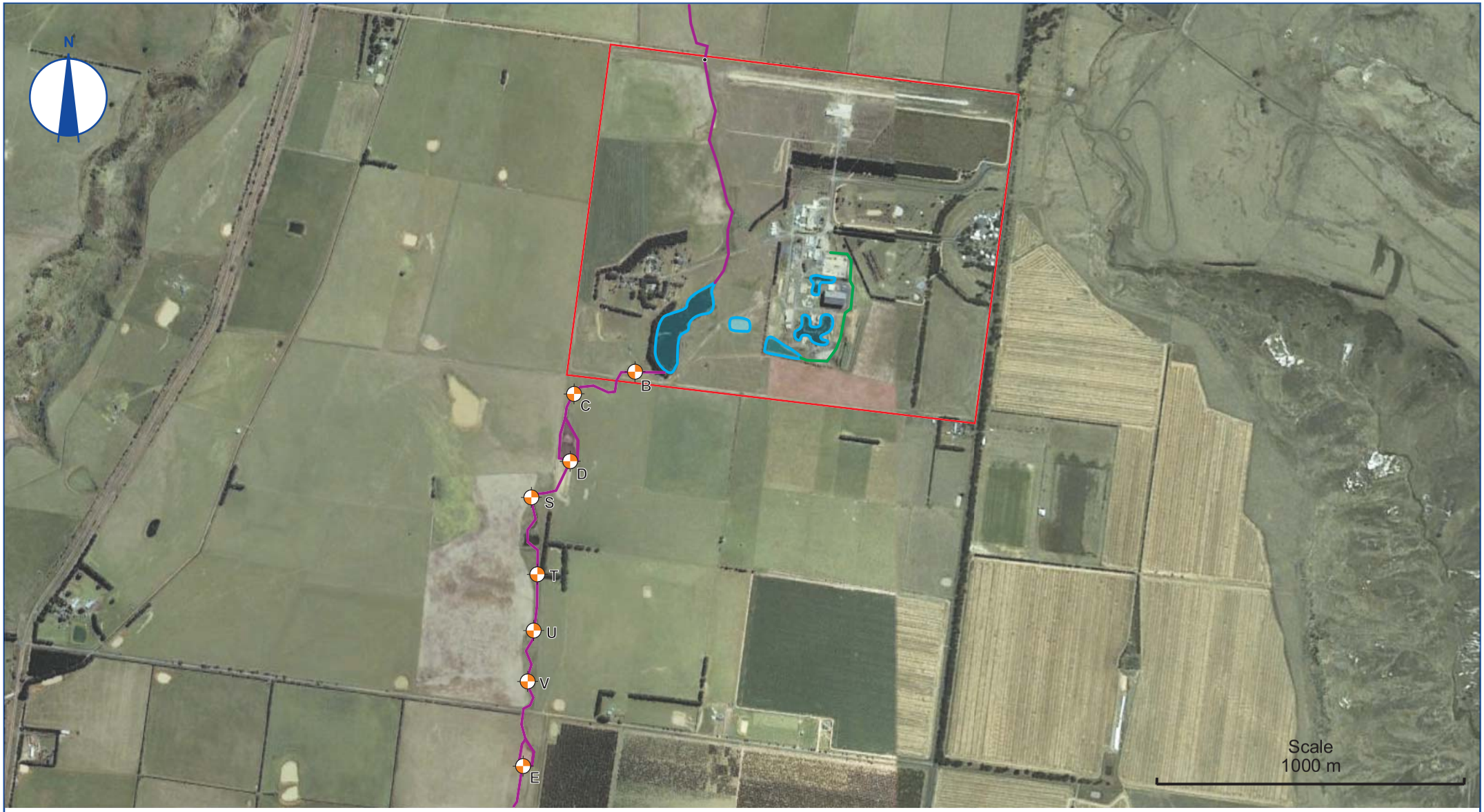
Figures

Figure 1: Site Locality Plan

Figure 2: Surface Water Analytical Results

Figure 3: Sediment Analytical Results

Figure 4: Sample Locations Photos



Legend:

- Creek
- Drainage Channel
- Sample Location Point
- Water Body
- Site Boundary

Base image source: Google Earth (2005)

Cardno LanePiper Shaping the Future Cardno Lane Piper Pty Ltd	PROJECT: Sources of Contamination PFOA & PFOS CFA Training College Geelong-Ballan Rd, Fiskville, VIC	SCALE (A3): As Shown	DATE: October 2013	TITLE: Offsite surface water and sediment sampling photos	
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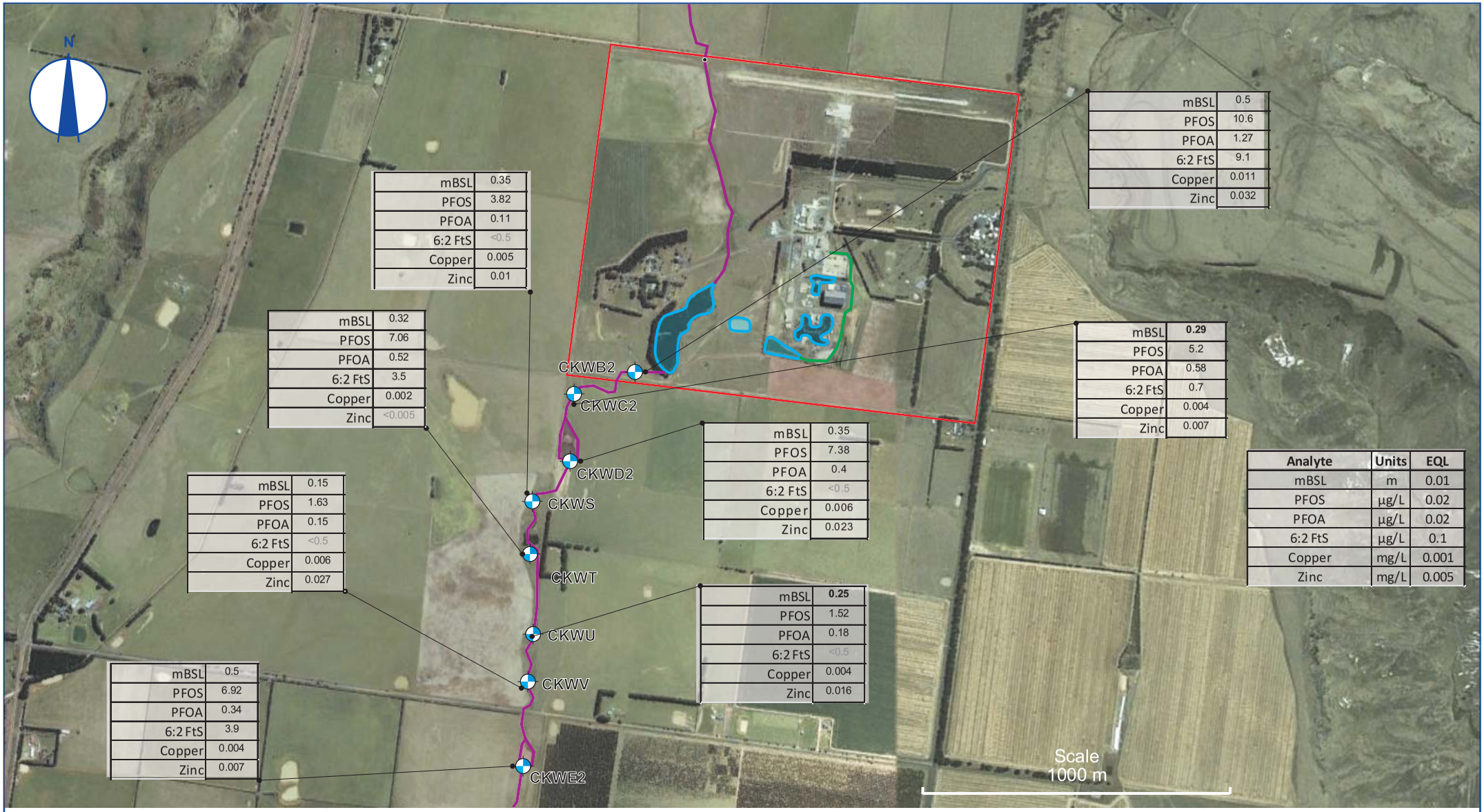

Legend:

Creek | Drainage Channel | Surface water Sample Location Point | Water Body | Site Boundary

Base image source: Google Earth (2005)

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PROJECT: Sources of Contamination PFOA & PFOS
CFA Training College
Geelong-Ballan Rd, Fiskville, VIC

SCALE (A3): As Shown	DATE: October 2013	TITLE: Creek Surface Water Analytical June 2013 Results	
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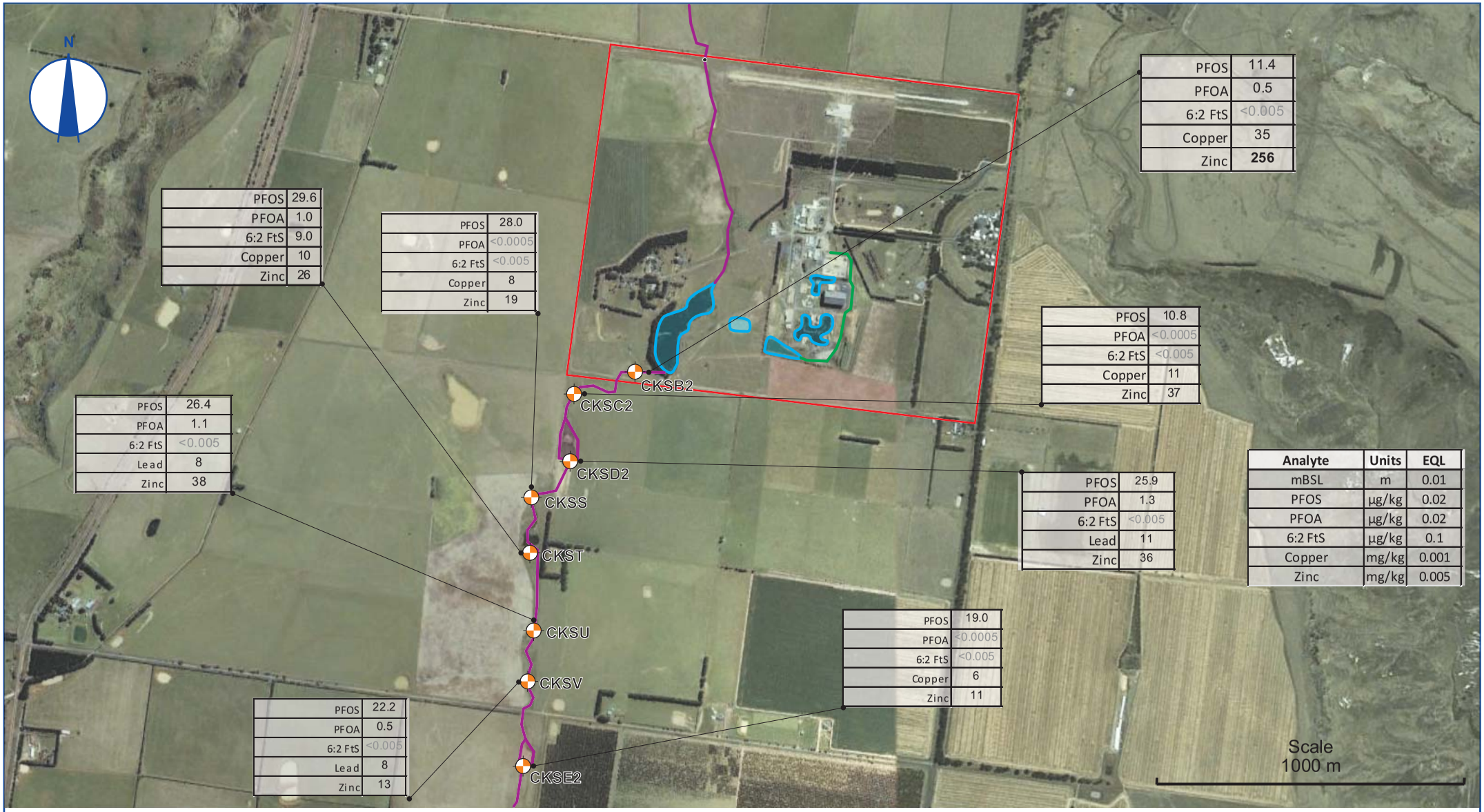

Legend:

Creek | Drainage Channel | Sediment Sample Location Point

Water Body | Site Boundary

Base image source: Google Earth (2005)

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PROJECT: Sources of Contamination PFOA & PFOS
CFA Training College
Geelong-Ballan Rd, Fiskville, VIC

SCALE (A3): As Shown	DATE: October 2013	TITLE: Creek Sediment Analytical June 2013 Results	
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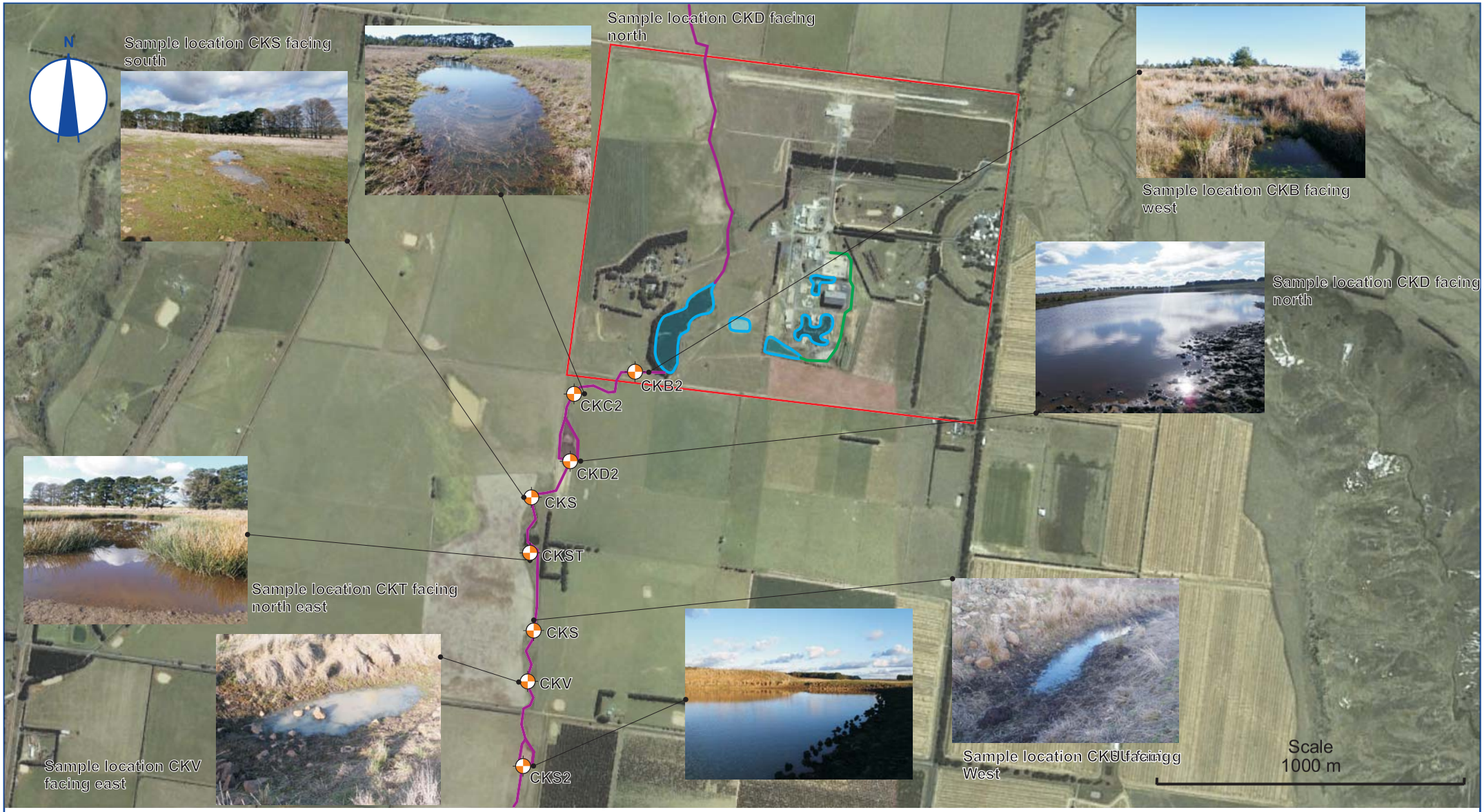

Legend:

- Creek
- Drainage Channel
- Sample Location Point
- Water Body
- Site Boundary

Base image source: Google Earth (2005)

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PROJECT: Sources of Contamination PFOA & PFOS
CFA Training College
Geelong-Ballan Rd, Fiskville, VIC

SCALE (A3): As Shown	DATE: October 2013	TITLE: Offsite surface water and sediment sampling photos	
JOB No: 212163.9	DRAWN: MCD		
REF: 212163.9 Figure4.cdr	CHECKED: ACB	REV: 0	FIG: 4

Appendix B
8 Pages

Tables of Test Results

Table 1: Sediment Results
Table 2: Surface Water Results
Table 3: % RPD Sediments
Table 4: % RPD Surface Water
Table 5: Rinsate Results

Table 1: Surface Water Results

Field ID	CKWB2_190613	CKWC2_190613	CKWD2_190613	CKWE2_190613	CKWS_190613	CKWT_190613	CKWU_190613	CKWV_190613	QC01_190613	QC03_190613	QC05_190613
Location Code	CKWB2	CKWC2	CKWD2	CKWE2	CKWS	CKWT	CKWU	CKWV	CKWC2	CKWT	CKWE2
Sample_Date	19/06/2013	19/06/2013	19/06/2013	19/06/2013	19/06/2013	19/06/2013	19/06/2013	19/06/2013	19/06/2013	19/06/2013	19/06/2013

Chem_Group	ChemName	Units	EQL	ADWG 2011 Aesthetic	ANZECC 1992 Agriculture/Irrigation	ANZECC 1992 Primary Contact Recreation	ANZECC 2000 Fresh Water (95%)										
PFCs	8:2 Fluorotelomer sulfonate	mg/L	0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<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	<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	<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	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	PFBS	mg/L	0.00002					0.00135	0.00102	0.00049	0.00025	0.00006	0.00032	0.00023	0.00016	0.00072	0.00034	0.00021
	PFDcA	mg/L	0.00002					<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFDcS	mg/L	0.00002					<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFDoA	mg/L	0.00005					<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	PFHpA	mg/L	0.00002					0.00278	0.00182	0.00114	0.00048	0.00036	0.00073	0.0006	0.00045	0.00147	0.00067	0.00044
	PFHxA	mg/L	0.00002					0.0101	0.00462	0.00276	0.00228	0.0007	0.00334	0.0019	0.00108	0.00336	0.00296	0.0021
	PFHxS	mg/L	0.00002					0.00986	0.0062	0.00352	0.00246	0.00063	0.00344	0.00109	0.00123	0.0044	0.0035	0.00214
	PFNA	mg/L	0.00002					0.00029	0.00016	0.00013	0.00011	0.00009	0.00011	0.00003	0.00006	0.00008	0.00012	0.00008
	PFOSA	mg/L	0.00002					<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
	PFTeA	mg/L	0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<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	<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	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
	Sulfate as SO4 - Turbidimetric (Filtered)	mg/L	1					22	26	23	12	13	10	25	29	26	10	12
	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.1					9.1	0.7	<0.5	3.9	<0.5	3.5	<0.5	<0.5	0.7	3.7	3.5
	Perfluorooctanoate	µg/L	0.02	0.4 [1]		*4*	1700	1.27	0.58	0.4	0.34	0.11	0.52	0.18	0.15	0.67	0.5	0.36
	PFOS	µg/L	0.02	0.2 [1]	**0.00065** [2]	*2* [3]	5.1 [4]	***10.6***	***5.2***	***7.38***	***6.92***	***3.82***	***7.06***	***1.52***	***1.63***	***4.28***	***6.68***	***5.9***
Inorganics	Alkalinity (Bicarbonate as CaCO3)	mg/L	1					84	25	15	100	21	86	72	23	24	86	101
	Alkalinity (Carbonate as CaCO3)	mg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Alkalinity (Hydroxide) as CaCO3	µg/L	1000					<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
	Alkalinity (total) as CaCO3	mg/L	1					84	25	15	100	21	86	72	23	24	86	101
	Anions Total	meq/L	0.01					4	2.62	1.77	2.92	1.23	3.11	4.16	2.16	2.4	3.08	3
	Cations Total	meq/L	0.01					3.71	2.88	1.93	3.16	1.15	3.26	4.56	2.38	2.66	3.26	3.08
	Chloride	mg/L	1	250	**30**	*4000*		66	56	35	**24**	**19**	42	78	39	49	41	**26**
	Ionic Balance	%	0.01					3.73	4.67	4.51	3.9	3.24	2.35	4.55	4.7	5.07	2.8	1.3
	Sodium (Filtered)	mg/L	1	180		*3000*		48	33	24	40	18	43	54	30	28	43	40
	Arsenic	mg/L	0.001		**0.1**	*0.5*		<0.001	<0.001	<0.001	0.002	<0.001	0.002	0.001	0.001	<0.001	0.002	0.002
	Cadmium	mg/L	0.0001		**0.01**	*0.05*	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Calcium (Filtered)	mg/L	1					14	12	7	10	2	11	15	8	12	11	10
	Chromium (III+VI)	mg/L	0.001		**1**	*0.5*		0.004	0.001	0.003	0.006	0.008	<0.001	0.011	0.019	<0.001	<0.001	0.005
	Copper	mg/L	0.001	1	**0.2**	*10*	0.0014	0.011	0.004	0.006	0.004	0.005	0.002	0.004	0.006	0.004	0.002	0.003
	Lead	mg/L	0.001		**0.2**	*0.5*	0.0034	0.001	<0.001	0.001	0.001	0.001	<0.001	0.002	0.005	<0.001	0.001	<0.001
	Magnesium (Filtered)	mg/L	1					10	9	5	10	2	9	14	6	9	9	9
	Mercury	mg/L	0.0001		**0.002**	*0.01*	0.0006	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Nickel	mg/L	0.001		**0.2**	*1*	0.011	0.005	0.001	0.004	0.008	0.006	0.004	0.006	0.009	0.001	0.004	0.008
	Potassium (Filtered)	mg/L	1					4	4	5	4	4	4	12	7	4	4	4
	Zinc	mg/L	0.001	3	**2**	*50*	0.008	0.032	0.007	0.023	0.007	0.01	<0.005	0.016	0.027	0.008	0.006	0.007

Comment

1. Criterion from Human Health Drinking water US EPA (2009). Provisional health advisories for perfluorooctanoic acid (PFOA) and perfluoctane sulfonate (PFOS). Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency
2. Criterion from Ecological- MPCEco (RIVM 2010). Environmental risk limits for PFOS. A proposal of water quality standards of accordance with the Water Framework Directive.
3. Criterion from Stockwatering- (RIVE 2010). Environmental risk limits for PFOS. A proposal of water quality standards in accordance with Water Framework Directive.
4. Ecological 95% Protection- Giese (2010)
5. Criterion from WHO (2005) Petroleum Products in Drinking-water

Table 2 : Sediment Sample Results

Field ID	CKSB2_190613	CKSC2_190613	CKSD2_190613	CKSE2_190613	CKSS_190613	CKST_190613	CKSU_190613	CKSV_190613	QC01_190613	QC03_190613	QC05_190613
Location Code	CKSB2	CKSC2	CKSD2	CKSE2	CKSS	CKST	CKSU	CKSV	CKSC2	CKST	CKSE2
Sample Date	19/06/2013	19/06/2013	19/06/2013	19/06/2013	19/06/2013	19/06/2013	19/06/2013	19/06/2013	19/06/2013	19/06/2013	19/06/2013

Chem_Group	ChemName	Units	EQL	Site Specific Criteria PFCs[1]	PFOS EC (2004)[3]	NSW EPA 1994 Health and Ecological	ANZECC 2000 ISQG-Low[2]	ANZECC 2000 ISQG-High[2]									
PFCs	8:2 Fluorotelomer sulfonate	mg/kg	0.001						<0.001	<0.001	0.001	<0.001	0.002	0.002	<0.001	<0.001	<0.001	0.002	<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
	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
	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
	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
	PFBS	mg/kg	0.0002						0.0004	0.0003	0.0013	<0.0002	<0.0002	0.0006	0.0006	0.0005	0.0004	0.0006	<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
	PFDcS	mg/kg	0.0002						<0.0002	<0.0002	0.0003	<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
	PFHpA	mg/kg	0.0002						0.0011	0.0006	0.0027	0.0004	0.0003	0.0015	0.0024	0.0015	0.0008	0.0016	0.0004
	PFHxA	mg/kg	0.0002						0.0031	0.0012	0.0047	0.0012	0.0013	0.0047	0.0048	0.0034	0.0019	0.0052	0.001
	PFHxS	mg/kg	0.0002						0.0043	0.0034	0.0106	0.0033	0.0011	0.0124	0.0117	0.0082	0.004	0.013	0.0027
	PFNA	mg/kg	0.0002						<0.0002	<0.0002	0.0007	<0.0002	0.0004	0.0004	0.0005	0.0002	0.0002	0.0004	<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
	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
	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
	PFUnA	mg/kg	0.0002						<0.0002	<0.0002	0.0004	<0.0002	0.0003	0.0004	0.0002	<0.0002	<0.0002	0.0003	<0.0002
	6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.005	**6**	**0.067**				<0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	0.012	<0.005
	Perfluorooctanoate	mg/kg	0.0005	**16**					0.0005	<0.0005	0.0013	<0.0005	<0.0005	0.001	0.0011	0.0005	<0.0005	0.001	<0.0005
	PFOS	mg/kg	0.0005	**6**	**0.067**				0.0114	0.0108	0.0259	0.019	0.028	0.0296	0.0264	0.0222	0.0145	0.0289	0.0178
Inorganics	Moisture	%	1						49.3	27.2	42.2	35.7	49.7	40.3	41.7	31.6	32.8	42.8	30.9
Metals	Arsenic	mg/kg	2				**20**	**70**	<5	**22**	<5	<5	11	8	<5	**16**	9	10	<5
	Cadmium	mg/kg	0.4				**1.5**	**10**	<1	**3**	<1	<1	<1	<1	<1	**2**	1	<1	<1
	Chromium (III+VI)	mg/kg	2						42	**209**	63	45	**102**	61	44	**91**	**161**	**129**	38
	Copper	mg/kg	5				**65**	**270**	35	11	11	6	8	10	8	8	11	24	6
	Lead	mg/kg	5			**300**	**50**	**220**	57	50	15	12	18	10	12	20	24	15	10
	Mercury	mg/kg	0.1				**0.15**	**1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Nickel	mg/kg	2				**21**	**52**	21	33	16	16	16	21	14	19	26	42	14
	Zinc	mg/kg	5				**200**	**410**	**256**	37	36	11	19	26	38	13	48	54	9

Notes
1. US EPA (2009) Assessment Criteria for Residential Land use
2. Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)
3. EA (2004). Environmental Risk Evaluation Report for Perfluorooctanesulphonate (PFOS). Environment Agency, United Kingdom

Field Duplicates (SOIL)
Filter: [Sampled_Date-Time] >= #19 Jun 2013# and [Samp

	SDG	EM1306582	EM1306582		EM1306582	EM1306582		EM1306582	EM1306582		EM1306582	Interlab_D		EM1306582	Interlab_D		EM1306582	Interlab_D			
	Field_ID	CKSC2_190613	QC01_190613	RPD	CKST_190613	QC03_190613	RPD	CKSE2_190613	QC05_190613	RPD	CKSC2_190613	QC02_190613 (SOIL)	RPD	CKST_190613	QC04_190613 (SOIL)	RPD	CKSE2_190613	QC06_190613 (SOIL)	RPD		
	Sampled_Date-Time	19/06/2013 15:00	19/06/2013 15:00		19/06/2013 15:00	19/06/2013 15:00		19/06/2013 15:00	19/06/2013 15:00		19/06/2013 15:00	19/06/2013 15:00		19/06/2013 15:00	19/06/2013 15:00		19/06/2013 15:00	19/06/2013 15:00			
Chem_Group	ChemName	Units	EQL																			
	8:2 Fluorotelomer sulfonate	mg/kg	0.001	<0.001	<0.001	0	0.002	0.002	0	<0.001	<0.001	0	<0.001			0.002			<0.001			
	N-Et-FOSA	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001			<0.001			<0.001			
	N-Et-FOSE	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001			<0.001			<0.001			
	N-Me-FOSA	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001			<0.001			<0.001			
	N-Me-FOSE	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001			<0.001			<0.001			
	PFBS	mg/kg	0.0002	0.0003	0.0004	29	0.0006	0.0006	0	<0.0002	<0.0002	0	0.0003			0.0006			<0.0002			
	PFDcA	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002			<0.0002			<0.0002			
	PFDcS	mg/kg	0.0002	<0.0002	<0.0002	0	0.0002	0.0002	0	<0.0002	<0.0002	0	<0.0002			0.0002			<0.0002			
	PFDoA	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002			<0.0002			<0.0002			
	PFHpA	mg/kg	0.0002	0.0006	0.0008	29	0.0015	0.0016	6	0.0004	0.0004	0	0.0006			0.0015			0.0004			
	PFHxA	mg/kg	0.0002	0.0012	0.0019	45	0.0047	0.0052	10	0.0012	0.001	18	0.0012			0.0047			0.0012			
	PFHxS	mg/kg	0.0002	0.0034	0.004	16	0.0124	0.013	5	0.0033	0.0027	20	0.0034			0.0124			0.0033			
	PFNA	mg/kg	0.0002	<0.0002	0.0002	0	0.0004	0.0004	0	<0.0002	<0.0002	0	<0.0002			0.0004			<0.0002			
	PFOSA	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002			<0.0002			<0.0002			
	PFTeA	mg/kg	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	<0.001			<0.001			<0.001			
	PFTriA	mg/kg	0.0002	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002			<0.0002			<0.0002			
	PFUnA	mg/kg	0.0002	<0.0002	<0.0002	0	0.0004	0.0003	29	<0.0002	<0.0002	0	<0.0002			0.0004			<0.0002			
Inorganics	Moisture	%	1	27.2	32.8	19	40.3	42.8	6	35.7	30.9	14	27.2			40.3			35.7			
Metals	Arsenic	mg/kg	5 (Primary): 2 (Interlab	**22.0**	**9.0**	**84**	8.0	10.0	22	<5.0	<5.0	0	22.0	16.0	32	8.0	8.2	2	<5.0	<2.0	0	
	Cadmium	mg/kg	1 (Primary): 0.4 (Interla	**3.0**	**1.0**	**100**	< 1.0	<1.0	0	<1.0	<1.0	0	3.0	2.3	26	**<1.0**	**1.7**	**52**	<1.0	0.6	0	
	Chromium (III+VI)	mg/kg	2 (Primary): 5 (Interlab	209.0	161.0	26	**61.0**	**129.0**	**72**	45.0	38.0	17	209.0	190.0	10	61.0	100.0	48	45.0	44.0	2	
	Copper	mg/kg	5	11.0	11.0	0	**10.0**	**24.0**	**82**	6.0	6.0	0	11.0	9.9	11	**10.0**	**19.0**	**62**	6.0	5.2	14	
	Lead	mg/kg	5	**50.0**	**24.0**	**70**	10.0	15.0	40	12.0	10.0	18	50.0	30.0	50	10.0	15.0	40	12.0	9.8	20	
	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	
	Nickel	mg/kg	2 (Primary): 5 (Interlab	33.0	26.0	24	**21.0**	**42.0**	**67**	16.0	14.0	13	33.0	24.0	32	**21.0**	**41.0**	**65**	16.0	13.0	21	
	Zinc	mg/kg	5	37.0	48.0	26	**26.0**	**54.0**	**70**	11.0	9.0	20	37.0	28.0	28	26.0	43.0	49	11.0	8.8	22	
PFCs	6:2 Fluorotelomer Sulfonate (6:2 FtS)	mg/kg	0.005	<0.005	<0.005	0	0.009	0.012	29	<0.005	<0.005	0	<0.005			0.009			<0.005			
	Perfluorooctanoate	mg/kg	0.0005	<0.0005	<0.0005	0	0.001	0.001	0	<0.0005	<0.0005	0	<0.0005			0.001			<0.0005			
	PFOS	mg/kg	0.0005	0.0108	0.0145	29	0.0296	0.0289	2	0.019	0.0178	7	0.0108			0.0296			0.019			

**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] >= #19 Jun 2013# and [Sample

SDG	EM1306582	EM1306582		EM1306582	EM1306582		EM1306582	EM1306582		EM1306582	Interlab_D		EM1306582	Interlab_D	
Field_ID	CKWC2_190613	QC01_190613	RPD	CKWT_190613	QC03_190613	RPD	CKWE2_190613	QC05_190613	RPD	CKWC2_190613	QC02_190613 (WATER)	RPD	CKWT_190613	QC04_190613 (WATER)	RPD
Sampled_Date-Time	19/06/2013 15:00	19/06/2013 15:00		19/06/2013 15:00	19/06/2013 15:00		19/06/2013 15:00	19/06/2013 15:00		19/06/2013 15:00	19/06/2013 15:00		19/06/2013 15:00	19/06/2013 15:00	

Chem_Group	ChemName	Units	EQL															
	8:2 Fluorotelomer sulfonate	mg/l	0.0005	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005			<0.0005		
	N-Et-FOSA	mg/l	0.00005	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001			<0.0001		
	N-Et-FOSE	mg/l	0.0005	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005			<0.0005		
	N-Me-FOSA	mg/l	0.0005	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005			<0.0005		
	N-Me-FOSE	mg/l	0.0005	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005			<0.0005		
	PFBS	mg/l	0.00002	0.001	0.0007	34	0.0003	0.0003	6	0.0003	0.0002	17	0.001			0.0003		
	PFDcA	mg/l	0.00002	<0.0	<0.0	0	<0.0	<0.0	0	<0.0	<0.0	0	<0.0			<0.0		
	PFDcS	mg/l	0.00002	<0.0	<0.0	0	<0.0	<0.0	0	<0.0	<0.0	0	<0.0			<0.0		
	PFDoA	mg/l	0.00005	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001			<0.0001		
	PFHpA	mg/l	0.00002	0.0018	0.0015	21	0.0007	0.0007	9	0.0005	0.0004	9	0.0018			0.0007		
	PFHxA	mg/l	0.00002	0.0046	0.0034	32	0.0033	0.003	12	0.0023	0.0021	8	0.0046			0.0033		
	PFHxS	mg/l	0.00002	0.0062	0.0044	34	0.0034	0.0035	2	0.0025	0.0021	14	0.0062			0.0034		
	PFNA	mg/l	0.00002	**0.0002**	**0.0001**	**67**	0.0001	0.0001	9	0.0001	0.0001	32	0.0002			0.0001		
	PFOSA	mg/l	0.00002	<0.0	<0.0	0	<0.0	<0.0	0	<0.0	<0.0	0	<0.0			<0.0		
	PFTeA	mg/l	0.0005	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005			<0.0005		
	PFTriA	mg/l	0.00005	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001			<0.0001		
	PFUnA	mg/l	0.00005	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001			<0.0001		
	Sulfate as SO4 - Turbidimetric (Filtered)	mg/l	1	26.0	26.0	0	10.0	10.0	0	12.0	12.0	0	26.0			10.0		
Inorganics	Alkalinity (Bicarbonate as CaCO3)	mg/l	1 (Primary): 20 (Interla	25.0	24.0	4	86.0	86.0	0	100.0	101.0	1	25.0	37.0	39	86.0	95.0	10
	Alkalinity (Carbonate as CaCO3)	mg/l	1 (Primary): 10 (Interla	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<10.0	0	<1.0	<10.0	0
	Alkalinity (Hydroxide) as CaCO3	µg/l	1000	<1000.0	<1000.0	0	<1000.0	<1000.0	0	<1000.0	<1000.0	0	<1000.0			<1000.0		
	Alkalinity (total) as CaCO3	mg/l	1	25.0	24.0	4	86.0	86.0	0	100.0	101.0	1	25.0			86.0		
	Anions Total	meq/L	0.01	2.62	2.4	9	3.11	3.08	1	2.92	3.0	3	2.62			3.11		
	Cations Total	meq/L	0.01	2.88	2.66	8	3.26	3.26	0	3.16	3.08	3	2.88			3.26		
	Chloride	mg/l	1	56.0	49.0	13	42.0	41.0	2	24.0	26.0	8	56.0	55.0	2	42.0	48.0	13
	Ionic Balance	%	0.01	4.67	5.07	8	2.35	2.8	17	**3.9**	**1.3**	**100**	4.67			2.35		
	Sodium (Filtered)	mg/l	1	33.0	28.0	16	43.0	43.0	0	40.0	40.0	0	33.0			43.0		
Metals	Arsenic	mg/l	0.001	<0.001	<0.001	0	0.002	0.002	0	0.002	0.002	0	<0.001	<0.001	0	0.002	0.002	0
	Cadmium	mg/l	0.0001 (Primary): 0.000	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0002	0	<0.0001	<0.0002	0
	Calcium (Filtered)	mg/l	1	12.0	12.0	0	11.0	11.0	0	10.0	10.0	0	12.0			11.0		
	Chromium (III+VI)	mg/l	0.001	0.001	<0.001	0	<0.001	<0.001	0	0.006	0.005	18	0.001	<0.001	0	<0.001	0.001	0
	Copper	mg/l	0.001	0.004	0.004	0	0.002	0.002	0	0.004	0.003	29	0.004	0.003	29	**0.002**	**0.001**	**67**
	Lead	mg/l	0.001	<0.001	<0.001	0	<0.001	0.001	0	0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
	Magnesium (Filtered)	mg/l	1	9.0	9.0	0	9.0	9.0	0	10.0	9.0	11	9.0			9.0		
	Mercury	mg/l	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
	Nickel	mg/l	0.001	0.001	0.001	0	0.004	0.004	0	0.008	0.008	0	**0.001**	**0.002**	**67**	0.004	0.004	0
	Potassium (Filtered)	mg/l	1	4.0	4.0	0	4.0	4.0	0	4.0	4.0	0	4.0			4.0		
	Zinc	mg/l	0.005 (Primary): 0.001	0.007	0.008	13	<0.005	0.006	18	0.007	0.007	0	0.007	0.007	0	<0.005	0.004	0
PFCs	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.5	0.7	0.7	0	3.5	3.7	6	3.9	3.5	11	0.7			3.5		
	Perfluorooctanoate	µg/L	0.02	0.58	0.67	14	0.52	0.5	4	0.34	0.36	6	0.58			0.52		
	PFOS	µg/L	0.02	5.2	4.28	19	7.06	6.68	6	6.92	5.9	16	5.2			7.06		

*RPDs have only been considered where a concentration is greater than 1 times the EQL

**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] >= #19 Jun 2013# and [Sample

SDG	EM1306582	Interlab_D	
Field_ID	CKWE2_190613	QC06_190613 (WATER)	RPD
Sampled_Date-Time	19/06/2013 15:00	19/06/2013 15:00	

Chem_Group	ChemName	Units	EQL			
	8:2 Fluorotelomer sulfonate	mg/l	0.0005	<0.0005		
	N-Et-FOSA	mg/l	0.00005	<0.0001		
	N-Et-FOSE	mg/l	0.0005	<0.0005		
	N-Me-FOSA	mg/l	0.0005	<0.0005		
	N-Me-FOSE	mg/l	0.0005	<0.0005		
	PFBS	mg/l	0.00002	0.0003		
	PFDcA	mg/l	0.00002	<0.0		
	PFDcS	mg/l	0.00002	<0.0		
	PFDoA	mg/l	0.00005	<0.0001		
	PFHpA	mg/l	0.00002	0.0005		
	PFHxA	mg/l	0.00002	0.0023		
	PFHxS	mg/l	0.00002	0.0025		
	PFNA	mg/l	0.00002	0.0001		
	PFOSA	mg/l	0.00002	<0.0		
	PFTeA	mg/l	0.0005	<0.0005		
	PFTriA	mg/l	0.00005	<0.0001		
	PFUnA	mg/l	0.00005	<0.0001		
	Sulfate as SO4 - Turbidimetric (Filtered)	mg/l	1	12.0		
Inorganics	Alkalinity (Bicarbonate as CaCO3)	mg/l	1 (Primary): 20 (Interla	100.0	110.0	10
	Alkalinity (Carbonate as CaCO3)	mg/l	1 (Primary): 10 (Interla	<1.0	<10.0	0
	Alkalinity (Hydroxide) as CaCO3	µg/l	1000	<1000.0		
	Alkalinity (total) as CaCO3	mg/l	1	100.0		
	Anions Total	meq/L	0.01	2.92		
	Cations Total	meq/L	0.01	3.16		
	Chloride	mg/l	1	24.0	35.0	37
	Ionic Balance	%	0.01	3.9		
	Sodium (Filtered)	mg/l	1	40.0		
Metals	Arsenic	mg/l	0.001	0.002	0.002	0
	Cadmium	mg/l	0.0001 (Primary): 0.000	<0.0001	<0.0002	0
	Calcium (Filtered)	mg/l	1	10.0		
	Chromium (III+VI)	mg/l	0.001	0.006	0.004	40
	Copper	mg/l	0.001	0.004	0.003	29
	Lead	mg/l	0.001	0.001	<0.001	0
	Magnesium (Filtered)	mg/l	1	10.0		
	Mercury	mg/l	0.0001	<0.0001	<0.0001	0
	Nickel	mg/l	0.001	0.008	0.007	13
	Potassium (Filtered)	mg/l	1	4.0		
	Zinc	mg/l	0.005 (Primary): 0.001	0.007	0.005	33
PFCs	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.5	3.9		
	Perfluorooctanoate	µg/L	0.02	0.34		
	PFOS	µg/L	0.02	6.92		

*RPDs have only been considered where a concentration is greater than 1 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (1-10 x EC
***Interlab Duplicates are matched on a per compound basis as methods vary between laborat

Field Blanks (WATER)
Filter: [Sampled_Date-Time] >= #19 Jun 2013# and [Sample

SDG	EM1306582	EM1306582	EM1306582	EM1306582
Field_ID	QC09_190613	QC07_190613	QC08_190613	Trip Blank
Sampled_Date-Time	19/06/2013 15:00	19/06/2013 15:00	19/06/2013 15:00	19/06/2013 15:00
Sample_Type	Rinsate	Trip_B	Trip_B	Trip_B

Chem_Group	ChemName	Units	EQL				
	8:2 Fluorotelomer sulfonate	mg/l	0.0005	<0.0005			
	N-Et-FOSA	mg/l	0.00005	<0.00005			
	N-Et-FOSE	mg/l	0.0005	<0.0005			
	N-Me-FOSA	mg/l	0.0005	<0.0005			
	N-Me-FOSE	mg/l	0.0005	<0.0005			
	PFBS	mg/l	0.00002	<0.00002			
	PFDcA	mg/l	0.00002	<0.00002			
	PFDcS	mg/l	0.00002	<0.00002			
	PFDoA	mg/l	0.00005	<0.00005			
	PFHpA	mg/l	0.00002	<0.00002			
	PFHxA	mg/l	0.00002	<0.00002			
	PFHxS	mg/l	0.00002	<0.00002			
	PFNA	mg/l	0.00002	<0.00002			
	PFOSA	mg/l	0.00002	<0.00002			
	PFTeA	mg/l	0.0005	<0.0005			
	PFTriA	mg/l	0.00005	<0.00005			
	PFUnA	mg/l	0.00005	<0.00005			
	Sulfate as SO4 - Turbidimetric (Filtered)	mg/l	1	<1			
Inorganics	Alkalinity (Bicarbonate as CaCO3)	mg/l	1	<1			
	Alkalinity (Carbonate as CaCO3)	mg/l	1	<1			
	Alkalinity (Hydroxide) as CaCO3	µg/l	1000	<1000			
	Alkalinity (total) as CaCO3	mg/l	1	<1			
	Ammonia as N	µg/l	10				
	Anions Total	meq/L	0.01	<0.01			
	Cations Total	meq/L	0.01	<0.01			
	Chloride	mg/l	1	<1			
	Ionic Balance	%	0.01	<0.01			
	Nitrate (as N)	mg/l	0.02				
	Sodium	mg/l	0.5				
	Sodium (Filtered)	mg/l	1	<1			
	Sulphate as S	mg/l	5				
Metals	Arsenic	mg/l	0.001	<0.001	<0.001	<0.001	<0.001
	Cadmium	mg/l	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Calcium	mg/l	0.5				
	Calcium (Filtered)	mg/l	1	<1			
	Chromium (III+VI)	mg/l	0.001	<0.001	<0.001	<0.001	<0.001
	Copper	mg/l	0.001	<0.001	<0.001	<0.001	<0.001
	Lead	mg/l	0.001	<0.001	<0.001	<0.001	<0.001
	Magnesium	mg/l	0.5				
	Magnesium (Filtered)	mg/l	1	<1			
	Mercury	mg/l	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Nickel	mg/l	0.001	<0.001	<0.001	<0.001	<0.001
	Potassium	mg/l	0.5				
	Potassium (Filtered)	mg/l	1	<1			
	Zinc	mg/l	0.001	<0.005	<0.005	<0.005	<0.005
PFCs	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/L	0.5	<0.5			
	Perfluorooctanoate	µg/L	0.02	<0.02			
	PFOS	µg/L	0.02	<0.02			

Appendix C
1 Page

Sediment Summary Details

Sediment samples

Client: Ashurt	Site/Project: Offsite Fiskville. CFA training grounds	Job No. 212163.9	Date: 19/06/2013
		Logged by: MCD	Page 1 of 1

Sample No.	Depth Interval	Soil Type	Description (Include fill/natural, texture, moisture, plasticity, colour, odours noted, inclusions)	PID (ppm) (Headspace)
CKB2	0.1m	CH	Gravely CLAY (CH) high plasticity, grey brown, firm, wet	Did not take
CKC2	0.1m	CH	Gravely CLAY (CH) high plasticity, grey brown, firm, wet	Did not take
CKD2	0.1m	CH	Gravely CLAY (CH) high plasticity, grey brown, firm, wet	Did not take
CKS	0.1m	CH	Gravely CLAY (CH) high plasticity, dark grey brown, firm, wet, with traces of sand	Did not take
CKT	0.1m	CH	Gravely CLAY (CH) high plasticity, grey brown, firm, wet	Did not take
CKU	0.1m	CH	Gravely CLAY (CH) high plasticity, grey brown, firm, wet	Did not take
CKV	0.1m	CH	Gravely CLAY (CH) high plasticity, grey brown, firm, wet	Did not take
CKE2	0.1m	CH	Gravely CLAY (CH) high plasticity, grey brown, firm, wet	Did not take

Appendix D
78 Pages

Laboratory Reports & Chain of Custody Records

Chain of Custody Records
List of Report Numbers
Data Quality Validation Report

Cardno LanePiper

Chain of Custody

*AS PART OF CARDNO LANE PIPER'S QUOTE FROM ALS: ME/404/12-V4 (3/8/12)

Sheet 1 of 2

PM Name: LAUREN McGLAN (MARIA DE LOS REYES)

Phone: 03 9888 0100 Fax: 03 9808 3511 Mobile: 0448 485 323 (0424 278 497)

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

PM Email: lauren.mcglain @cardno.com.au (maria.delosreyes@cardno.com.au)

Project Number: 21263.9 Site: CFA FISKVILLE

Laboratory (name, phone, fax no & contact person) SARAH HODGESON, (03) 9831 6104, ALS LABORATORY GROUP: 4 WESTALL RD, SPRINGVALE, VIC

	Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Sample Matrix: SOIL	Sample Matrix: WATER	Sample preservation: ICE	Analysis: NT-01; NT-2	Analysis: PFC	Analysis: W-2F	Analysis: S-2	HOLD
1	CKSB2-190613		Jar and bag	19/06/13		X		X		X		X	
2	CKWB2-190613		metal/nutrients/PFCs				X		X	X	X		
3	CKSC2-190613		Jar and bag			X				X		X	
4	CKWC2-190613		metal/nutrients/PFC				X		X	X	X		
5	CKSD2-190613		Jar and bag			X				X		X	
6	CKWD2-190613		metal/nutrient/PFC				X		X	X	X		
7	CKSE2-190613		Jar + bag			X				X		X	
8	CKWE2-190613		metal/nutrients/PFC				X		X	X	X		
9	CKSS-190613		Jar + Bag			X				X		X	
10	CKWS-190613		metal/nutrients/PFC				X		X	X	X		
11	CKST-190613		Jar + Bag			X				X		X	
12	CKWT-190613		metal/nutrients/PFC				X		X	X	X		
13	CKSU-190613		Jar + Bag			X				X		X	
14	CKWU-190613		metal/nutrients/PFC				X		X	X	X		

SCANNED

Environmental Division
Melbourne
Work Order 21/6.
EM1306582

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: 20/06/13

Relinquished by (Sampler): (print and signature)	Date	Time	Received by (Courier/Lab): (print and signature)	Date	Time
Maria Delos Reyes	20/06/13			20/6/13	@ 16.05
Relinquished by: (print and signature)	Date	Time	Received by: (print and signature)	Date	Time
549 20/6/13					
Relinquished by: (print and signature)	Date	Time	Received by: (print and signature)	Date	Time

Please supply results electronically in spreadsheet and ESDAT files

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

ANALYSIS: PFC TO INCLUDE PFOS/PFOA + AFFF EP231X

S-2/W-2F " " As, Cd, Cr, Cu, Ni, Pb, Zn, Hg. (TOTAL METALS; NOT FIELD FILTERED).

NT-01 " " Ca, Mg, Na, K.

NT-2 " " Cl, SO4, Alkalinity.

R.T. 21/6/13.

Cardno LanePiper

Amended COC received on 21/6 @ 8:40

Chain of Custody

Sheet 2 of 2

PM Name: LAUREN McGLOIN

Phone: 03 9888 0100 Fax: 03 9808 3511 Mobile: 0448 485 323

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

PM Email: lauren.mcgloin @cardno.com.au

Project Number: 2121639 Site: CFA FISKVILLE

Laboratory (name, phone, fax no & contact person) SARAH HODGESON, ALS LABORATORY GROUP, (03) 9331 6104

	Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Sample Matrix: SOIL	Sample Matrix: WATER	Sample preservation: ICE	Analysis: NT01; NT-2	Analysis: [illegible]	Analysis: W-3E	Analysis: S-2	Analysis: HOLD
15	CKSV_190613	soil jar + bag		19/6/13		X		X		X		X	
16	CKWV-190613	metals/nutrient/PFC					X		X	X	X		
24, 17	QC01 - 190613	Soil Jar, Bag + nutrients + metals + PFC											
	QC02 - 190613	" " "							Send to MGT				
25, 18	QC03 - 190613	soil Jar + Bag + nutrients + metals + PFC											
	QC04 - 190613								Send to MGT				
26, 19	QC05 - 190613												
[illegible]	QC06 - 190613								Send to MGT				
21	QC07 - 190613	metals											
22	QC08 - 190613	"											
23	QC09 - 190613	nutrients + metals + PFC											X
	extra sample												
(27)	Trip Blank	—					X (Metal bottle)						

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

Sampler name: (print and signature) Maria Delos Reyes [signature] Date: 20/6/13

Relinquished by (Sampler): (print and signature)	Date	Time	Received by (Courier/Lab): (print and signature)	Date	Time
Maria Delos Reyes [signature]	20/6/13				
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

Please supply results electronically in spreadsheet and ESDAT files.

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

Cardno LanePiper

Chain of Custody

Sheet 2 of 2

PM Name: LAUREN McGLOIN

Phone: 03 9888 0100 Fax: 03 9808 3511 Mobile: 0448 485 323

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

PM Email: lauren.mcgloin @cardno.com.au

Project Number: 2121639 Site: CFA FISKVILLE

Laboratory (name, phone, fax no & contact person) SARAH HODGESON, ALS LABORATORY GROUP, (03) 9831 6104

Sample ID	Laboratory ID / Container	Sampling Date	Sampling Time	Sample Matrix: SOIL	Sample Matrix: WATER	Sample preservation: ICE	Analysis (S/W): NT01: NT-2	Analysis (S/W): GRP31	Analysis: W-3F	Analysis (S): S-2	HOLD
CKSV_190613	soil jar + bag	19/6/13		X		X		X		X	
CKWV-190613	metals/nutrient/PFC				X	↓	X	X	X		
QC01 - 190613	Soil Jar, Bag +nutrients +metals +PFC	↓				↓					
QC02 - 190613	" " " "					↓					
QC03 - 190613	soil Jar + Bag +nutrients +metals +PFC					↓					
QC04 - 190613	↓					↓					
QC05 - 190613	↓					↓					
QC06 - 190613	↓					↓					
QC07 - 190613	metals					↓					
QC08 - 190613	"					↓					X
QC09 - 190613	nutrients +metals +PFC	↓				↓					

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: 20/6/13

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by (Sampler): (print and signature) Maria Delos Reyes [signature]	20/6/13		Received by (Courier/Lab) (print and signature) Ru (Anis)	20/6/13	@ 16.05
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) [5 days circled] Please circle

Ranil Weerakkody

From: Carol Walsh
Sent: Friday, 21 June 2013 8:40 AM
To: Samples Melbourne
Subject: amended COC = Cardno lane piper - Fiskville -
Attachments: 20130620190358392.pdf

Importance: High

Please see email below and organise to send off samples received yesterday from Cardno - as per attached COC to MGT

Thanks

Carol

From: Maria De los Reyes (Cardno LP) [mailto:Maria.DelosReyes@cardno.com.au]
Sent: Thursday, 20 June 2013 6:06 PM
To: Carol Walsh
Subject: 212163.9 Samples Sediments and Surface water samples
Importance: High

Carol,

Please refer to updated COC and send samples to MGT as required.

Sorry for the inconvenience.

Regards

Maria De los Reyes
ENVIRONMENTAL SCIENTIST
CARDNO LANE PIPER

Cardno LanePiper
Shaping the Future

Phone +61 3 9888 0100 Fax +61 3 9808 3511 Direct +61 3 9831 6139
Address Bldg 2, 154 Highbury Road, Burwood, Victoria 3125 Australia
Email Maria.DelosReyes@cardno.com.au Web www.cardno.com Web www.lanepiper.com.au

From: Carol Walsh
Sent: Friday, 21 June 2013 2:37 PM
To: Lara Kershaw
Cc: Peter Ravlic; maria.delosreyes@cardno.com.au
Subject: RE: WO ISSUE - EM1306582 - CARDNO
Importance: High

Lara / Peter

I have just spoken with Maria of Cardno and the following analysis should be logged for the QC samples 17-27 – EM1306582

Soils – PFC's with extended list (EP231X) plus S2 metals.

Waters – PFC's with extended list (EP231X) plus W2T metals and NT-01 and NT-02 suites.

Tripblank – sample 27 – total metals.

If you have any queries, please call me.

Kind Regards

#21&22 - total metals only as per Carol.
R.T. 21/6/13

Carol Walsh

Senior Client Services Officer
ALS | Environmental Division

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EM1306582**	Page	: 1 of 11
Client	: **CARDNO LANE PIPER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS Lauren McGloin	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: lauren.mcgloin@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 9	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: ----	Date Samples Received	: 20-JUN-2013
Sampler	: MDR	Issue Date	: 02-JUL-2013
Site	: CFA FISKVILLE		
		No. of samples received	: 26
Quote number	: ME/404/12 V4	No. of samples analysed	: 26

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

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: Matrix spike recovery not determined due to high background level of target analyte.**
- **EP231: PFC results are reported as an aggregate of linear and branched isomers.**
- **EP231: Poor matrix spike recovery due to matrix interference. Confirmed by re-extraction and re-analysis.**
- **Ionic Balance out of acceptable limits for sample #17 due to analytes not quantified in this report.**
- **Ionic balances were calculated using: major anions - chloride, alkalinity and sulfate; and major cations - calcium, magnesium, potassium and sodium.**
- **PFC analysis conducted by ALS Sydney, NATA accreditation no. 825, site no 10911.**
- **Sample #25 has been air-dried prior to analysis as moisture content was determined to be >50%.**

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*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics
		Melbourne Inorganics
		Melbourne Inorganics
		Melbourne Inorganics
Gaston Allende	R&D Chemist	Sydney Organics
Herman Lin	Laboratory Coordinator	Melbourne Inorganics
Varsha Ho Wing	Non-Metals Team Leader	Melbourne Inorganics
		Melbourne Inorganics

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Compound	CAS Number	LOR	Unit	Client sample ID	CKSB2_190613	CKSC2_190613	CKSD2_190613	CKSE2_190613	CKSS_190613
				Client sampling date / time	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00
					EM1306582-001	EM1306582-003	EM1306582-005	EM1306582-007	EM1306582-009
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	---	1.0	%		49.3	27.2	42.2	35.7	49.7
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	22	<5	<5	11
Cadmium	7440-43-9	1	mg/kg		<1	3	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		42	209	63	45	102
Copper	7440-50-8	5	mg/kg		35	11	11	6	8
Lead	7439-92-1	5	mg/kg		57	50	15	12	18
Nickel	7440-02-0	2	mg/kg		21	33	16	16	16
Zinc	7440-66-6	5	mg/kg		256	37	36	11	19
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.0005	mg/kg		0.0114	0.0108	0.0259	0.0190	0.0280
PFOA	335-67-1	0.0005	mg/kg		0.0005	<0.0005	0.0013	<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	0.002
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		0.0004	0.0003	0.0013	<0.0002	<0.0002
PFHxS	3871-99-6	0.0002	mg/kg		0.0043	0.0034	0.0106	0.0033	0.0011
PFDcS	67906-42-7	0.0002	mg/kg		<0.0002	<0.0002	0.0003	<0.0002	0.0002
PFHxA	307-24-4	0.0002	mg/kg		0.0031	0.0012	0.0047	0.0012	0.0013
PFHpA	375-85-9	0.0002	mg/kg		0.0011	0.0006	0.0027	0.0004	0.0003
PFNA	375-95-1	0.0002	mg/kg		<0.0002	<0.0002	0.0007	<0.0002	0.0004
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	0.0004	<0.0002	0.0003
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	CKST_190613	CKSU_190613	CKSV_190613	QC01_190613	QC03_190613
				Client sampling date / time	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00
					EM1306582-011	EM1306582-013	EM1306582-015	EM1306582-024	EM1306582-025
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	---	1.0	%		40.3	41.7	31.6	32.8	42.8
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		8	<5	16	9	10
Cadmium	7440-43-9	1	mg/kg		<1	<1	2	1	<1
Chromium	7440-47-3	2	mg/kg		61	44	91	161	129
Copper	7440-50-8	5	mg/kg		10	8	8	11	24
Lead	7439-92-1	5	mg/kg		10	12	20	24	15
Nickel	7440-02-0	2	mg/kg		21	14	19	26	42
Zinc	7440-66-6	5	mg/kg		26	38	13	48	54
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.0005	mg/kg		0.0296	0.0264	0.0222	0.0145	0.0289
PFOA	335-67-1	0.0005	mg/kg		0.0010	0.0011	0.0005	<0.0005	0.0010
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg		0.009	<0.005	<0.005	<0.005	0.012
8:2 Fluorotelomer sulfonate	39108-34-4	0.001	mg/kg		0.002	<0.001	<0.001	<0.001	0.002
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		0.0006	0.0006	0.0005	0.0004	0.0006
PFHxS	3871-99-6	0.0002	mg/kg		0.0124	0.0117	0.0082	0.0040	0.0130
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		0.0047	0.0048	0.0034	0.0019	0.0052
PFHpA	375-85-9	0.0002	mg/kg		0.0015	0.0024	0.0015	0.0008	0.0016
PFNA	375-95-1	0.0002	mg/kg		0.0004	0.0005	0.0002	0.0002	0.0004
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		0.0004	0.0002	<0.0002	<0.0002	0.0003
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	QC05_190613	----	----	----	----
			Client sampling date / time	19-JUN-2013 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1306582-026	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	**30.9**	----	----	----	----
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	**38**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**6**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**10**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**14**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**9**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP231: Perfluorinated Compounds								
PFOS	1763-23-1	0.0005	mg/kg	**0.0178**	----	----	----	----
PFOA	335-67-1	0.0005	mg/kg	<0.0005	----	----	----	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	----	----	----	----
8:2 Fluorotelomer sulfonate	39108-34-4	0.001	mg/kg	<0.001	----	----	----	----
PFOSA	754-91-6	0.0002	mg/kg	<0.0002	----	----	----	----
N-Me-FOSA	31506-32-8	0.001	mg/kg	<0.001	----	----	----	----
N-Et-FOSA	4151-50-2	0.001	mg/kg	<0.001	----	----	----	----
N-Me-FOSE	2448-09-7	0.001	mg/kg	<0.001	----	----	----	----
N-Et-FOSE	1691-99-2	0.001	mg/kg	<0.001	----	----	----	----
PFBS	375-73-5	0.0002	mg/kg	<0.0002	----	----	----	----
PFHxS	3871-99-6	0.0002	mg/kg	**0.0027**	----	----	----	----
PFDcS	67906-42-7	0.0002	mg/kg	<0.0002	----	----	----	----
PFHxA	307-24-4	0.0002	mg/kg	**0.0010**	----	----	----	----
PFHpA	375-85-9	0.0002	mg/kg	**0.0004**	----	----	----	----
PFNA	375-95-1	0.0002	mg/kg	<0.0002	----	----	----	----
PFDcA	335-76-2	0.0002	mg/kg	<0.0002	----	----	----	----
PFUnA	2058-94-8	0.0002	mg/kg	<0.0002	----	----	----	----
PFDoA	307-55-1	0.0002	mg/kg	<0.0002	----	----	----	----
PFTriA	72629-94-8	0.0002	mg/kg	<0.0002	----	----	----	----
PFTeA	376-06-7	0.001	mg/kg	<0.001	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Compound	CAS Number	LOR	Unit	Client sample ID	CKWB2_190613	CKWC2_190613	CKWD2_190613	CKWE2_190613	CKWS_190613
				Client sampling date / time	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00
					EM1306582-002	EM1306582-004	EM1306582-006	EM1306582-008	EM1306582-010
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		84	25	15	100	21
Total Alkalinity as CaCO3	---	1	mg/L		84	25	15	100	21
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		22	26	23	12	13
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	1	mg/L		66	56	35	24	19
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		14	12	7	10	2
Magnesium	7439-95-4	1	mg/L		10	9	5	10	2
Sodium	7440-23-5	1	mg/L		48	33	24	40	18
Potassium	7440-09-7	1	mg/L		4	4	5	4	4
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	0.002	<0.001
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		0.004	0.001	0.003	0.006	0.008
Copper	7440-50-8	0.001	mg/L		0.011	0.004	0.006	0.004	0.005
Nickel	7440-02-0	0.001	mg/L		0.005	0.001	0.004	0.008	0.006
Lead	7439-92-1	0.001	mg/L		0.001	<0.001	0.001	0.001	0.001
Zinc	7440-66-6	0.005	mg/L		0.032	0.007	0.023	0.007	0.010
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EN055: Ionic Balance									
Total Anions	---	0.01	meq/L		4.00	2.62	1.77	2.92	1.23
Total Cations	---	0.01	meq/L		3.71	2.88	1.93	3.16	1.15
Ionic Balance	---	0.01	%		3.73	4.67	4.51	3.90	3.24
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.02	µg/L		10.6	5.20	7.38	6.92	3.82
PFOA	335-67-1	0.02	µg/L		1.27	0.58	0.40	0.34	0.11
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.5	µg/L		9.1	0.7	<0.5	3.9	<0.5
8:2 Fluorotelomer sulfonate	39108-34-4	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

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

Compound	CAS Number	LOR	Unit	Client sample ID	CKWB2_190613	CKWC2_190613	CKWD2_190613	CKWE2_190613	CKWS_190613
				Client sampling date / time	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00
					EM1306582-002	EM1306582-004	EM1306582-006	EM1306582-008	EM1306582-010
EP231: Perfluorinated Compounds - Continued									
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		**1.35**	**1.02**	**0.49**	**0.25**	**0.06**
PFHxS	3871-99-6	0.02	µg/L		**9.86**	**6.20**	**3.52**	**2.46**	**0.63**
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		**10.1**	**4.62**	**2.76**	**2.28**	**0.70**
PFHpA	375-85-9	0.02	µg/L		**2.78**	**1.82**	**1.14**	**0.48**	**0.36**
PFNA	375-95-1	0.02	µg/L		**0.29**	**0.16**	**0.13**	**0.11**	**0.09**
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

Analytical Results

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

Compound	CAS Number	LOR	Unit	Client sample ID	CKWT_190613	CKWU_190613	CKWV_190613	QC01_190613	QC03_190613
				Client sampling date / time	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00
					EM1306582-012	EM1306582-014	EM1306582-016	EM1306582-017	EM1306582-018
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		86	72	23	24	86
Total Alkalinity as CaCO3	---	1	mg/L		86	72	23	24	86
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		10	25	29	26	10
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	1	mg/L		42	78	39	49	41
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		11	15	8	12	11
Magnesium	7439-95-4	1	mg/L		9	14	6	9	9
Sodium	7440-23-5	1	mg/L		43	54	30	28	43
Potassium	7440-09-7	1	mg/L		4	12	7	4	4
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		0.002	0.001	0.001	<0.001	0.002
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		<0.001	0.011	0.019	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		0.002	0.004	0.006	0.004	0.002
Nickel	7440-02-0	0.001	mg/L		0.004	0.006	0.009	0.001	0.004
Lead	7439-92-1	0.001	mg/L		<0.001	0.002	0.005	<0.001	0.001
Zinc	7440-66-6	0.005	mg/L		<0.005	0.016	0.027	0.008	0.006
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EN055: Ionic Balance									
Total Anions	---	0.01	meq/L		3.11	4.16	2.16	2.40	3.08
Total Cations	---	0.01	meq/L		3.26	4.56	2.38	2.66	3.26
Ionic Balance	---	0.01	%		2.35	4.55	4.70	5.07	2.80
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.02	µg/L		7.06	1.52	1.63	4.28	6.68
PFOA	335-67-1	0.02	µg/L		0.52	0.18	0.15	0.67	0.50
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.5	µg/L		3.5	<0.5	<0.5	0.7	3.7
8:2 Fluorotelomer sulfonate	39108-34-4	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

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

Compound	CAS Number	LOR	Unit	Client sample ID	CKWT_190613	CKWU_190613	CKWV_190613	QC01_190613	QC03_190613
				Client sampling date / time	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00
					EM1306582-012	EM1306582-014	EM1306582-016	EM1306582-017	EM1306582-018
EP231: Perfluorinated Compounds - Continued									
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		**0.32**	**0.23**	**0.16**	**0.72**	**0.34**
PFHxS	3871-99-6	0.02	µg/L		**3.44**	**1.09**	**1.23**	**4.40**	**3.50**
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		**3.34**	**1.90**	**1.08**	**3.36**	**2.96**
PFHpA	375-85-9	0.02	µg/L		**0.73**	**0.60**	**0.45**	**1.47**	**0.67**
PFNA	375-95-1	0.02	µg/L		**0.11**	**0.03**	**0.06**	**0.08**	**0.12**
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

Analytical Results

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

Compound	CAS Number	LOR	Unit	Client sample ID	QC05_190613	QC07_190613	QC08_190613	QC09_190613	Trip Blank
				Client sampling date / time	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00
					EM1306582-019	EM1306582-021	EM1306582-022	EM1306582-023	EM1306582-027
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		**101**	----	----	<1	----
Total Alkalinity as CaCO3	----	1	mg/L		**101**	----	----	<1	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**12**	----	----	<1	----
ED045G: Chloride Discrete analyser									
Chloride	16887-00-6	1	mg/L		**26**	----	----	<1	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**10**	----	----	<1	----
Magnesium	7439-95-4	1	mg/L		**9**	----	----	<1	----
Sodium	7440-23-5	1	mg/L		**40**	----	----	<1	----
Potassium	7440-09-7	1	mg/L		**4**	----	----	<1	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		**0.002**	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		**0.005**	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		**0.003**	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L		**0.008**	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L		**0.007**	<0.005	<0.005	<0.005	<0.005
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L		**3.00**	----	----	<0.01	----
Total Cations	----	0.01	meq/L		**3.08**	----	----	<0.01	----
Ionic Balance	----	0.01	%		**1.30**	----	----	----	----
Ionic Balance	----	0.01	%		----	----	----	<0.01	----
EP231: Perfluorinated Compounds									
PFOS	1763-23-1	0.02	µg/L		**5.90**	----	----	<0.02	----
PFOA	335-67-1	0.02	µg/L		**0.36**	----	----	<0.02	----
6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.5	µg/L		**3.5**	----	----	<0.5	----

Analytical Results

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

Compound	CAS Number	LOR	Unit	Client sample ID	QC05_190613	QC07_190613	QC08_190613	QC09_190613	Trip Blank
				Client sampling date / time	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00	19-JUN-2013 15:00
					EM1306582-019	EM1306582-021	EM1306582-022	EM1306582-023	EM1306582-027
EP231: Perfluorinated Compounds - Continued									
8:2 Fluorotelomer sulfonate	39108-34-4	0.5	µg/L		<0.5	----	----	<0.5	----
PFOSA	754-91-6	0.02	µg/L		<0.02	----	----	<0.02	----
N-Me-FOSA	31506-32-8	0.5	µg/L		<0.5	----	----	<0.5	----
N-Et-FOSA	4151-50-2	0.05	µg/L		<0.05	----	----	<0.05	----
N-Me-FOSE	2448-09-7	0.5	µg/L		<0.5	----	----	<0.5	----
N-Et-FOSE	1691-99-2	0.5	µg/L		<0.5	----	----	<0.5	----
PFBS	375-73-5	0.02	µg/L		**0.21**	----	----	<0.02	----
PFHxS	3871-99-6	0.02	µg/L		**2.14**	----	----	<0.02	----
PFDcS	67906-42-7	0.02	µg/L		<0.02	----	----	<0.02	----
PFHxA	307-24-4	0.02	µg/L		**2.10**	----	----	<0.02	----
PFHpA	375-85-9	0.02	µg/L		**0.44**	----	----	<0.02	----
PFNA	375-95-1	0.02	µg/L		**0.08**	----	----	<0.02	----
PFDcA	335-76-2	0.02	µg/L		<0.02	----	----	<0.02	----
PFUnA	2058-94-8	0.05	µg/L		<0.05	----	----	<0.05	----
PFDoA	307-55-1	0.05	µg/L		<0.05	----	----	<0.05	----
PFTriA	72629-94-8	0.05	µg/L		<0.05	----	----	<0.05	----
PFTeA	376-06-7	0.5	µg/L		<0.5	----	----	<0.5	----

Environmental Division

QUALITY CONTROL REPORT

Work Order	: **EM1306582**	Page	: 1 of 15
Client	: **CARDNO LANE PIPER PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MS Lauren McGloin	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: lauren.mcgloin@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 9	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: CFA FISKVILLE		
C-O-C number	: ----	Date Samples Received	: 20-JUN-2013
Sampler	: MDR	Issue Date	: 02-JUL-2013
Order number	: ----		
		No. of samples received	: 26
Quote number	: ME/404/12 V4	No. of samples analysed	: 26

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*
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics
		Melbourne Inorganics
		Melbourne Inorganics
		Melbourne Inorganics
Gaston Allende	R&D Chemist	Sydney Organics
Herman Lin	Laboratory Coordinator	Melbourne Inorganics
Varsha Ho Wing	Non-Metals Team Leader	Melbourne Inorganics
		Melbourne Inorganics

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: 2932019)									
EM1306582-001	CKSB2_190613	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	49.3	49.4	0.0	0% - 20%
EM1306582-026	QC05_190613	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	30.9	30.6	1.0	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 2938240)									
EM1306582-001	CKSB2_190613	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	42	49	14.5	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	21	22	5.2	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	35	33	4.7	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	57	51	10.9	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	256	230	10.7	0% - 20%
EM1306582-025	QC03_190613	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	2	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	129	134	3.5	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	42	43	4.2	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	28	97.8	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	24	19	23.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	15	26	51.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	54	46	15.6	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2938241)									
EM1306582-001	CKSB2_190613	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM1306582-025	QC03_190613	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP231: Perfluorinated Compounds (QC Lot: 2934992)									
EM1306582-001	CKSB2_190613	EP231: PFOS	1763-23-1	0.0005	mg/kg	0.0114	0.0124	8.4	0% - 20%
		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
EM1306582-026	QC05_190613	EP231: PFOS	1763-23-1	0.0005	mg/kg	0.0178	0.0126	# 34.2	0% - 20%
		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: 2934993)									
EM1306582-001	CKSB2_190613	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	0.0004	0.0003	31.4	No Limit
		EP231-PFC: PFHxS	3871-99-6	0.0002	mg/kg	0.0043	0.0033	# 26.6	0% - 20%
		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	0.0031	0.0018	# 51.3	0% - 50%
		EP231-PFC: PFHpA	375-85-9	0.0002	mg/kg	0.0011	0.0007	44.7	No Limit
		EP231-PFC: PFNA	375-95-1	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: 2934993) - continued									
EM1306582-001	CKSB2_190613	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
EM1306582-026	QC05_190613	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	0.0027	0.0040	39.0	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	0.0010	0.0018	57.2	No Limit
		EP231-PFC: PFHpA	375-85-9	0.0002	mg/kg	0.0004	0.0005	37.1	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 (%)*
ED037P: Alkalinity by PC Titrator (QC Lot: 2934133)									
EM1306478-001	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	1540	1550	0.3	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	1540	1550	0.3	0% - 20%
EM1306582-006	CKWD2_190613	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	15	15	0.0	0% - 50%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	15	15	0.0	0% - 50%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 2931477)									
EM1306536-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	4	3	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 (%)*
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 2931477) - continued									
EM1306582-002	CKWB2_190613	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	22	22	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 2931480)									
EM1306582-006	CKWD2_190613	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	23	23	0.0	0% - 20%
EM1306582-023	QC09_190613	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	<1	0.0	No Limit
ED045G: Chloride Discrete analyser (QC Lot: 2931479)									
EM1306582-002	CKWB2_190613	ED045G: Chloride	16887-00-6	1	mg/L	66	67	1.6	0% - 20%
EM1306582-006	CKWD2_190613	ED045G: Chloride	16887-00-6	1	mg/L	35	33	6.1	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 2931478)									
EM1306582-002	CKWB2_190613	ED093F: Calcium	7440-70-2	1	mg/L	14	15	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	10	10	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	48	49	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	4	4	0.0	No Limit
EM1306582-006	CKWD2_190613	ED093F: Calcium	7440-70-2	1	mg/L	7	7	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	5	5	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	24	24	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	5	5	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 2932827)									
EM1306539-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0007	0.0007	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.017	0.017	0.0	0% - 50%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.057	0.057	0.0	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.189	0.212	11.6	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.013	0.013	0.0	0% - 50%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.014	0.014	0.0	0% - 50%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.115	0.119	3.1	0% - 20%
EM1306561-010	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.009	0.009	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.009	0.010	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 2932828)									
EM1306582-017	QC01_190613	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.008	0.007	14.1	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 (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 2932828) - continued									
EM1306653-004	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.005	0.004	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.052	0.048	6.8	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.097	0.087	10.7	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2931292)									
EM1306582-002	CKWB2_190613	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EM1306582-018	QC03_190613	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP231: Perfluorinated Compounds (QC Lot: 2934990)									
EM1306582-002	CKWB2_190613	EP231: PFOS	1763-23-1	0.02	µg/L	10.6	12.4	16.0	0% - 20%
		EP231: PFOA	335-67-1	0.02	µg/L	1.27	1.35	5.8	0% - 20%
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.5	µg/L	9.1	7.9	13.4	0% - 50%
EM1306582-019	QC05_190613	EP231: PFOS	1763-23-1	0.02	µg/L	5.90	6.94	16.2	0% - 20%
		EP231: PFOA	335-67-1	0.02	µg/L	0.36	0.32	13.6	0% - 50%
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.5	µg/L	3.5	4.3	20.9	No Limit
EP231: Perfluorinated Compounds (QC Lot: 2934991)									
EM1306582-002	CKWB2_190613	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	1.35	1.30	3.9	0% - 20%
		EP231-PFC: PFHxS	3871-99-6	0.02	µg/L	9.86	9.30	5.8	0% - 20%
		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	10.1	8.64	15.4	0% - 20%
		EP231-PFC: PFHpA	375-85-9	0.02	µg/L	2.78	2.58	7.5	0% - 20%
		EP231-PFC: PFNA	375-95-1	0.02	µg/L	0.29	0.28	3.5	0% - 50%
		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
EM1306582-019	QC05_190613	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	0.21	0.22	7.5	0% - 50%
		EP231-PFC: PFHxS	3871-99-6	0.02	µg/L	2.14	2.10	1.9	0% - 20%
		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	2.10	2.06	1.9	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 (%)*
EP231: Perfluorinated Compounds (QC Lot: 2934991) - continued									
EM1306582-019	QC05_190613	EP231-PFC: PFHpA	375-85-9	0.02	µg/L	0.44	0.43	3.2	0% - 20%
		EP231-PFC: PFNA	375-95-1	0.02	µg/L	0.08	0.12	32.9	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
EG005T: Total Metals by ICP-AES (QCLot: 2938240)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	94.9	80	120
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	109	80	120
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	104	80	120
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	99.9	80	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	92.1	80	120
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	98.8	80	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	102	80	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2938241)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	95.8	70	130
EP231: Perfluorinated Compounds (QCLot: 2934992)								
EP231: PFOS	1763-23-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	63.2	54	146
EP231: PFOA	335-67-1	0.0005	mg/kg	<0.0005	0.0025 mg/kg	75.2	54	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.005	mg/kg	<0.005	0.0125 mg/kg	87.2	56	138
EP231: Perfluorinated Compounds (QCLot: 2934993)								
EP231-PFC: 8:2 FtS	39108-34-4	0.001	mg/kg	<0.001	0.0125 mg/kg	88.8	60	130
EP231-PFC: PFOSA	754-91-6	0.0002	mg/kg	<0.0002	0.0025 mg/kg	107	60	130
EP231-PFC: N-Me-FOSA	31506-32-8	0.001	mg/kg	<0.001	0.0125 mg/kg	119	60	130
EP231-PFC: N-Et-FOSA	4151-50-2	0.001	mg/kg	<0.001	0.0125 mg/kg	120	60	130
EP231-PFC: N-Me-FOSE	2448-09-7	0.001	mg/kg	<0.001	0.0125 mg/kg	115	60	130
EP231-PFC: N-Et-FOSE	1691-99-2	0.001	mg/kg	<0.001	0.0125 mg/kg	# 130	60	130
EP231-PFC: PFBS	375-73-5	0.0002	mg/kg	<0.0002	0.0025 mg/kg	99.6	60	130
EP231-PFC: PFHxS	3871-99-6	0.0002	mg/kg	<0.0002	0.0025 mg/kg	106	60	130
EP231-PFC: PFDcS	67906-42-7	0.0002	mg/kg	<0.0002	0.0025 mg/kg	87.2	60	130
EP231-PFC: PFHxA	307-24-4	0.0002	mg/kg	<0.0002	0.0025 mg/kg	86.8	60	130
EP231-PFC: PFHpA	375-85-9	0.0002	mg/kg	<0.0002	0.0025 mg/kg	88.0	60	130
EP231-PFC: PFNA	375-95-1	0.0002	mg/kg	<0.0002	0.0025 mg/kg	76.4	60	130
EP231-PFC: PFDcA	335-76-2	0.0002	mg/kg	<0.0002	0.0025 mg/kg	72.4	60	130
EP231-PFC: PFUnA	2058-94-8	0.0002	mg/kg	<0.0002	0.0025 mg/kg	84.8	60	130
EP231-PFC: PFDoA	307-55-1	0.0002	mg/kg	<0.0002	0.0025 mg/kg	95.2	60	130
EP231-PFC: PFTriA	72629-94-8	0.0002	mg/kg	<0.0002	0.0025 mg/kg	123	60	130
EP231-PFC: PFTeA	376-06-7	0.001	mg/kg	<0.001	0.0125 mg/kg	98.4	60	130

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

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
ED037P: Alkalinity by PC Titrator (QCLot: 2934133)								
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	----	200 mg/L	95.8	91	105
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2931477)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	12.5 mg/L	107	81	125
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2931480)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	12.5 mg/L	105	81	125
ED045G: Chloride Discrete analyser (QCLot: 2931479)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	98.1	89	117
ED093F: Dissolved Major Cations (QCLot: 2931478)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	5 mg/L	99.2	83	129
ED093F: Magnesium	7439-95-4	1	mg/L	<1	5 mg/L	94.2	80	124
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	90.9	77	125
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	96.8	77	123
EG020T: Total Metals by ICP-MS (QCLot: 2932827)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	103	94	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.0	90	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	109	88	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	103	89	113
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	105	91	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	90	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	99.7	87	113
EG020T: Total Metals by ICP-MS (QCLot: 2932828)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	106	94	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.8	90	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100	88	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	107	89	113
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	107	91	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	107	90	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	87	113
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2931292)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	101	78	124
EP231: Perfluorinated Compounds (QCLot: 2934990)								
EP231: PFOS	1763-23-1	0.02	µg/L	<0.02	0.5 µg/L	94.0	70	136
EP231: PFOA	335-67-1	0.02	µg/L	<0.02	0.5 µg/L	108	72	134
EP231: 6:2 Fluorotelomer Sulfonate (6:2 FtS)	27619-97-2	0.1	µg/L	<0.1	2.5 µg/L	127	61	145
EP231: Perfluorinated Compounds (QCLot: 2934991)								
EP231-PFC: 8:2 FtS	39108-34-4	0.5	µg/L	<0.5	2.5 µg/L	106	----	----
EP231-PFC: PFOSA	754-91-6	0.02	µg/L	<0.02	0.5 µg/L	104	----	----
EP231-PFC: N-Me-FOSA	31506-32-8	0.5	µg/L	<0.5	2.5 µg/L	84.0	----	----

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 (QCLot: 2934991) - continued								
EP231-PFC: N-Et-FOSA	4151-50-2	0.05	µg/L	<0.05	2.5 µg/L	98.4	----	----
EP231-PFC: N-Me-FOSE	2448-09-7	1	µg/L	<1.0	2.5 µg/L	96.8	----	----
EP231-PFC: N-Et-FOSE	1691-99-2	1	µg/L	<1.0	2.5 µg/L	97.6	----	----
EP231-PFC: PFBS	375-73-5	0.02	µg/L	<0.02	0.5 µg/L	121	----	----
EP231-PFC: PFHxS	3871-99-6	0.02	µg/L	<0.02	0.5 µg/L	120	----	----
EP231-PFC: PFDcS	67906-42-7	0.05	µg/L	<0.05	0.5 µg/L	104	----	----
EP231-PFC: PFHxA	307-24-4	0.02	µg/L	<0.02	0.5 µg/L	100	----	----
EP231-PFC: PFHpA	375-85-9	0.02	µg/L	<0.02	0.5 µg/L	95.2	----	----
EP231-PFC: PFNA	375-95-1	0.02	µg/L	<0.02	0.5 µg/L	94.4	----	----
EP231-PFC: PFDcA	335-76-2	0.02	µg/L	<0.02	0.5 µg/L	94.0	----	----
EP231-PFC: PFUnA	2058-94-8	0.05	µg/L	<0.05	0.5 µg/L	102	----	----
EP231-PFC: PFDoA	307-55-1	0.05	µg/L	<0.05	0.5 µg/L	94.0	----	----
EP231-PFC: PFTriA	72629-94-8	0.05	µg/L	<0.05	0.5 µg/L	102	----	----
EP231-PFC: PFTeA	376-06-7	0.5	µg/L	<0.5	2.5 µg/L	110	----	----

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	SpikeRecovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 2938240)							
EM1306582-003	CKSC2_190613	EG005T: Arsenic	7440-38-2	50 mg/kg	99.5	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	92.6	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	112	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	104	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	99.4	76	124
		EG005T: Nickel	7440-02-0	50 mg/kg	95.2	78	120
		EG005T: Zinc	7440-66-6	50 mg/kg	105	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2938241)							
EM1306582-003	CKSC2_190613	EG035T: Mercury	7439-97-6	5.0 mg/kg	99.6	80	120
EP231: Perfluorinated Compounds (QCLot: 2934992)							
EM1306582-001	CKSB2_190613	EP231: PFOS	1763-23-1	0.0025 mg/kg	61.2	54	146
		EP231: PFOA	335-67-1	0.0025 mg/kg	86.2	54	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	105	56	138
EP231: Perfluorinated Compounds (QCLot: 2934993)							
EM1306582-001	CKSB2_190613	EP231-PFC: 8:2 Fluorotelomer sulfonate	39108-34-4	0.0125 mg/kg	# 137	60	130

Sub-Matrix: **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: 2934993) - continued							
EM1306582-001	CKSB2_190613	EP231-PFC: PFOSA	754-91-6	0.0025 mg/kg	91.2	60	130
		EP231-PFC: N-Me-FOSA	31506-32-8	0.0125 mg/kg	98.4	60	130
		EP231-PFC: N-Et-FOSA	4151-50-2	0.0125 mg/kg	97.6	60	130
		EP231-PFC: N-Me-FOSE	2448-09-7	0.0125 mg/kg	95.2	60	130
		EP231-PFC: N-Et-FOSE	1691-99-2	0.0125 mg/kg	111	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	# 130	60	130
		EP231-PFC: PFDcS	67906-42-7	0.0025 mg/kg	75.6	60	130
		EP231-PFC: PFHxA	307-24-4	0.0025 mg/kg	99.2	60	130
		EP231-PFC: PFHpA	375-85-9	0.0025 mg/kg	109	60	130
		EP231-PFC: PFNA	375-95-1	0.0025 mg/kg	71.2	60	130
		EP231-PFC: PFDcA	335-76-2	0.0025 mg/kg	72.0	60	130
		EP231-PFC: PFUnA	2058-94-8	0.0025 mg/kg	81.6	60	130
		EP231-PFC: PFDoA	307-55-1	0.0025 mg/kg	94.8	60	130
		EP231-PFC: PFTriA	72629-94-8	0.0025 mg/kg	110	60	130
		EP231-PFC: PFTeA	376-06-7	0.0125 mg/kg	117	60	130

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2931477)							
EM1306529-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2931480)							
EM1306582-008	CKWE2_190613	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	88.1	70	130
ED045G: Chloride Discrete analyser (QCLot: 2931479)							
EM1306582-008	CKWE2_190613	ED045G: Chloride	16887-00-6	400 mg/L	111	70	130
EG020T: Total Metals by ICP-MS (QCLot: 2932827)							
EM1306539-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	105	72	146
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	126	73	131
		EG020A-T: Chromium	7440-47-3	1 mg/L	98.4	65	131
		EG020A-T: Copper	7440-50-8	1 mg/L	85.9	71	125
		EG020A-T: Lead	7439-92-1	1 mg/L	92.7	68	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	96.0	72	128
		EG020A-T: Zinc	7440-66-6	1 mg/L	87.7	67	129
EG020T: Total Metals by ICP-MS (QCLot: 2932828)							
EM1306582-017	QC01_190613	EG020A-T: Arsenic	7440-38-2	1 mg/L	95.4	72	146
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	91.7	73	131

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
				Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 2932828) - continued							
EM1306582-017	QC01_190613	EG020A-T: Chromium	7440-47-3	1 mg/L	100	65	131
		EG020A-T: Copper	7440-50-8	1 mg/L	93.3	71	125
		EG020A-T: Lead	7439-92-1	1 mg/L	93.1	68	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	91.5	72	128
		EG020A-T: Zinc	7440-66-6	1 mg/L	97.3	67	129
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2931292)							
EM1306582-004	CKWC2_190613	EG035T: Mercury	7439-97-6	0.0100 mg/L	94.5	68	128
EP231: Perfluorinated Compounds (QCLot: 2934990)							
EM1306582-002	CKWB2_190613	EP231: PFOS	1763-23-1	0.5 µg/L	# Not Determined	70	136
		EP231: PFOA	335-67-1	0.5 µg/L	97.2	72	134
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	2.5 µg/L	91.2	61	145
EP231: Perfluorinated Compounds (QCLot: 2934991)							
EM1306582-002	CKWB2_190613	EP231-PFC: 8:2 Fluorotelomer sulfonate	39108-34-4	2.5 µg/L	100	----	----
		EP231-PFC: PFOSA	754-91-6	0.5 µg/L	130	----	----
		EP231-PFC: N-Me-FOSA	31506-32-8	2.5 µg/L	129	----	----
		EP231-PFC: N-Et-FOSA	4151-50-2	2.5 µg/L	124	----	----
		EP231-PFC: N-Me-FOSE	2448-09-7	2.5 µg/L	95.2	----	----
		EP231-PFC: N-Et-FOSE	1691-99-2	2.5 µg/L	108	----	----
		EP231-PFC: PFBS	375-73-5	0.5 µg/L	114	----	----
		EP231-PFC: PFHxS	3871-99-6	0.5 µg/L	# Not Determined	----	----
		EP231-PFC: PFDcS	67906-42-7	0.5 µg/L	80.8	----	----
		EP231-PFC: PFHxA	307-24-4	0.5 µg/L	# Not Determined	----	----
		EP231-PFC: PFHpA	375-85-9	0.5 µg/L	# Not Determined	----	----
		EP231-PFC: PFNA	375-95-1	0.5 µg/L	103	----	----
		EP231-PFC: PFDcA	335-76-2	0.5 µg/L	126	----	----
		EP231-PFC: PFUnA	2058-94-8	0.5 µg/L	111	----	----
		EP231-PFC: PFDoA	307-55-1	0.5 µg/L	48.8	----	----
		EP231-PFC: PFTriA	72629-94-8	0.5 µg/L	18.6	----	----
		EP231-PFC: PFTeA	376-06-7	2.5 µg/L	# Not Determined	----	----

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
EP231: Perfluorinated Compounds (QCLot: 2934992)										
EM1306582-001	CKSB2_190613	EP231: PFOS	1763-23-1	0.0025 mg/kg	61.2	----	54	146	----	----
		EP231: PFOA	335-67-1	0.0025 mg/kg	86.2	----	54	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	0.0125 mg/kg	105	----	56	138	----	----
EP231: Perfluorinated Compounds (QCLot: 2934993)										
EM1306582-001	CKSB2_190613	EP231-PFC: 8:2 Fluorotelomer sulfonate	39108-34-4	0.0125 mg/kg	# 137	----	60	130	----	----
		EP231-PFC: PFOSA	754-91-6	0.0025 mg/kg	91.2	----	60	130	----	----
		EP231-PFC: N-Me-FOSA	31506-32-8	0.0125 mg/kg	98.4	----	60	130	----	----
		EP231-PFC: N-Et-FOSA	4151-50-2	0.0125 mg/kg	97.6	----	60	130	----	----
		EP231-PFC: N-Me-FOSE	2448-09-7	0.0125 mg/kg	95.2	----	60	130	----	----
		EP231-PFC: N-Et-FOSE	1691-99-2	0.0125 mg/kg	111	----	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	# 130	----	60	130	----	----
		EP231-PFC: PFDcS	67906-42-7	0.0025 mg/kg	75.6	----	60	130	----	----
		EP231-PFC: PFHxA	307-24-4	0.0025 mg/kg	99.2	----	60	130	----	----
		EP231-PFC: PFHpA	375-85-9	0.0025 mg/kg	109	----	60	130	----	----
		EP231-PFC: PFNA	375-95-1	0.0025 mg/kg	71.2	----	60	130	----	----
		EP231-PFC: PFDcA	335-76-2	0.0025 mg/kg	72.0	----	60	130	----	----
		EP231-PFC: PFUnA	2058-94-8	0.0025 mg/kg	81.6	----	60	130	----	----
		EP231-PFC: PFDoA	307-55-1	0.0025 mg/kg	94.8	----	60	130	----	----
		EP231-PFC: PFTriA	72629-94-8	0.0025 mg/kg	110	----	60	130	----	----
		EP231-PFC: PFTeA	376-06-7	0.0125 mg/kg	117	----	60	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 2938240)										
EM1306582-003	CKSC2_190613	EG005T: Arsenic	7440-38-2	50 mg/kg	99.5	----	78	124	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	92.6	----	84	116	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	112	----	79	121	----	----
		EG005T: Copper	7440-50-8	50 mg/kg	104	----	82	124	----	----
		EG005T: Lead	7439-92-1	50 mg/kg	99.4	----	76	124	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	95.2	----	78	120	----	----
		EG005T: Zinc	7440-66-6	50 mg/kg	105	----	74	128	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2938241)										
EM1306582-003	CKSC2_190613	EG035T: Mercury	7439-97-6	5.0 mg/kg	99.6	----	80	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
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2931292)										
EM1306582-004	CKWC2_190613	EG035T: Mercury	7439-97-6	0.0100 mg/L	94.5	----	68	128	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2931477)										
EM1306529-002	Anonymous									

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
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2931477) - continued										
EM1306529-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	----	70	130	----	----
ED045G: Chloride Discrete analyser (QCLot: 2931479)										
EM1306582-008	CKWE2_190613	ED045G: Chloride	16887-00-6	400 mg/L	111	----	70	130	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2931480)										
EM1306582-008	CKWE2_190613	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	88.1	----	70	130	----	----
EG020T: Total Metals by ICP-MS (QCLot: 2932827)										
EM1306539-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	105	----	72	146	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	126	----	73	131	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	98.4	----	65	131	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	85.9	----	71	125	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	92.7	----	68	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	96.0	----	72	128	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	87.7	----	67	129	----	----
EG020T: Total Metals by ICP-MS (QCLot: 2932828)										
EM1306582-017	QC01_190613	EG020A-T: Arsenic	7440-38-2	1 mg/L	95.4	----	72	146	----	----
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	91.7	----	73	131	----	----
		EG020A-T: Chromium	7440-47-3	1 mg/L	100	----	65	131	----	----
		EG020A-T: Copper	7440-50-8	1 mg/L	93.3	----	71	125	----	----
		EG020A-T: Lead	7439-92-1	1 mg/L	93.1	----	68	130	----	----
		EG020A-T: Nickel	7440-02-0	1 mg/L	91.5	----	72	128	----	----
		EG020A-T: Zinc	7440-66-6	1 mg/L	97.3	----	67	129	----	----
EP231: Perfluorinated Compounds (QCLot: 2934990)										
EM1306582-002	CKWB2_190613	EP231: PFOS	1763-23-1	0.5 µg/L	# Not Determined	----	70	136	----	----
		EP231: PFOA	335-67-1	0.5 µg/L	97.2	----	72	134	----	----
		EP231: 6:2 Fluorotelomer sulfonate (6:2 FtS)	27619-97-2	2.5 µg/L	91.2	----	61	145	----	----
EP231: Perfluorinated Compounds (QCLot: 2934991)										
EM1306582-002	CKWB2_190613	EP231-PFC: 8:2 Fluorotelomer sulfonate	39108-34-4	2.5 µg/L	100	----	----	----	----	----
		EP231-PFC: PFOSA	754-91-6	0.5 µg/L	130	----	----	----	----	----
		EP231-PFC: N-Me-FOSA	31506-32-8	2.5 µg/L	129	----	----	----	----	----
		EP231-PFC: N-Et-FOSA	4151-50-2	2.5 µg/L	124	----	----	----	----	----
		EP231-PFC: N-Me-FOSE	2448-09-7	2.5 µg/L	95.2	----	----	----	----	----
		EP231-PFC: N-Et-FOSE	1691-99-2	2.5 µg/L	108	----	----	----	----	----
		EP231-PFC: PFBS	375-73-5	0.5 µg/L	114	----	----	----	----	----
		EP231-PFC: PFHxS	3871-99-6	0.5 µg/L	# Not Determined	----	----	----	----	----
		EP231-PFC: PFDcS	67906-42-7	0.5 µg/L	80.8	----	----	----	----	----

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: 2934991) - continued										
EM1306582-002	CKWB2_190613	EP231-PFC: PFHxA	307-24-4	0.5 µg/L	# Not Determined	----	----	----	----	----
		EP231-PFC: PFHpA	375-85-9	0.5 µg/L	# Not Determined	----	----	----	----	----
		EP231-PFC: PFNA	375-95-1	0.5 µg/L	103	----	----	----	----	----
		EP231-PFC: PFDcA	335-76-2	0.5 µg/L	126	----	----	----	----	----
		EP231-PFC: PFUnA	2058-94-8	0.5 µg/L	111	----	----	----	----	----
		EP231-PFC: PFDoA	307-55-1	0.5 µg/L	48.8	----	----	----	----	----
		EP231-PFC: PFTriA	72629-94-8	0.5 µg/L	18.6	----	----	----	----	----
		EP231-PFC: PFTeA	376-06-7	2.5 µg/L	# Not Determined	----	----	----	----	----

Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **EM1306582**	Page	: 1 of 11
Client	: CARDNO LANE PIPER PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MS Lauren McGloin	Contact	: Carol Walsh
Address	: 154 HIGHBURY ROAD BURWOOD VIC, AUSTRALIA 3125	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: lauren.mcgloin@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 9	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: CFA FISKVILLE		
C-O-C number	: ----	Date Samples Received	: 20-JUN-2013
Sampler	: MDR	Issue Date	: 02-JUL-2013
Order number	: ----		
		No. of samples received	: 26
Quote number	: ME/404/12 V4	No. of samples analysed	: 26

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

This Interpretive Quality Control Report contains the following information:

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

Analysis Holding Time Compliance

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

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

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103)							
CKSB2_190613, CKSC2_190613, CKSD2_190613, CKSE2_190613, CKSS_190613, CKST_190613, CKSU_190613, CKSV_190613, QC01_190613, QC03_190613, QC05_190613	**19-JUN-2013**	**----**	----	----	**24-JUN-2013**	03-JUL-2013	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
CKSB2_190613, CKSC2_190613, CKSD2_190613, CKSE2_190613, CKSS_190613, CKST_190613, CKSU_190613, CKSV_190613, QC01_190613, QC03_190613, QC05_190613	**19-JUN-2013**	**27-JUN-2013**	16-DEC-2013	✓	**27-JUN-2013**	16-DEC-2013	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
CKSB2_190613, CKSC2_190613, CKSD2_190613, CKSE2_190613, CKSS_190613, CKST_190613, CKSU_190613, CKSV_190613, QC01_190613, QC03_190613, QC05_190613	**19-JUN-2013**	**27-JUN-2013**	17-JUL-2013	✓	**27-JUN-2013**	17-JUL-2013	✓
EP231: Perfluorinated Compounds							
Snap Lock Bag (EP231)							
CKSB2_190613, CKSC2_190613, CKSD2_190613, CKSE2_190613, CKSS_190613, CKST_190613, CKSU_190613, CKSV_190613, QC01_190613, QC03_190613, QC05_190613	**19-JUN-2013**	**01-JUL-2013**	16-DEC-2013	✓	**01-JUL-2013**	10-AUG-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-PFC)							
CKSB2_190613, CKSC2_190613, CKSD2_190613, CKSE2_190613, CKSS_190613, CKST_190613, CKSU_190613, CKSV_190613, QC01_190613, QC03_190613, QC05_190613	**19-JUN-2013**	**01-JUL-2013**	16-DEC-2013	✓	**01-JUL-2013**	10-AUG-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
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
CKWB2_190613, CKWC2_190613, CKWD2_190613, CKWE2_190613, CKWS_190613, CKWT_190613, CKWU_190613, CKWV_190613, QC01_190613, QC03_190613, QC05_190613, QC09_190613	**19-JUN-2013**	---	03-JUL-2013	----	**25-JUN-2013**	03-JUL-2013	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
CKWB2_190613, CKWC2_190613, CKWD2_190613, CKWE2_190613, CKWS_190613, CKWT_190613, CKWU_190613, CKWV_190613, QC01_190613, QC03_190613, QC05_190613, QC09_190613	**19-JUN-2013**	---	17-JUL-2013	----	**24-JUN-2013**	17-JUL-2013	✓
ED045G: Chloride Discrete analyser							
Clear Plastic Bottle - Natural (ED045G)							
CKWB2_190613, CKWC2_190613, CKWD2_190613, CKWE2_190613, CKWS_190613, CKWT_190613, CKWU_190613, CKWV_190613, QC01_190613, QC03_190613, QC05_190613, QC09_190613	**19-JUN-2013**	---	17-JUL-2013	----	**24-JUN-2013**	17-JUL-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
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F)							
CKWB2_190613, CKWC2_190613, CKWD2_190613, CKWE2_190613, CKWS_190613, CKWT_190613, CKWU_190613, CKWV_190613, QC01_190613, QC03_190613, QC05_190613, QC09_190613	**19-JUN-2013**	---	26-JUN-2013	----	**25-JUN-2013**	26-JUN-2013	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
CKWB2_190613, CKWC2_190613, CKWD2_190613, CKWE2_190613, CKWS_190613, CKWT_190613, CKWU_190613, CKWV_190613, QC01_190613, QC03_190613, QC05_190613, QC07_190613, QC08_190613, QC09_190613, Trip Blank	**19-JUN-2013**	**25-JUN-2013**	16-DEC-2013	✓	**27-JUN-2013**	16-DEC-2013	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
CKWB2_190613, CKWC2_190613, CKWD2_190613, CKWE2_190613, CKWS_190613, CKWT_190613, CKWU_190613, CKWV_190613, QC01_190613, QC03_190613, QC05_190613, QC07_190613, QC08_190613, QC09_190613, Trip Blank	**19-JUN-2013**	**----**	----	----	**24-JUN-2013**	17-JUL-2013	✓
EP231: Perfluorinated Compounds							
HDPE (no PTFE) (EP231)							
CKWB2_190613, CKWC2_190613, CKWD2_190613, CKWE2_190613, CKWS_190613, CKWT_190613, CKWU_190613, CKWV_190613, QC01_190613, QC03_190613, QC05_190613, QC09_190613	**19-JUN-2013**	---	16-DEC-2013	----	**01-JUL-2013**	16-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-PFC)								
CKWB2_190613,	CKWC2_190613,	**19-JUN-2013**	**---**	16-DEC-2013	----	**01-JUL-2013**	16-DEC-2013	✓
CKWD2_190613,	CKWE2_190613,							
CKWS_190613,	CKWT_190613,							
CKWU_190613,	CKWV_190613,							
QC01_190613,	QC03_190613,							
QC05_190613,	QC09_190613							

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 1999 Schedule B(3) and ALS QCS3 requirement
Perfluorinated Compounds by LCMSMS	EP231-PFC	2	11	**18.2**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	2	11	**18.2**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	11	**9.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	11	**9.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	11	**9.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	11	**9.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	11	**9.1**	**5.0**	✓	ALS QCS3 requirement
Perfluorooctyl Acids and Sulfonates by LC/MS/MS	EP231	1	11	**9.1**	**5.0**	✓	ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	20	**5.0**	**5.0**	✓	ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	**5.0**	**5.0**	✓	ALS QCS3 requirement

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by PC Titrator	ED037-P	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Perfluorinated Compounds by LCMSMS	EP231-PFC	2	12	**16.7**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	2	12	**16.7**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	40	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	15	**13.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	4	38	**10.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Alkalinity by PC Titrator	ED037-P	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	20	**10.0**	**10.0**	✓	NEPM 1999 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 Control Samples (LCS) - Continued							
Major Cations - Dissolved	ED093F	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	12	**8.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	12	**8.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	40	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	**6.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	38	**5.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Chloride by Discrete Analyser	ED045G	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	12	**8.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PFOS and PFOA	EP231	1	12	**8.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	40	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	**6.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	38	**5.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	**5.0**	**5.0**	✓	ALS QCS3 requirement
Perfluorinated Compounds by LCMSMS	EP231-PFC	1	12	**8.3**	**5.0**	✓	ALS QCS3 requirement
PFOS and PFOA	EP231	1	12	**8.3**	**5.0**	✓	ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	40	**5.0**	**5.0**	✓	ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	15	**6.7**	**5.0**	✓	ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	38	**5.3**	**5.0**	✓	ALS QCS3 requirement

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2010 Draft) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
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 (1999) 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 (1999) Schedule B(3)
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.
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 (1999) Schedule B(3) (Appdx. 2)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	APHA 21st ed., 4500-SO4 Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Chloride by Discrete Analyser	ED045G	WATER	APHA 21st ed., 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED093F	WATER	Major Cations is determined based on APHA 21st ed., 3120; USEPA SW 846 - 6010 The ICPAES technique ionises the 0.45um filtered sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2) Hardness parameters are calculated based on APHA 21st ed., 2340 B. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

Analytical Methods	Method	Matrix	Method Descriptions
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Ionic Balance by PCT DA and Turbi SO4 DA	EN055 - PG	WATER	APHA 21st Ed. 1030F. The Ionic Balance is calculated based on the major Anions and Cations. The major anions include Alkalinity, Chloride and Sulfate which determined by PCT and DA. The Cations are determined by Turbi SO4 by DA. This method is compliant with NEPM (1999) 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.

Preparation Methods	Method	Matrix	Method Descriptions
Sample Extraction for Perfluoroalkyl Compounds	EP231-PR	SOIL	In-House
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA 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
Duplicate (DUP) RPDs							
EP231: Perfluorinated Compounds	EM1306582-026	QC05_190613	**PFOS**	1763-23-1	34.2 %	0-20%	**RPD exceeds LOR based limits**
EP231: Perfluorinated Compounds	EM1306582-001	CKSB2_190613	**PFHxS**	3871-99-6	26.6 %	0-20%	**RPD exceeds LOR based limits**
EP231: Perfluorinated Compounds	EM1306582-001	CKSB2_190613	**PFHxA**	307-24-4	51.3 %	0-50%	**RPD exceeds LOR based limits**
Laboratory Control Spike (LCS) Recoveries							
EP231: Perfluorinated Compounds	3489215-007	----	**N-Et-FOSE**	1691-99-2	130 %	60-130%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
EP231: Perfluorinated Compounds	EM1306582-001	CKSB2_190613	**8:2 Fluorotelomer sulfonate**	39108-34-4	137 %	60-130%	**Recovery greater than upper data quality objective**
EP231: Perfluorinated Compounds	EM1306582-001	CKSB2_190613	**PFHxS**	3871-99-6	130 %	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
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	EM1306529-002	Anonymous	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231: Perfluorinated Compounds	EM1306582-002	CKWB2_190613	**PFOS**	1763-23-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231: Perfluorinated Compounds	EM1306582-002	CKWB2_190613	**PFHxS**	3871-99-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231: Perfluorinated Compounds	EM1306582-002	CKWB2_190613	**PFHxA**	307-24-4	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231: Perfluorinated Compounds	EM1306582-002	CKWB2_190613	**PFHpA**	375-85-9	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231: Perfluorinated Compounds	EM1306582-002	CKWB2_190613	**PFTeA**	376-06-7	Not Determined	----	**Matrix spike recovery not determined due to sample matrix interference.**

- **For all matrices, no Method Blank value 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

Chain of Custody

COURIER **Sheet** 2 **of** 2

EM 6582

PM Name: LAUREN McGLOIN

Phone: 03 9888 0100 **Fax:** 03 9808 3511 **Mobile:** 0448 485 323

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

PM Email: lauren.mcgloin @cardno.com.au

Project Number: 2121639 **Site:** CFA FISKVILLE

Laboratory (name, phone,fax no & contact person) SARAH HODGESON, ALS LABORATORY GROUP, (03) 9331 6104

Sample ID	Laboratory ID	Container	Sampling Date	Sampling Time	Sample Matrix: SOIL	Sample Matrix: WATER	Sample preservation: ICE	Analysis: NT01: NT-2	Analysis: CFP231	Analysis: W-3F	Analysis: S-2	Analysis (2)	HOLD
CKSV_190613		soil jar + bag	19/6/13		X		X		X		X		
CKWV-190613		metals/nutrients/PFC				X		X	X	X			
QC01 - 190613		Soil Jar, Bag +nutrients metals +PFC											
QC02 - 190613		" " " "											
QC03 - 190613		Soil Jar +Bag +nutrients +metals +PFC						Send to MGT					
QC04 - 190613													
QC05 - 190613								Send to MGT					
QC06 - 190613													
QC07 - 190613		metals						Send to MGT					
QC08 - 190613		"											
QC09 - 190613		nutrients +metals+PFC											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: 20/6/13

Relinquished by (Sampler): (print and signature) Maria Delos Reyes [signature]	Date 20/6/13	Time	Received by (Courier/Lab): (print and signature)	Date	Time
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) Tony W [signature]	Date 25/6	Time 12:23pm

Report: 383738.

Please supply results electronically in spreadsheet and ESDAT files

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

Enquiries

From: Maria De los Reyes (Cardno LP) [Maria.DelosReyes@cardno.com.au]
Sent: Tuesday, 25 June 2013 12:24 PM
To: Enquiries
Cc: Natalie Krasselt
Subject: FW: Job 212163.9 Samples recieved.

Maria De los Reyes
ENVIRONMENTAL SCIENTIST
CARDNO LANE PIPER

Cardno LanePiper
Shaping the Future

Phone +61 3 9888 0100 Fax +61 3 9808 3511 Direct +61 3 9831 6139
Address Bldg 2, 154 Highbury Road, Burwood, Victoria 3125 Australia
Email Maria.DelosReyes@cardno.com.au Web www.cardno.com Web www.lanepiper.com.au

From: Maria De los Reyes (Cardno LP)
Sent: Tuesday, 25 June 2013 12:23 PM
To: 'mailto:enquiries.melb@mgtlabmark.com.au'
Cc: Natalie Krasselt (Natalie.Krasselt@mgtlabmark.com.au)
Subject: RE:

Hi,

Can we please analyse QC02, QC04 and QC06 for the following

Sediment samples:
PFC screen to include PFOS/PFOA +6:2 FTS
Metals: As, Cd, Cr, CU, Ni, Pb, Zn
HG

Water samples:
PFC screen to include PFOS/PFOA +6:2 FTS
M8 Metals: As, Cd, Cr, CU, Ni, Pb, Zn, HG
B11 Major cations suite & Major anions Suite

For any further quires please feel free to contact me

Regards

Maria De los Reyes
ENVIRONMENTAL SCIENTIST
CARDNO LANE PIPER

Cardno LanePiper
Shaping the Future

Phone +61 3 9888 0100 Fax +61 3 9808 3511 Direct +61 3 9831 6139
Address Bldg 2, 154 Highbury Road, Burwood, Victoria 3125 Australia
Email Maria.DelosReyes@cardno.com.au Web www.cardno.com Web www.lanepiper.com.au

rom: Lauren McGloin
ent: Tuesday, 25 June 2013 11:30 AM
o: Maria De los Reyes (Cardno LP); Srijeeta De (Cardno LP)
ubject: FW:

li ladies

hese look like the QAQC samples, can you send the information needed please.

auren

auren McGloin
ENIOR ENVIRONMENTAL SCIENTIST
ARDNO LANE PIPER

Cardno LanePiper
Shaping the Future

hone +61 3 9888 0100 Fax +61 3 9808 3511 Direct +61 3 9831 6155 Mobile +61 448 485 323
ddress Bldg 2, 154 Highbury Road, Burwood, Victoria 3125 Australia
mail Lauren.McGloin@cardno.com.au Web www.cardno.com Web www.lanepiper.com.au

rom: Enquiries [mailto:enquiries.melb@mgtlabmark.com.au]
ent: Tuesday, 25 June 2013 11:18 AM
o: Lauren McGloin
ubject:

li Lauren,

Ve received samples from project 212163.9. When we can expect the analysis for this job?

anks

atherine Wilson
ample Receipt Manager
urofins | mgt
-5 Kingston Town Close, Oakleigh, 3166, Australia
ffice : +61 3 8564 5000
Vebsite: www.mgtlabmark.com.au

eurofins | mgt

ABN – 50 005 085 521 e.mail : enviro@mgtlabmark.com.au web : www.mgtlabmark.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:	Lauren McGloin
Client job number:	CFA FISKVILLE 212163.9
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Jun 25, 2013 12:23 PM
Eurofins | mgt reference:	**383738**

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:

Natalie Krasselt on Phone : (+61) (3) 8564 5000 or by e.mail: NatalieKrasselt@eurofins.com.au

Results will be delivered electronically via e.mail to Lauren McGloin - lauren.mcgloin@cardno.com.au.

Eurofins | mgt Sample Receipt

Company Name:	Cardno Lane Piper Pty Ltd	**Order No.:**		**Received:**	Jun 25, 2013 12:23 PM
Address:	Building 2, 154 Highbury Road	**Report #:**	383738	**Due:**	Jul 2, 2013
	Burwood	**Phone:**	9888 0100	**Priority:**	5 Day
	VIC 3125	**Fax:**	9808 3511	**Contact Name:**	Lauren McGloin
Client Job No.:	CFA FISKVILLE 212163.9				

Eurofins | mgt Client Manager: Natalie Krasselt

Sample Detail					% Moisture	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	PFOS/PFOA	Zinc	Eurofins | mgt Suite 11
aboratory where analysis is conducted															
elbourne Laboratory - NATA Site # 1254 & 14271					X	X	X	X	X	X	X	X		X	X
dney Laboratory - NATA Site # 18217															
isbane Laboratory - NATA Site # 20794															
ternal Laboratory													X		
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**											
C02_190613 OIL)	Jun 19, 2013		Soil	M13-Jn17632	X	X	X	X	X	X	X	X	X	X	
C04_190613 OIL)	Jun 19, 2013		Soil	M13-Jn17633	X	X	X	X	X	X	X	X	X	X	
C06_190613 OIL)	Jun 19, 2013		Soil	M13-Jn17634	X	X	X	X	X	X	X	X	X	X	
C02_190613 /ATER)	Jun 19, 2013		Water	M13-Jn17635		X	X	X	X	X	X	X	X	X	X
C04_190613 /ATER)	Jun 19, 2013		Water	M13-Jn17636		X	X	X	X	X	X	X	X	X	X
C06_190613 /ATER)	Jun 19, 2013		Water	M13-Jn17637		X	X	X	X	X	X	X	X	X	X

eurofins | mgt

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: **Lauren McGloin**

Report **383738-S**
Client Reference CFA FISKVILLE 212163.9
Received Date Jun 25, 2013

Client Sample ID			**QC02_190613 (SOIL)**	**QC04_190613 (SOIL)**	**QC06_190613 (SOIL)**
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M13-Jn17632**	**M13-Jn17633**	**M13-Jn17634**
Date Sampled			**Jun 19, 2013**	**Jun 19, 2013**	**Jun 19, 2013**
Test/Reference	LOR	Unit			
Heavy Metals					
Arsenic	2	mg/kg	16	8.2	< 2
Cadmium	0.4	mg/kg	2.3	1.7	0.6
Chromium	5	mg/kg	190	100	44
Copper	5	mg/kg	9.9	19	5.2
Lead	5	mg/kg	30	15	9.8
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	24	41	13
Zinc	5	mg/kg	28	43	8.8
PFOS/PFOA			see attached	see attached	see attached
% Moisture	0.1	%	18	65	30

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
Heavy Metals	Melbourne	Jun 26, 2013	180 Day
- Method: USEPA 6010/6020 Heavy Metals			
% Moisture	Melbourne	Jun 26, 2013	14 Day
- Method: Method 102 - ANZECC - % Moisture			

Company Name:	Cardno Lane Piper Pty Ltd	**Order No.:**		**Received:**	Jun 25, 2013 12:23 PM
Address:	Building 2, 154 Highbury Road	**Report #:**	383738	**Due:**	Jul 2, 2013
	Burwood	**Phone:**	9888 0100	**Priority:**	5 Day
	VIC 3125	**Fax:**	9808 3511	**Contact Name:**	Lauren McGloin
Client Job No.:	CFA FISKVILLE 212163.9				

Eurofins | mgt Client Manager: Natalie Krasselt

Sample Detail					% Moisture	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	PFOS/PFOA	Zinc	Eurofins | mgt Suite 11
aboratory where analysis is conducted															
elbourne Laboratory - NATA Site # 1254 & 14271					X	X	X	X	X	X	X	X		X	X
dney Laboratory - NATA Site # 18217															
isbane Laboratory - NATA Site # 20794															
ternal Laboratory													X		
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**											
C02_190613 OIL)	Jun 19, 2013		Soil	M13-Jn17632	X	X	X	X	X	X	X	X	X	X	
C04_190613 OIL)	Jun 19, 2013		Soil	M13-Jn17633	X	X	X	X	X	X	X	X	X	X	
C06_190613 OIL)	Jun 19, 2013		Soil	M13-Jn17634	X	X	X	X	X	X	X	X	X	X	
C02_190613 /ATER)	Jun 19, 2013		Water	M13-Jn17635		X	X	X	X	X	X	X	X	X	X
C04_190613 /ATER)	Jun 19, 2013		Water	M13-Jn17636		X	X	X	X	X	X	X	X	X	X
C06_190613 /ATER)	Jun 19, 2013		Water	M13-Jn17637		X	X	X	X	X	X	X	X	X	X

Eurofins | mgt Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Acknowledgment.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

UNITS

mg/kg: milligrams per Kilogram

ug/l: micrograms per litre

ppb: Parts per billion

org/100ml: Organisms per 100 millilitres

MPN/100mL: Most Probable Number of organisms per 100 millilitres

mg/l: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Units

TERMS

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environment Protection Authority
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within

QC - ACCEPTANCE CRITERIA

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Arochlor 1260 in Matrix Spikes and LCS's.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Heavy Metals USEPA 6010/6020 Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Heavy Metals USEPA 6010/6020 Heavy Metals							
Arsenic	%	87			80-120	Pass	
Cadmium	%	94			80-120	Pass	
Chromium	%	98			80-120	Pass	
Copper	%	99			80-120	Pass	
Lead	%	99			80-120	Pass	
Mercury	%	102			75-125	Pass	
Nickel	%	98			80-120	Pass	
Zinc	%	101			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M13-Jn18141	NCP	%	121			75-125	Pass	
Cadmium	M13-Jn18141	NCP	%	76			75-125	Pass	
Chromium	M13-Jn18141	NCP	%	75			75-125	Pass	
Copper	M13-Jn18141	NCP	%	82			75-125	Pass	
Lead	B13-Jn14393	NCP	%	91			75-125	Pass	
Mercury	M13-Jn17632	CP	%	85			70-130	Pass	
Nickel	B13-Jn14393	NCP	%	90			75-125	Pass	
Zinc	B13-Jn14393	NCP	%	81			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M13-Jn18141	NCP	mg/kg	< 2	2.5	36	30%	Fail	Q15
Cadmium	M13-Jn18141	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M13-Jn18141	NCP	mg/kg	28	27	2.0	30%	Pass	
Copper	M13-Jn18141	NCP	mg/kg	12	14	14	30%	Pass	
Lead	M13-Jn18141	NCP	mg/kg	5.7	6.5	13	30%	Pass	
Mercury	M13-Jn17632	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M13-Jn18141	NCP	mg/kg	19	20	8.0	30%	Pass	
Zinc	M13-Jn18141	NCP	mg/kg	14	22	43	30%	Fail	Q15

Comments

PFOS/PFOA analysis subcontracted to eurofins|GfA Lab Service, reference numbers AR-13-GF-19207-01, AR-13-GF-19208-01 and AR-13-GF-19209-01, DAkkS #D-PL-14629-01-00.

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

Qualifier Codes/Comments

Code	Description
Q15	The RPD reported passes Eurofins | mgt's Acceptance Criteria as stipulated in SOP 05. Refer to Glossary Page of this report for further details

Authorised By

Natalie Krasselt	Client Services
Emily Rosenberg	Senior Analyst-Metal (VIC)

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

eurofins | mgt

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: **Lauren McGloin**

Report **383738-W**
Client Reference CFA FISKVILLE 212163.9
Received Date Jun 25, 2013

Client Sample ID			**QC02_190613 (WATER)**	**QC04_190613 (WATER)**	**QC06_190613 (WATER)**
Sample Matrix			**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**M13-Jn17635**	**M13-Jn17636**	**M13-Jn17637**
Date Sampled			**Jun 19, 2013**	**Jun 19, 2013**	**Jun 19, 2013**
Test/Reference	LOR	Unit			
Ammonia (as N)	0.01	mg/L	0.08	0.17	0.09
Chloride	1	mg/L	55	48	35
Nitrate (as N)	0.02	mg/L	7.4	0.44	0.14
Sulphate (as S)	5	mg/L	9.1	< 5	< 5
PFOS/PFOA			see attached	see attached	see attached
Alkalinity					
Bicarbonate Alkalinity (as CaCO3)	20	mg/L	37	95	110
Carbonate Alkalinity (as CaCO3)	10	mg/L	< 10	< 10	< 10
Heavy Metals					
Arsenic	0.001	mg/L	< 0.001	0.002	0.002
Cadmium	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002
Chromium	0.001	mg/L	< 0.001	0.001	0.004
Copper	0.001	mg/L	0.003	0.001	0.003
Lead	0.001	mg/L	< 0.001	< 0.001	< 0.001
Mercury	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001
Nickel	0.001	mg/L	0.002	0.004	0.007
Zinc	0.001	mg/L	0.007	0.004	0.005
Alkali Metals					
Calcium	0.5	mg/L	13	8.7	7.9
Magnesium	0.5	mg/L	9.5	8.1	9.0
Potassium	0.5	mg/L	3.1	3.4	3.3
Sodium	0.5	mg/L	34	45	42

Description	Testing Site	Extracted	Holding Time
Eurofins | mgt Suite 11			
Ammonia (as N)	Melbourne	Jun 25, 2013	28 Day
- Method: APHA 4500-NH3 Ammonia Nitrogen by FIA			
Chloride	Melbourne	Jun 26, 2013	28 Day
- Method: MGT 1100A			
Nitrate (as N)	Melbourne	Jun 25, 2013	2 Day
- Method: APHA 4500-NO3 Nitrate Nitrogen by FIA			
Sulphate (as S)	Melbourne	Jun 25, 2013	28 Day
- Method: APHA 4500-SO4 (SO4 by Discrete Analyser)			
Alkalinity	Melbourne	Jun 27, 2013	14 Day
- Method: APHA 2320 Alkalinity by Titration			
Alkali Metals	Melbourne	Jun 25, 2013	180 Day
- Method: USEPA 6010 Alkali Metals			
Heavy Metals	Melbourne	Jun 25, 2013	180 Day
- Method: USEPA 6010/6020 Heavy Metals			

Company Name:	Cardno Lane Piper Pty Ltd	**Order No.:**		**Received:**	Jun 25, 2013 12:23 PM
Address:	Building 2, 154 Highbury Road	**Report #:**	383738	**Due:**	Jul 2, 2013
	Burwood	**Phone:**	9888 0100	**Priority:**	5 Day
	VIC 3125	**Fax:**	9808 3511	**Contact Name:**	Lauren McGloin
Client Job No.:	CFA FISKVILLE 212163.9				

Eurofins | mgt Client Manager: Natalie Krasselt

Sample Detail					% Moisture	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	PFOS/PFOA	Zinc	Eurofins | mgt Suite 11
aboratory where analysis is conducted															
elbourne Laboratory - NATA Site # 1254 & 14271					X	X	X	X	X	X	X	X		X	X
dney Laboratory - NATA Site # 18217															
isbane Laboratory - NATA Site # 20794															
ternal Laboratory													X		
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**											
C02_190613 OIL)	Jun 19, 2013		Soil	M13-Jn17632	X	X	X	X	X	X	X	X	X	X	
C04_190613 OIL)	Jun 19, 2013		Soil	M13-Jn17633	X	X	X	X	X	X	X	X	X	X	
C06_190613 OIL)	Jun 19, 2013		Soil	M13-Jn17634	X	X	X	X	X	X	X	X	X	X	
C02_190613 /ATER)	Jun 19, 2013		Water	M13-Jn17635		X	X	X	X	X	X	X	X	X	X
C04_190613 /ATER)	Jun 19, 2013		Water	M13-Jn17636		X	X	X	X	X	X	X	X	X	X
C06_190613 /ATER)	Jun 19, 2013		Water	M13-Jn17637		X	X	X	X	X	X	X	X	X	X

Eurofins | mgt Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Acknowledgment.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

UNITS

mg/kg: milligrams per Kilogram

ug/l: micrograms per litre

ppb: Parts per billion

org/100ml: Organisms per 100 millilitres

MPN/100mL: Most Probable Number of organisms per 100 millilitres

mg/l: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Units

TERMS

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environment Protection Authority
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within

QC - ACCEPTANCE CRITERIA

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Arochlor 1260 in Matrix Spikes and LCS's.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Chloride	mg/L	< 1			1	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Sulphate (as S)	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity APHA 2320 Alkalinity by Titration							
Carbonate Alkalinity (as CaCO3)	mg/L	< 10			10	Pass	
Method Blank							
Heavy Metals USEPA 6010/6020 Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.001			0.001	Pass	
Method Blank							
Alkali Metals USEPA 6010 Alkali Metals							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
LCS - % Recovery							
Ammonia (as N)	%	98			70-130	Pass	
Chloride	%	106			70-130	Pass	
Nitrate (as N)	%	102			70-130	Pass	
Sulphate (as S)	%	102			70-130	Pass	
LCS - % Recovery							
Heavy Metals USEPA 6010/6020 Heavy Metals							
Arsenic	%	105			80-120	Pass	
Cadmium	%	100			80-120	Pass	
Chromium	%	102			80-120	Pass	
Copper	%	102			80-120	Pass	
Lead	%	97			80-120	Pass	
Mercury	%	83			75-125	Pass	
Nickel	%	100			80-120	Pass	
Zinc	%	99			80-120	Pass	
LCS - % Recovery							
Alkali Metals USEPA 6010 Alkali Metals							
Calcium	%	95			70-130	Pass	
Magnesium	%	101			70-130	Pass	
Potassium	%	84			70-130	Pass	
Sodium	%	95			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M13-Jn17635	CP	%	98			70-130	Pass	
Chloride	M13-Jn16568	NCP	%	105			70-130	Pass	
Nitrate (as N)	M13-Jn19852	NCP	%	100			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Sulphate (as S)	M13-Jn16569	NCP	%	103			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M13-Jn18329	NCP	%	91			75-125	Pass	
Cadmium	M13-Jn18329	NCP	%	80			75-125	Pass	
Chromium	M13-Jn18329	NCP	%	89			75-125	Pass	
Copper	M13-Jn18329	NCP	%	88			75-125	Pass	
Lead	A13-Jn15840	NCP	%	85			75-125	Pass	
Mercury	M13-Jn18462	NCP	%	100			70-130	Pass	
Nickel	M13-Jn18329	NCP	%	83			75-125	Pass	
Zinc	M13-Jn18329	NCP	%	79			75-125	Pass	
Spike - % Recovery									
Alkali Metals				Result 1					
Calcium	M13-Jn20055	NCP	%	97			70-130	Pass	
Magnesium	M13-Jn20055	NCP	%	99			70-130	Pass	
Potassium	M13-Jn20055	NCP	%	83			70-130	Pass	
Sodium	M13-Jn20055	NCP	%	101			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M13-Jn17635	CP	mg/L	0.08	0.09	4.0	30%	Pass	
Chloride	M13-Jn16568	NCP	mg/L	22	22	<1	30%	Pass	
Nitrate (as N)	M13-Jn17635	CP	mg/L	7.4	7.5	2.0	30%	Pass	
Sulphate (as S)	M13-Jn16568	NCP	mg/L	16	16	<1	30%	Pass	
Duplicate									
Alkalinity				Result 1	Result 2	RPD			
Bicarbonate Alkalinity (as CaCO3)	A13-Jn16527	NCP	mg/L	50	50	1.0	30%	Pass	
Carbonate Alkalinity (as CaCO3)	A13-Jn16527	NCP	mg/L	< 10	< 10	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M13-Jn18329	NCP	mg/L	0.0010	0.0010	1.3	30%	Pass	
Cadmium	M13-Jn18329	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	M13-Jn18329	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	M13-Jn18329	NCP	mg/L	0.0040	0.0040	8.1	30%	Pass	
Lead	A13-Jn15840	NCP	mg/L	0.0050	0.0050	3.2	30%	Pass	
Mercury	M13-Jn18462	NCP	mg/L	0.00010	0.00011	11	30%	Pass	
Nickel	M13-Jn18329	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc	M13-Jn18329	NCP	mg/L	0.0070	0.0070	5.5	30%	Pass	
Duplicate									
Alkali Metals				Result 1	Result 2	RPD			
Calcium	M13-Jn17386	NCP	mg/L	5.9	5.6	4.0	30%	Pass	
Magnesium	M13-Jn17386	NCP	mg/L	26	25	4.0	30%	Pass	
Potassium	M13-Jn17386	NCP	mg/L	< 0.5	< 0.5	<1	30%	Pass	
Sodium	M13-Jn17386	NCP	mg/L	99	96	3.0	30%	Pass	

Comments

PFOS/PFOA analysis subcontracted to eurofins|GfA Lab Service, reference numbers AR-13-GF-18977-01, AR-13-GF-18978-01 and AR-13-GF-18979-01, DAkkS #D-PL-14629-01-00.

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

Natalie Krasselt	Client Services
Emily Rosenberg	Senior Analyst-Metal (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)

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

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Person in charge Mr. B. Homburg
ASM Mr. B. Homburg - 102

Report date 08.07.2013

Analytical report AR-13-GF-018977-01

Sample Code 710-2013-13060001

Reference	Water QC02_190613
Sample sender	Tammy Lakeland
Reception date time	03.07.2013
Transport by	FedEx
Client Purchase order nr.	13/0610 383738
Purchase order date	27.06.2013
Client sample code	Jn17635
Packaging	plastic bag
Number of containers	1
Reception temperature	cooled
End analysis	08.07.2013

Test results

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

Perfluorooctane sulfonate (PFOS)	5580	ng/l
Perfluorooctanoic acid (PFOA)	734	ng/l
total PFOS / PFOA excl. LOQ	6310	ng/l
total PFOS / PFOA incl. LOQ	6310	ng/l
Perfluorbutansulfonate (PFBS)	1640	ng/l
Perfluorobutanoic acid (PFBA)	513	ng/l
Perfluoropentane acid (PFPeA)	4880	ng/l
Perfluorohexane sulfonate (PFHxS)	5890	ng/l
Perfluorohexanoic acid (PFHxA)	4880	ng/l
Perfluorheptanoic acid (PFHpA)	1690	ng/l
Perfluorononanoic acid (PFNA)	113	ng/l
Perfluordecanoic acid (PFDA)	< 50.0	ng/l
6:2 Fluorotelomer sulfonate (FTS)	910	ng/l

Analytical report AR-13-GF-018977-01

Sample Code 710-2013-13060001

total PFC compounds excl. LOQ	26800	ng/l
total PFC compounds incl. LOQ	26900	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.

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Person in charge Mr. B. Homburg
ASM Mr. B. Homburg - 102

Report date 08.07.2013

Analytical report AR-13-GF-018978-01

Sample Code 710-2013-13060002

Reference	Water QC04_190613
Sample sender	Tammy Lakeland
Reception date time	03.07.2013
Transport by	FedEx
Client Purchase order nr.	13/0610 383738
Purchase order date	27.06.2013
Client sample code	Jn17636
Packaging	plastic bag
Number of containers	1
Reception temperature	cooled
End analysis	08.07.2013

Test results

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

Perfluorooctane sulfonate (PFOS)	9160	ng/l
Perfluorooctanoic acid (PFOA)	643	ng/l
total PFOS / PFOA excl. LOQ	9800	ng/l
total PFOS / PFOA incl. LOQ	9800	ng/l
Perfluorbutansulfonate (PFBS)	522	ng/l
Perfluorobutanoic acid (PFBA)	683	ng/l
Perfluoropentane acid (PFPeA)	2620	ng/l
Perfluorohexane sulfonate (PFHxS)	3980	ng/l
Perfluorohexanoic acid (PFHxA)	3750	ng/l
Perfluorheptanoic acid (PFHpA)	689	ng/l
Perfluorononanoic acid (PFNA)	149	ng/l
Perfluordecanoic acid (PFDA)	< 50.0	ng/l
6:2 Fluorotelomer sulfonate (FTS)	4960	ng/l

Analytical report AR-13-GF-018978-01

Sample Code 710-2013-13060002

total PFC compounds excl. LOQ	27200	ng/l
total PFC compounds incl. LOQ	27200	ng/l

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Person in charge Mr. B. Homburg
ASM Mr. B. Homburg - 102

Report date 08.07.2013

Analytical report AR-13-GF-018979-01

Sample Code 710-2013-13060003

Reference	Water QC06_190613
Sample sender	Tammy Lakeland
Reception date time	03.07.2013
Transport by	FedEx
Client Purchase order nr.	13/0610 383738
Purchase order date	27.06.2013
Client sample code	Jn17637
Packaging	plastic bag
Number of containers	1
Reception temperature	cooled
End analysis	08.07.2013

Test results

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

Perfluorooctane sulfonate (PFOS)	9290	ng/l
Perfluorooctanoic acid (PFOA)	458	ng/l
total PFOS / PFOA excl. LOQ	9750	ng/l
total PFOS / PFOA incl. LOQ	9750	ng/l
Perfluorbutansulfonate (PFBS)	369	ng/l
Perfluorobutanoic acid (PFBA)	473	ng/l
Perfluoropentane acid (PFPeA)	1700	ng/l
Perfluorohexane sulfonate (PFHxS)	2640	ng/l
Perfluorohexanoic acid (PFHxA)	2480	ng/l
Perfluorheptanoic acid (PFHpA)	464	ng/l
Perfluorononanoic acid (PFNA)	123	ng/l
Perfluordecanoic acid (PFDA)	< 50.0	ng/l
6:2 Fluorotelomer sulfonate (FTS)	5670	ng/l

Analytical report AR-13-GF-018979-01

Sample Code 710-2013-13060003

total PFC compounds excl. LOQ	23700	ng/l
total PFC compounds incl. LOQ	23700	ng/l

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Report date 09.07.2013

Analytical report AR-13-GF-019207-01

Sample Code 710-2013-13076001

Reference	Soil QC02_190613
Sample sender	Tammy Lakeland
Reception date time	03.07.2013
Transport by	FedEx
Client Purchase order nr.	13/0610 383738
Purchase order date	26.06.2013
Client sample code	Jn17632
Packaging	plastic bag
Number of containers	1
Reception temperature	cooled
End analysis	09.07.2013

Test results

CYP07 dry matter (°) (#)
Method Internal method, produce dry matter of original sample

dry residue	76.50	%

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

Perfluorooctane sulfonate (PFOS)	262	µg/kg dm
Perfluorooctanoic acid (PFOA)	< 2.3	µg/kg dm
total PFOS / PFOA excl. LOQ	262	µg/kg dm
total PFOS / PFOA incl. LOQ	264	µg/kg dm
Perfluorbutansulfonate (PFBS)	< 3.5	µg/kg dm
Perfluorobutanoic acid (PFBA)	< 2.3	µg/kg dm
Perfluoropentane acid (PFPeA)	4.0	µg/kg dm
Perfluorohexane sulfonate (PFHxS)	13.9	µg/kg dm
Perfluorohexanoic acid (PFHxA)	5.3	µg/kg dm
Perfluorheptanoic acid (PFHpA)	< 2.3	µg/kg dm

Durch die Deutsche Akkreditierungsstelle GmbH akkreditiertes Prüflaboratorium
DIN EN ISO/IEC 17025:2005
Die Akkreditierung gilt für die in der Urkunde aufgeführten Prüfverfahren

Analytical report AR-13-GF-019207-01

Sample Code 710-2013-13076001

Perfluorononanoic acid (PFNA)	2.7	µg/kg dm
Perfluordecanoic acid (PFDA)	< 2.3	µg/kg dm
6:2 Fluorotelomer sulfonate (FTS)	4.8	µg/kg dm
total PFC compounds excl. LOQ	293	µg/kg dm
total PFC compounds incl. LOQ	306	µg/kg dm

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

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Report date 09.07.2013

Analytical report AR-13-GF-019208-01

Sample Code 710-2013-13076002

Reference	Soil QC04_190613
Sample sender	Tammy Lakeland
Reception date time	03.07.2013
Transport by	FedEx
Client Purchase order nr.	13/0610 383738
Purchase order date	26.06.2013
Client sample code	Jn17633
Packaging	plastic bag
Number of containers	1
Reception temperature	cooled
End analysis	09.07.2013

Test results

CYP07 dry matter (°) (#)
Method Internal method, produce dry matter of original sample

dry residue	63.94	%

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

Perfluorooctane sulfonate (PFOS)	315	µg/kg dm
Perfluorooctanoic acid (PFOA)	< 2.4	µg/kg dm
total PFOS / PFOA excl. LOQ	315	µg/kg dm
total PFOS / PFOA incl. LOQ	317	µg/kg dm
Perfluorbutansulfonate (PFBS)	< 3.6	µg/kg dm
Perfluorobutanoic acid (PFBA)	< 2.4	µg/kg dm
Perfluoropentane acid (PFPeA)	< 2.4	µg/kg dm
Perfluorohexane sulfonate (PFHxS)	8.5	µg/kg dm
Perfluorohexanoic acid (PFHxA)	3.7	µg/kg dm
Perfluorheptanoic acid (PFHpA)	< 2.4	µg/kg dm

Perfluorononanoic acid (PFNA)	< 2.4	µg/kg dm
Perfluordecanoic acid (PFDA)	< 2.4	µg/kg dm
6:2 Fluorotelomer sulfonate (FTS)	10.5	µg/kg dm
total PFC compounds excl. LOQ	338	µg/kg dm
total PFC compounds incl. LOQ	356	µg/kg dm

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

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Joachim Fuchs
(Analytical Services Manager)

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Person in charge Mr. B. Homburg
ASM Mr. B. Homburg - 102

Report date 09.07.2013

Analytical report AR-13-GF-019209-01

Sample Code 710-2013-13076003

Reference	Soil QC06_190613
Sample sender	Tammy Lakeland
Reception date time	03.07.2013
Transport by	FedEx
Client Purchase order nr.	13/0610 383738
Purchase order date	26.06.2013
Client sample code	Jn17634
Packaging	plastic bag
Number of containers	1
Reception temperature	cooled
End analysis	09.07.2013

Test results

CYP07 dry matter (°) (#)
Method Internal method, produce dry matter of original sample

dry residue	58.98	%

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

Perfluorooctane sulfonate (PFOS)	92.4	µg/kg dm
Perfluorooctanoic acid (PFOA)	< 2.4	µg/kg dm
total PFOS / PFOA excl. LOQ	92.4	µg/kg dm
total PFOS / PFOA incl. LOQ	94.8	µg/kg dm
Perfluorbutansulfonate (PFBS)	< 3.6	µg/kg dm
Perfluorobutanoic acid (PFBA)	< 2.4	µg/kg dm
Perfluoropentane acid (PFPeA)	< 2.4	µg/kg dm
Perfluorohexane sulfonate (PFHxS)	4.7	µg/kg dm
Perfluorohexanoic acid (PFHxA)	2.8	µg/kg dm
Perfluorheptanoic acid (PFHpA)	< 2.4	µg/kg dm

Perfluorononanoic acid (PFNA)	< 2.4	µg/kg dm
Perfluordecanoic acid (PFDA)	< 2.4	µg/kg dm
6:2 Fluorotelomer sulfonate (FTS)	< 3.6	µg/kg dm
total PFC compounds excl. LOQ	99.9	µg/kg dm
total PFC compounds incl. LOQ	121	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)

TERMS AND CONDITIONS

1. GENERAL

1.1. All Services to be provided by Eurofins Environment Testing Australia Pty Ltd (trading as Eurofins | mgt) will be governed by these Terms and Conditions (Terms) as varied by any special terms agreed to by Eurofins | mgt in writing (Special Terms).

1.2. No order for Services or any Special Terms relating to that order will be deemed to have been accepted by Eurofins | mgt unless Eurofins | mgt has confirmed acceptance of the order or the Special Terms in writing. In these Terms "in writing" means any confirmation by Eurofins | mgt in writing delivered personally or sent by post, facsimile or email.

1.3. These Terms will prevail over any other terms unless Eurofins | mgt specifically confirms acceptance of Special Terms in writing. Unless otherwise agreed to by Eurofins | mgt in writing any Special Terms shall apply only to that specific order.

2. SERVICES

2.1. In these Terms "Services" means food, or pharmaceutical product testing, environmental sampling and environmental laboratory testing or audit and assurance services that Eurofins | mgt agrees to provide to the Customer in writing.

2.2. Eurofins | mgt will provide the Services using reasonable care and skill, adopting such methods as Eurofins | mgt considers appropriate and in accordance with any Special Terms agreed to by Eurofins | mgt in writing.

2.3. The Services will be undertaken in the time period agreed to between Eurofins | mgt and the Customer and in the absence of agreement within a reasonable time. Eurofins | mgt will not be liable for any delay in providing the Services.

2.4. Unless sampling is conducted by Eurofins | mgt personnel any reports issued by Eurofins | mgt relate exclusively to the samples provided by the Customer and do not relate to the lot from which samples have been obtained.

2.5. Where Eurofins | mgt has agreed to provide audit and assurance services, the audit report issued by Eurofins | mgt shall relate only to the scope of services agreed to in writing by Eurofins | mgt (either in the quotation, the engagement letter or an agency agreement).

2.6. Eurofins | mgt may delegate the performance of part or all of the Services to a third party and the Customer authorises the release of all information necessary to the third party for the provision of the Services.

2.7. Any reports provided by Eurofins | mgt can only be relied upon by the party to whom the report is addressed and cannot be relied on by any other party. By providing the Services (and any reports) Eurofins | mgt will not be deemed to have assumed any obligation or liability that the Customer has to a third party.

3. OBLIGATIONS OF THE CUSTOMER

3.1. To enable Eurofins | mgt to provide the Services, the Customer will:

(a) ensure that adequate quantities of the samples and materials are provided in a safe condition. Eurofins | mgt may (at the Customer's cost) undertake initial tests on the samples, material or the site to ensure that it is safe and appropriate for Eurofins | mgt to provide the Services;

(b) ensure that sufficient information instructions and documentation is provided;

(c) where appropriate provide safe and secure access to a site where a Eurofins | mgt representatives attends to collect samples or other customer related items.

(d) ensure that all necessary measures are taken to ensure safety in the performance of the Services including (without limitation) complying with all regulations relating to labelling, transportation of the samples and materials, access to the sites, treatment of hazardous materials;

(e) inform Eurofins | mgt in advance of any hazard or danger, actual or potential associated with any samples or testing;

(f) immediately inform Eurofins | mgt of any change that could affect the provision of the Services or the safety of its personnel.

4. FEES AND PAYMENT

4.1. The Customer will pay the fees agreed between the Customer and Eurofins | mgt for the Services. If the parties have not agreed on the fee payable for the Services then the Customer will pay Eurofins | mgt standard fees for the provision of the Services.

4.2. Fees plus GST will be paid by the Customer.

4.3. Unless otherwise agreed in writing all fees quoted are exclusive of all expenses such as travelling costs and any disbursements incurred on behalf of the Customer.

4.4. The fees will be paid 30 days from the date of the tax invoice for the Services by Eurofins | mgt.

4.5. The Customer has 30 days from the date of the invoice to dispute any items charged within the Invoice.

4.6. Fees will be paid without deduction, set off or counter claim and the Customer cannot retain or defer payment on account of any dispute with Eurofins | mgt.

4.7. If the Customer fails to pay any fees when due, Eurofins | mgt may:

(a) charge an administration charge at the rate of 2% per month calculated on a daily basis for any fees or part of fees outstanding at the due date for payment;
(b) commence proceedings for the collection of unpaid fees and the Customer will be liable for all costs incurred by Eurofins | mgt (including all legal costs on a solicitor client basis);
(c) withhold the release of any reports until all fees have been paid in full by the Customer;
(d) require that part or all of the fees be paid in advance of providing the Services;
(e) cease providing the Services to the Customer without notice.

4.8. In the event that any unforeseen circumstances or expenses arise in undertaking the Services, Eurofins | mgt will endeavour to inform the Customer of any additional costs incurred by Eurofins | mgt and unless the Customer advises Eurofins | mgt not to undertake any further works, the Customer will be responsible for the additional costs.

5. SAMPLES

5.1. Upon receipt of the samples all samples become the property of Eurofins | mgt to the extent necessary for the performance of the Services.

5.2. Eurofins | mgt will store soil samples for a period of 3 months and water samples for a period of 2 weeks after the analysis of the samples is completed. At which time Eurofins | mgt may destroy or otherwise dispose of the samples or return the samples to the Customer. At our discretion Eurofins | mgt may pass onto the Customer those disposal costs in all respects.

5.3. At Eurofins | mgt's discretion all samples received by Eurofins | mgt and not requested for analysis and require "Hold" and storage will be charged to the customer at a cost of $2.00 per sample. This cost will be reimbursed to the Customer if analysis is subsequently requested on the sample within the storage period described in 5.2.

5.4. At Eurofins | mgt's discretion all samples requested by the Customer for storage beyond the period described in 5.2 will be stored for the agreed period in accordance with industry practice at a charge of $2.00 per sample container per week.

5.5. At Eurofins | mgt's discretion all sample containers provided to the customer prior to sampling and not returned to Eurofins | mgt for analysis will be charged at $2.00 per sample container.

5.6. At Eurofins | mgt's discretion all Eskies (Cooler Boxes) not returned to Eurofins | mgt will be charged at $100.00 per item.

5.7. Except where sampling is conducted by Eurofins | mgt personnel the Customer acknowledges and accepts that:

(a) it is solely responsible for the sampling process and warrants that the sample provided to Eurofins | mgt is representative of the lot from which the samples were drawn; and

(b) Eurofins | mgt expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the sample.

6. TITLE TO PROPERTY AND REPORTS

6.1. Eurofins | mgt will retain title to any analysis, results, reports or software produced by Eurofins | mgt until all fees have been paid by the Customer.

6.2. Eurofins | mgt will be entitled to store, use, publish or otherwise deal with all analysis, results, reports, or software so long as Eurofins | mgt does not identify the Customer, except where required by law.

6.3. All intellectual property rights created in the course of the provision of the Services by Eurofins | mgt pursuant to this agreement will vest in Eurofins | mgt immediately upon creation. If required by Eurofins | mgt, the Customer will execute all documents and do all acts and things required to enable the rights to vest in Eurofins | mgt.

6.4. Any report provided by Eurofins | mgt and the copyright contained therein shall be and remain the property of Eurofins | mgt and the Customer shall not alter or misrepresent the contents of such documents in any way. The Customer shall be entitled to make copies for its internal purposes only.

6.5. The Customer may only reproduce or publish any report by Eurofins | mgt in full without alteration. Eurofins | mgt name, logo or service marks, or any other means of identification cannot be used in any publication by the Customer unless the Customer has obtained the prior written consent of Eurofins | mgt.

7. LIMITATION OF LIABILITY

7.1. The Customer acknowledges that the Services are provided using the then current state of technology and methods developed and generally applied by Eurofins | mgt and involve sampling, analysis, interpretations, consulting work and conclusions. Eurofins | mgt shall use commercially reasonable degree of care in providing the Services.

7.2. Reports are issued on the basis of information, documents and/or samples provided by, or on behalf of, the Customer and solely for the benefit of the Customer who is responsible for acting as it sees fit on the basis of such reports. Neither Eurofins | mgt nor any of its officers, employees, agents or subcontractors shall be liable to the Customer nor any third party for any actions taken or not taken on the basis of such reports nor for any incorrect results arising from unclear, erroneous, incomplete, misleading or false information provided to Eurofins | mgt.

7.3. Eurofins | mgt shall not be liable for any delayed, partial or total non-performance of the Services arising directly or indirectly from any event outside Eurofins | mgt control including failure by the Customer to comply with any of its obligations hereunder.

7.4. The liability of Eurofins | mgt in respect of any claim for loss, damage or expense of any nature and howsoever arising shall in no circumstances exceed the lesser of an amount equal to 3 times the fee paid in respect of the Service which gives rise to such claim or $15,000.00.

7.5. Eurofins | mgt shall have no liability for any indirect or consequential loss including, without limitation, loss of production, loss of contracts, loss of profits, loss of business or costs incurred from business interruption, loss of opportunity, loss of goodwill or damage to reputation and cost of product recall (including any losses suffered as a result of distribution of the Customer's products subject of the Services prior to the report being released by Eurofins | mgt). It shall further have no liability for any loss, damage or expenses arising from the claims of any third party (including, without limitation, product liability claims) that may be incurred by the Customer.

7.6. In the event of any claim, the Customer must give written notice to Eurofins | mgt within 60 days of discovery of the facts alleged to justify such claim and, in any case, Eurofins | mgt shall be discharged from all liability for all claims for loss, damage or expense unless proceedings are brought within six calendar months from:

(a) the date of performance by Eurofins | mgt of the Service which gives rise to the claim; or

(b) the date when the Service should have been completed in the event of any alleged non performance.

7.7. Unless Eurofins | mgt explicitly agrees in writing, the Services shall be provided exclusively to the Customer and cannot be relied on by a third party. The Customer will indemnify and hold Eurofins | mgt harmless against any and all third party claims relating to the provision of the Services to the Customer.

7.8. The Customer shall be responsible for and indemnifies Eurofins | mgt against all costs, damages, liabilities, and injuries that may be caused to or incurred by Eurofins | mgt or its personnel or representatives including on the sampling site, during transportation or in the laboratory by the Customer's sample or by sampling site conditions.

8. FORCE MAJEURE

8.1. If Eurofins | mgt is prevented from performing or completing the Services for any cause outside Eurofins | mgt's control, including, but not limited to, acts of god, war, terrorist activity or industrial action; electricity outage; failure to obtain permits, licenses or registrations; illness, death or resignation of personnel or failure by Customer to comply with any of its obligations the Customer will pay to Eurofins | mgt:

(a) the amount of all non-refundable expenses incurred by Eurofins | mgt; and

(b) a proportion of the fee equal to the proportion of the Services actually carried out (provided that if the Services cannot be performed as a result of an act or omission on the part of the Customer, the Customer will pay the full fee and all expenses incurred by Eurofins | mgt),

and Eurofins | mgt will be relieved of all responsibility whatsoever for the partial or total non-performance of the Services.

9. MISCELLANEOUS

9.1. If any one or more provisions of the Terms are found to be illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired.

9.2. Except as expressly provided in these Terms or the Special Terms, the Customer may not assign or transfer any of its rights without Eurofins | mgt prior written consent.

9.3. The parties acknowledge that Eurofins | mgt provides the Services to the Customer as an independent contractor and that this agreement does not create any partnership, agency, employment or fiduciary relationship between Eurofins | mgt and the Customer.

9.4. Any failure by Eurofins | mgt to require the Customer to perform any of Eurofins | mgt obligations under these Terms or Special Terms shall not constitute a waiver of its right to require performance of that or any other obligation.

9.5. This agreement is exclusively governed by the laws of Australia and the parties submit to the exclusive jurisdiction of the Australian courts.

9.6. The Terms may be modified in writing from time to time by Eurofins | mgt and the order for Services will be governed by the most recent version of these Terms that are in effect at the time Eurofins | mgt accepts the order.

9.7. Unless Eurofins | mgt specifically confirms acceptance in writing, Eurofins | mgt will not be bound by any terms and conditions set out in the Customer's purchase order.

Data Quality Review
Geelong-Ballan Fiskville Fire Training College, 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	Cardno Lane Piper was engaged by Ashurst ("the Client") in May 2012, to provide specialist advice on the management of chemical contamination issues at the CFA Fiskville Training facility ("the Site") and additional field sampling along Beremboke Creek. 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 Investigation 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 sediment and surface water investigations 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 July 2013 for the June 2013 Sampling Program.
Data Representativeness	
Use of Composites	No composite sampling was used during the investigation.
Holding Times	**Sediment:** Chain of custody and laboratory reports provides evidence of holding times. Holding times were generally 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 generally in conformance with Table 4 in AS4482.1-2005.
Offsite samples	**Sediment and Surface Water:** Offsite sediment samples were collected in order to determine the concentration of analytes of interest and to determine the environmental impacts caused by activities conducted at the CFA Fiskville Training facility.

QA/QC Aspects	Evidence & Evaluation
Verification of field procedures	The methodology conducted during the soil and surface water investigation were 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 in which7/87 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 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)	***Sediment*** • Acceptance Criteria: RPD < 50% • Sediment Samples Analysed: 8 • Blind Replicate Samples Analysed: 3 • Blind Replicate Analyte Pairs: 87 • Number of Analyte Pairs Exceeding Criteria: 7 • Percentage of Analyte Pairs Exceeding Criteria: 8.0% The RPD exceedances are confined to metals (Arsenic (84%), Cadmium (1005), Chromium (III+VI) (72%), Copper (82%), Lead (70%), Nickel (67%) and zinc (70%)). the exception of cadmium and the percentage of exceedances is relatively high and it is most likely related sample heterogeneity, since the analytical method does not change in this instance. ***Surface Water*** • Acceptance Criteria: RPD < 50% • Surface Water Samples Analysed: 8 • Blind Replicate Samples Analysed: 3 • Blind Replicate Analyte Pairs: 1234 • Number of Analyte Pairs Exceeding Criteria: 2 • Percentage of Analyte Pairs Exceeding Criteria: 1.6% RPD exceedances are Perfluorononanoic acid (67%) and Ion Balance (100%). The RPD exceedance for Perfluorononanoic acid is minor since it is not considered a COI.
QC Testing – Split Replicates (Secondary Lab)	***Sediment*** • Acceptance Criteria: RPD < 50% • Split Replicate Samples Analysed: 8 • Split Replicate Analyte Pairs: 3 • Number of Analyte Pairs Exceeding Criteria: 3 • Percentage of Analyte Pairs Exceeding Criteria: 12.3% The RPD exceedances are confined to metals (Arsenic, Chromium (III+VI), Copper, Lead, Nickel, zinc and PFOS). The percentage of exceedances is relatively high; however, it is not considered significant. For the metal

QA/QC Aspects	Evidence & Evaluation
	%RPD, it is likely to be due to the primary laboratory using a metal analysis method using Inductive Couple Plasma (ICP) coupled with an Atomic Absorption Spectroscopy, where the secondary lab states the method for USEPA 6020 which uses ICP coupled with mass spectrometry (MS). ***Surface Water*** • Acceptance Criteria: RPD < 50% • Blind Split Replicate Samples Analysed: 1 • Blind Split Replicate Analyte Pairs: 11 • Number of Analyte Pairs Exceeding Criteria: 4 • Percentage of Analyte Pairs Exceeding Criteria: 36.3% RPD exceedances are confined to metals (Lead, Copper, Zinc and PFOS). Quality control and associated primary sample is within the adopted assessment criteria.
Trip Blanks	One trip blank was analysed for each day of sampling and reported concentrations below limit of reporting (LOR)
Laboratory Internal QC	Evidence of the laboratories internal QC testing is present and complete in the report. ALS (Primary) performed internal QC with adequate testing and satisfactory results for matrix spikes, method blanks and laboratory duplicates. • All laboratory blanks reported below LOR • Internal Laboratory Duplicates reported 9 %RPDs for lead (54%), arsenic (95%), cadmium (67%), PFOS (34%), Perfluorononanoic acid (40%), Perfluorohexanoic acid (53%), Perfluorheptanoic acid (44%), Perfluorohexanoic acid(57%), Perfluorohexane sulfonate (39%) . However exceedances are generally minor and not considered to impact the assessment. • 4 Lab Control Samples reported outside the acceptable recovery range of 70% to 130%. Analyte that reported below the acceptable recovery range included PFOS (63.2%). • 4 Matrix spikes reported recoveries reported outside the acceptable recovery of 70% -130%. Analytes that reported outside the acceptable recovery range include PFDoA (48.8%), PFTriA (18.6%), PFOS (61.2%), and 8:2 Fluorotelomer sulfonate (137%).
Laboratory Method Detection Limit	Laboratory reports indicate the method detection limits were generally lower than the respective assessment criteria, except for PFOS which reported an LOR of 0.02 ug/l which is near the a surface water criteria depending on the beneficial use being assessed.
NATA endorsement of laboratory reports	Laboratory reports from ALS and MGT were stamped with the NATA endorsement stamp and signature.
Calibration of Field Equipment	All equipment used during the sediment and surface water investigation was calibrated by the supplier prior to use. The equipment calibration certificate and records are provided in Appendix E.
Decontamination and Equipment Blanks	One rinsate blank was analysed for each day of sampling and reported concentrations below the laboratory limit of reporting.
Data Comparability	
Standard Procedures	Fieldwork procedures are detailed in the reports and are suitable for this

QA/QC Aspects	Evidence & Evaluation
	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 different analytical methods where applicable 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 investigation is considered valid.
Validity of Data Set	The data quality review indicates no significant systematic errors in the data collection process for sediment and surface water therefore, the data set used as the basis for the soil assessment is considered valid and complete.

Data Quality Review - Surface Water and Sediment Contamination Assessment

CFA Fiskville Training College, 4549 Geelong-Ballan Rd, Fiskville Victoria

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 19 July 2012, to provide specialist advice on the management of chemical contamination issues at the CFA Fiskville Training facility ("the 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 Investigation 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 sediment and surface water investigations 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 July 2013 for the June 2013 Sampling Program.
Data Representativeness	
Use of Composites	No composite sampling was used during the investigation.
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. **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.
Offsite samples	**Sediment and Surface Water:** Offsite sediment samples were collected in order to determine the concentration of analytes of interest and to determine the environmental impacts caused by activities conducted at

QA/QC Aspects	Evidence & Evaluation
	the CFA Fiskville Training facility.
Verification of field procedures	The methodology conducted during the soil and surface water investigation 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 in which7/87 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 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)	***Sediment*** • Acceptance Criteria: RPD < 50% • Sediment Samples Analysed: 8 • Blind Replicate Samples Analysed: 3 • Blind Replicate Analyte Pairs: 87 • Number of Analyte Pairs Exceeding Criteria: 7 • Percentage of Analyte Pairs Exceeding Criteria: 8.0% The RPD exceedances are confined to metals (Arsenic, cadmium, chromium (III+VI), copper, lead, nickel and zinc). High RPDs is most likely related sample heterogeneity, since the analytical method does not change in this instance. ***Surface Water*** • Acceptance Criteria: RPD < 50% • Surface Water Samples Analysed: 8 • Blind Replicate Samples Analysed: 3 • Blind Replicate Analyte Pairs: 1234 • Number of Analyte Pairs Exceeding Criteria: 2 • Percentage of Analyte Pairs Exceeding Criteria: 1.6% RPD exceedance is Perfluorononanoic acid, the exceedance is generally low and possibly related to the low analyte concentrations. The other exceedance was for Ion Balance calculation.
QC Testing – Split Replicates (Secondary Lab)	***Sediment*** • Acceptance Criteria: RPD < 50% • Split Replicate Samples Analysed: 8 • Split Replicate Analyte Pairs: 3 • Number of Analyte Pairs Exceeding Criteria: 3 • Percentage of Analyte Pairs Exceeding Criteria: 12.3% The RPD exceedances are confined to metals (Arsenic, Chromium (III+VI), Copper, Lead, Nickel, zinc and PFOS). The percentage of exceedances is relatively high; however, it is not considered significant. For the metal %RPD, it is likely to be due to the primary laboratory using

QA/QC Aspects	Evidence & Evaluation
	a metal analysis method using Inductive Couple Plasma (ICP) coupled with an Atomic Absorption Spectroscopy, where the secondary lab states the method for USEPA 6020 which uses ICP coupled with mass spectrometry (MS). ***Surface Water*** • Acceptance Criteria: RPD < 50% • Blind Split Replicate Samples Analysed: 1 • Blind Split Replicate Analyte Pairs: 11 • Number of Analyte Pairs Exceeding Criteria: 4 • Percentage of Analyte Pairs Exceeding Criteria: 36.3% RPD exceedances are confined to metals (Lead, Copper, Zinc and PFOS). Quality control and associated primary sample is within the adopted assessment criteria.
Trip Blanks	One trip blank was analysed for each day of sampling and reported concentrations below limit of reporting (LOR)
Laboratory Internal QC	Evidence of the laboratories internal QC testing is present and complete in the report. ALS (Primary) and MGT (Secondary) performed internal QC with adequate testing and satisfactory results for matrix spikes, method blanks and laboratory duplicates. • All laboratory blanks reported below LOR • Internal Laboratory Duplicates reported high %RPDs for: lead (51.3%), arsenic (97.8%), PFOS (34.2%), Perfluorononanoic acid, Perfluorohexanoic acid (51.3%), Perfluorheptanoic acid (44.7%), Perfluorohexanoic acid (57.2%), Perfluorohexane sulfonate (26.6%). However with the exception of PFOS, Perfluorohexane sulfonate, exceedances and Perfluorohexanoic acid, the RPDs do not exceed the ALS permitted RPD ranges, as specified in the laboratory reported. Furthermore exceedances are generally minor and possibly related to the low analyte concentrations. It is not considered to impact the overall assessment as PFOS, Perfluorohexane sulfonate, exceedances and Perfluorohexanoic acid have not reported high RPDs when compared to primary samples. • 1 Lab Control Samples (PFOS) reported outside the acceptable recovery range of 70% to 130% (63.2%). This is not considered to impact the overall assessment, as it is still within ALS recovery limits of 60-130%. • 2 Matrix spikes reported recoveries reported outside the acceptable recovery of 70% -130%. Analytes that reported outside the acceptable recovery range include PFDoA, PFTriA, PFOS, and 8:2 Fluorotelomer sulfonate. ALS has reported poor matrix spike recoveries were due to matrix interferences, in which background levels were greater than or equal to 4x the spike level. This was confirmed by ALS has samples were re-extracted and re-analysed. MGT • All laboratory blanks reported below LOR • Internal Laboratory Duplicates reported high %RPDs for: arsenic (36%) and zinc (43%). However exceedances are generally minor and related to the low analyte concentration and sample heterogeneity. It is not considered to impact the overall assessment as arsenic and zinc have not reported high RPDs when compared to

QA/QC Aspects	Evidence & Evaluation
	primary samples. • All Lab Control Samples reported within the acceptable recovery range of 70% to 130%. • All Matrix spikes reported recoveries within the acceptable recovery of 70% -130%.
Laboratory Method Detection Limit	Laboratory reports indicate the method detection limits were generally lower than the respective assessment criteria, except for PFOS which reported an LOR of 0.02 ug/l which is near the a surface water criteria depending on the beneficial use being assessed.
NATA endorsement of laboratory reports	Laboratory reports from ALS and MGT were stamped with the NATA endorsement stamp and signature.
Calibration of Field Equipment	All equipment used during the sediment and surface water investigation was calibrated by the supplier prior to use. The equipment calibration certificate and records are provided in Appendix E.
Decontamination and Equipment Blanks	One rinsate blank was analysed for each day of sampling and reported concentrations below the laboratory limit of reporting.
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 different analytical methods where applicable 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 investigation is considered valid.
Validity of Data Set	The data quality review indicates no significant systematic errors in the data collection process for sediment and surface water therefore, the data set used as the basis for the soil assessment is considered valid and complete.

Appendix E
11 Pages

Fieldwork Record Sheets

Surface Water Quality Records

Calibration Certificates

Cardno LanePiper

SURFACE WATER SAMPLING FIELD RECORD

Site / Project: **Second Round of Assessment of Water Quality to Downstream Users**	**Bore ID Number:** CKWB2
Client: **CFA**	Job No.**212163.9**
Person Sampling: SRIJEETA DE **Maria De Los Reyes**	Initials: ~~SD~~ /MCD

Bore / Site Details		
Bore Condition / Locked? **NA**	Type Protect. Cap / Cover: **NA**	Bore Depth (bgl): NA
Inner casing/screen type & diameter: **NA**	Screen interval (bgl): **NA**	SWL (m below surface water level) 0.5m bsw level / sampling point
WL Measurement Point **Surface water level**	RL of measurement point (mAHD) **NA**	SWL Date/Time 19/06/13 : 10:00
Other Observations on Bore/Site: photos taken : GPS : 0254188 , 5825349		

Bore Purge Data		
~~Purge method:~~	~~Bore Volume (L):~~	~~Purge Date:~~
~~Purge rate (L/min):~~	~~Total Purge volume (L):~~	~~LNAPL / PSH Thickness (mm)~~ ~~None / .....mm~~

Purge Field Physiochemical Measurements:

	Reading1	Reading 2	Reading 3	Reading 4	Reading 5	Reading 6	Reading 7	Reading 8
Start Time:								
DO (mg/L) ±10% (or ±0.2 if DO<2 mg/L)	9.7							
EC (µS/Cm) ±3%	594							
pH ±0.1	6.39							
Eh (mV) ±10mV	231							
Temp (°C)	6.6							
SWL (m) after	–							
Purged Volume (L)	–							
Cum. Volume (L)	–							
Water Colour	cloudy							
Turbidity ±10%	5%							
Other Observations / Notes	moss floating	still water. no flow. Sounds of frogs visual wild life : insects						

Sample Container & Preservation Data					
Number of sample container: (Include QC samples)	1	2	3	4	5
Container Volume	metals	nutrients	PEC		
Container Type	plastic	→	→		
Filtration	no	→	→		
Preservation	yes	no	yes		
Sample Number (for Lab ID):	CKWB2-190613				
QC Dup Sample No.:	NA				

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SURFACE WATER SAMPLING FIELD RECORD

Site / Project: **Second Round of Assessment of Water Quality to Downstream Users**	**Bore ID Number:** CKWQC7
Client: **CFA**	Job No.**212163.9**
Person Sampling: ~~SRIJEETA~~ **Maria De Los Reyes**	Initials: ~~SD~~ **MCD**

Bore / Site Details

Bore Condition / Locked? **NA**	Type Protect. Cap / Cover: **NA**	Bore Depth (bgl): NA
Inner casing/screen type & diameter: **NA**	Screen interval (bgl): **NA**	SWL (m below surface water level) 0.29 bsw level / sample point
WL Measurement Point **Surface water level**	RL of measurement point (mAHD) **NA**	SWL Date/Time 19/09/2013 deepest point
Other Observations on Bore/Site GPS 0254033 5825291 photos taken		

Bore Purge Data

~~Purge method:~~	~~Bore Volume (L):~~	~~Purge Date:~~
~~Purge rate (L/min):~~	~~Total Purge volume (L):~~	~~LNAPL / PSH Thickness (mm)~~ ~~None / .....mm~~

Purge Field Physiochemical Measurements:

	Reading1	Reading 2	Reading 3	Reading 4	Reading 5	Reading 6	Reading 7	Reading 8
Start Time:								
DO (mg/L) ±10% (or ±0.2 if DO<2 mg/L)	12.86							
EC (µS/Cm) ±3%	431							
pH ±0.1	7.21							
Eh (mV) ±10mV	327							
Temp (°C)	6.8							
SWL (m) after	NA							
Purged Volume (L)	NA							
Cum. Volume (L)	NA							
Water Colour	Clear							
Turbidity ±10%	1%							
Other Observations / Notes	still water grass at the bottom							

Sample Container & Preservation Data

Number of sample container: (Include QC samples)	1	2	3	4	5
Container Volume	metals	nutrients	PFC		
Container Type	plastic	plastic	plastic		
Filtration	no		no		
Preservation	yes	no	yes		
Sample Number (for Lab ID):	CKWQC2-190613				
QC Dup Sample No.:	~~QC01/190613~~	QC02-190613			

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SURFACE WATER SAMPLING RECORD

Site / Project: **Second Round of Assessment of Water Quality to Downstream Users**	**Bore ID Number:** CKWD2
Client: **CFA**	Job No. **212163.9**
Person Sampling: SRIJEETA DE & **Maria De Los Reyes**	Initials SD **MCD**

Bore / Site Details		
Bore Condition / Locked? **NA**	Type Protect. Cap / Cover: **NA**	Bore Depth (bgl): NA
Inner casing/screen type & diameter: **NA**	Screen interval (bgl): **NA**	SWL (m below surface water level) 0.35 m b surface / sample point deepest point
WL Measurement Point **Surface water level**	RL of measurement point (mAHD) **NA**	SWL Date/Time 19/06/13
Other Observations on Bore/Site photos GPS 0254012 5825046		

Bore Purge Data		
~~Purge method:~~	~~Bore Volume (L):~~	~~Purge Date:~~
~~Purge rate (L/min):~~	~~Total Purge volume (L):~~	~~LNAPL / PSH Thickness (mm)~~ ~~None / .....mm~~

Purge Field Physiochemical Measurements:

	Reading1	Reading 2	Reading 3	Reading 4	Reading 5	Reading 6	Reading 7	Reading 8
Start Time:								
DO (mg/L) ±10% (or ±0.2 if DO<2 mg/L)	11.22							
EC (µS/Cm) ±3%	305							
pH ±0.1	7.13							
Eh (mV) ±10mV	222							
Temp (°C)	7.5							
SWL (m) after	NA							
Purged Volume (L)	NA							
Cum. Volume (L)	NA							
Water Colour	cloudy							
Turbidity ±10%	5-10%							
Other Observations / Notes	Bubbly on surface (refer to photos Grass Cover.							

Sample Container & Preservation Data					
Number of sample container: (Include QC samples)	1	2	3	4	5
Container Volume	metals	nutrients	PFCs		
Container Type	plastic		D		
Filtration	no		b		
Preservation	yes	no	yes		
Sample Number (for Lab ID):	CKWD2 - 190613				
QC Dup Sample No.:	NA				