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Contaminated Site Assessment
Air Quality Investigations
Remediation Advice and Design
Groundwater Management
Facility Maintenance

ABN 36 835 856 256

ADDENDUM 1

Groundwater Monitoring Event #2 Report

Lot 20 Adelaide Street
Hazelmere

PREPARED FOR:

Wasterock Pty Ltd

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DOCUMENT DETAILS

Title:	Groundwater Monitoring Event #2 - Hazelland Landfill Site, Lot 20 Adelaide Street, Hazelmere
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Status:	Addendum 1
Job number:	E2012-031
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Synopsis:	This document has been prepared to report on the detailed groundwater sampling completed on the Hazelland Landfill Site.

DOCUMENT DISTRIBUTION

Version No	Checked by Date	Issued by Date	Distributed to	Copies
Addendum 1	G. Watts (October 2012)	D. Andrews (October 2012)	Hazelland Pty Ltd	1 (Email)
Signed	G. J. Watts	D R. Andrews.		

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1 INTRODUCTION

This report has been prepared to detail the sampling methodology and results from Groundwater Monitoring Event #2 (GME) completed at the Hazelland Landfill in Hazelmere, herein referred to as the Site. MDW Environmental Services (MDWES) were commissioned by Wasterock Pty Ltd to complete groundwater investigations and compile a Groundwater Investigation Report in support of Section 3.7 of the *Site Remediation Works Agreement and Site Management Plan.*

2 SCOPE OF WORK

The Scope of Work for this project is as follows:

- Collect and analyse representative samples from six groundwater monitoring wells. Samples will be analysed by a NATA certified laboratory for:
    - Total Petroleum Hydrocarbon (TPH);
    - Benzene, Toluene, Ethyl Benzene and Xylene (BTEX);
    - Phenols;
    - Metalloids (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn); and,
    - Organochlorine and Organophosphorous Pesticides,
- Data interpretation and reporting.

2.1 Objectives

The technical objectives of the investigation are to:

- Identify the directional flow of the groundwater below the site; and,
- To identify and determine the extent of the risk that any identified contamination may pose to human health and the environment;
- Establish baseline groundwater data from the Site prior to the proposed remediation works;
- To determine the suitability of water abstraction from the superficial aquifer for the purposes of dust suppression and compaction.

3 SITE IDENTIFICATION

Address:	Lot 20 Adelaide Street, Hazelmere.
Land description:	Industrial
Lots	20
Volume:	2054
Folio:	299
Certificates of Title:	20/D76128 (Appendix A)
Local government authority:	City of Swan
Locality view:	Figure 1
UTM Co-ordinates:	The Site is bounded by the following coordinates.

BOUNDARY CORNERS	MGA94 Zone 50	
	Easting (E)	Northing (N)
North west corner	406595	6467321
North east corner	407034	6467190
North east corner (mid)	406939	6467172
South east corner	407015	6466812
South west corner	406476	6467046
Eastern Corner	407078	6467020

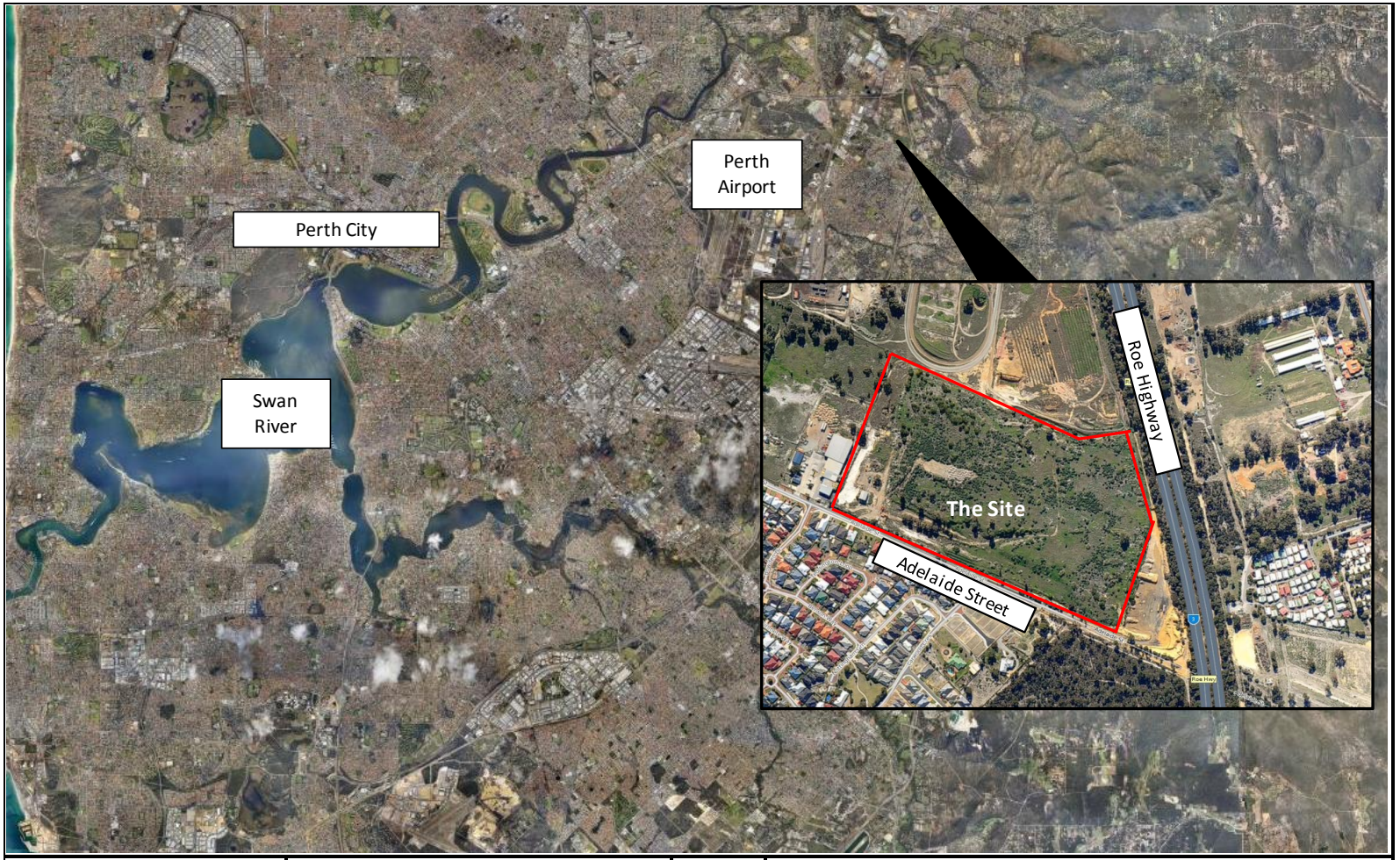

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Figure:	Site Location
Project:	Hazelland Landfill Site
Job No:	E2012-031
Date:	6/07/2012
Source	Nearmap

Figure 1 Site location Plan

4 BACKGROUND INFORMATION

The site (Figure 1) is located within the City of Swan, approximately 14 km east north east of Perth CBD. Situated between Talbot Road and Adelaide Street access is gained from the south of the Site off Adelaide Street. Historically the Site was occupied and used as a licenced inert waste landfill in which potentially contaminating wastes were dumped. Following investigation by Parsons Brinckerhoff (2006) the site was classified "Contaminated – Remediation Required" by the Department of Environment and Conservation (DEC). The Parsons Brinckerhoff report contains substantial amounts of background information regarding this property and the Groundwater Investigation Report should be read in conjunction with this previously completed soil investigation.

4.1 Site History

A detailed historical investigation was not completed as part of this Groundwater Investigation Report.

4.2 Land Owner

The Site is currently vested with Hazelland Pty Ltd and has been so since 2006 under the Land Title City of Swan Location Lot 20 Volume 2054 Folio 299. A copy of the Certificate of Title is in Appendix A.

4.3 Land Use

The Site has been used for collection and storage of inert demolition waste as landfill with some potentially contaminating waste.

4.4 Site Boundary

The Site is surrounded by private land to the north and south with industrial proprieties to the west and Roe Highway runs along the eastern boundary.

4.5 Groundwater Use

The site does not currently make use of groundwater.

4.6 Previous Studies

Soil investigations were completed on the site during 1992 (Dames and Moore) and 2006 (Parsons Brinckerhoff).

4.7 Contaminated Sites Database

The site is currently classed as "*Contaminated – Remediation Required*" as per DEC Contaminated Sites Database.

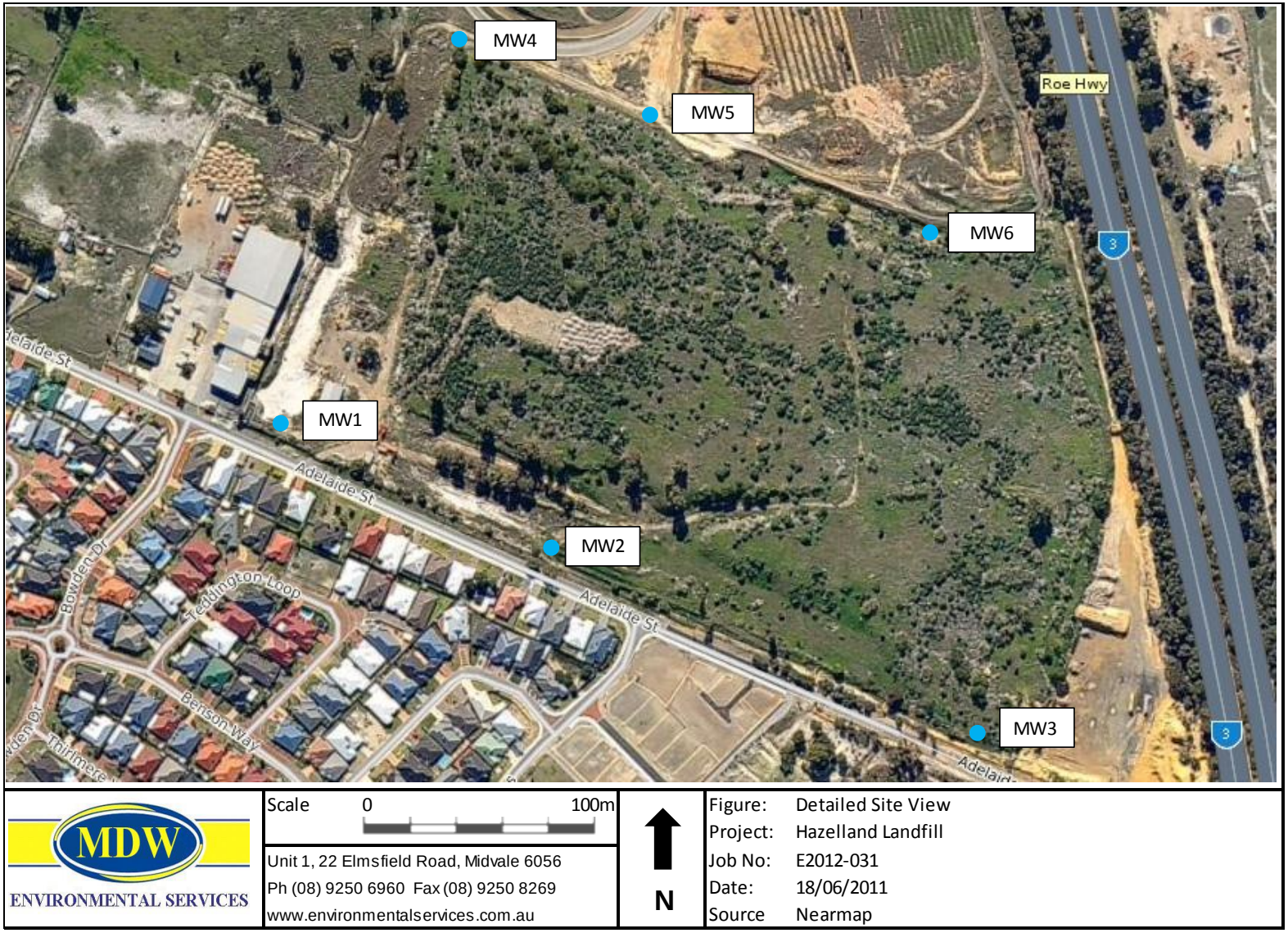

Figure 2 Detailed Site View and Monitoring Well Locations.

5 POTENTIAL CONTAMINANTS OF CONCERN (PCOC)

The land is proposed for development into industrial lots. The following list of PCOC is based on proposed use, historical and current Site activities, regional soil and issues, proximity to Contaminated Sites and off-site sources of impacts:

- Metalloids: Arsenic (As), barium (Ba), beryllium (Be), Cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), manganese (Mn), molybdenum (Mo), nickel (Ni), silver (Ag), selenium (Se), vanadium (V), zinc (Zn), and mercury (Hg);
- Polynuclear Aromatic Hydrocarbons (PAH);
- Monocyclic Aromatic Hydrocarbons (MAH);
- Phenolic compounds;
- Total Petroleum Hydrocarbons (TPH);
- Organochlorine and Organophosphorous Pesticides.

5.1 Preferential Contaminant Pathways

Many of the PCOC identified at the Site have the potential to impact soil and groundwater at the Site and surrounding areas. Listed above are the contaminants most likely to be found within the fill and most likely to present a risk to human health and the environment. The PCOC have been identified due to the wide range of inert demolition waste likely to have been deposited at the Site. The preferential contaminant pathways can be summarized as soil, air and groundwater; notwithstanding that the Scope of Works for this investigation only includes assessment of potential groundwater contamination.

6 SAMPLING ANALYSIS PLAN AND METHODOLOGY

The sampling and analysis of the GME were completed to determine whether imported fill on the site had adversely affected the groundwater. The results within this report will complement previous groundwater data and be used to highlight any changes in groundwater quality during the proposed site remediation works.

6.1 Groundwater Sampling

Sampling was completed on the 30th September 2012; the standing water level was recorded using an electronic water level indicator. Sampling was then undertaken using a 12V GeoTech Low Flow Bladder pump, coupled to a YSI Quattro low flow sampler to enable continuous measurement of field parameters. Once stabilisation of the parameters was reached, samples were collected and submitted to a National Association of Testing Authorities (NATA) accredited laboratory for analysis. Field Sheets are attached in Appendix D.

Surveying was completed on the groundwater monitoring wells post installation to establish accurate water levels and enable further characterization of the groundwater below the site. Certificate of Survey is attached in Appendix E.

7 QUALITY ASSURANCE / QUALITY CONTROL

The following Quality Assurance / Quality Control (QA/QC) program was implemented throughout the investigation to ensure the accuracy and precision of the data obtained. QC measures the effectiveness of the procedures of the QA program.

7.1 Quality Assurance

All procedures including staff selection, sampling methodologies, equipment, analysis methods and data transfer were based on:

- *AS/NZS 5667.11:1998: Water Quality, Part 1: Guidance on the design of sampling programs, sampling techniques, and the preservation and handling of samples. (AS/NZS 5667.11:1998),* and
- *AS/NZS 5667.11:1998 Water Quality, Part 11: Guidance on Sampling of Groundwaters (AS/NZS 5667.11:1998)*.

Particularly, the following actions applied:

- Samples were collected by a trained, experienced field technician,
- Samples were collected by the same personnel, ensuring that techniques used were consistent across the sampling program.

Following discussions with the primary laboratory and a review of their laboratory certificates of analysis, the following laboratory QC protocols occurred:

- At least 5% of samples are split into internal laboratory duplicate samples. These samples are homogenised prior to splitting into sub samples;
- At least 5% of samples are run with Matrix Spikes of known additions.
- Laboratory Control Samples (LCS) are run at the required rate; minimum 1 LCS per batch of samples. The LCS results are reported in the laboratory certificates named 'Interpretive Quality Control Report' and the 'Quality Control Report'.

7.1.1 Groundwater Sampling Procedure

All groundwater samples were subject to the following procedures:

- Dedicated tubing was used for each well and the pump and low flow cell were decontaminated between wells;
- Samples were collected within an eight hour period into new, laboratory supplied sample bottles. Preservatives (if required) were provided by the laboratory in the appropriate sample bottle;
- Samples were filled to the top to ensure no headspace remained;
- All samples were marked in the field using permanent marker with a label showing sample location, date and job number;
- Samples were immediately placed on ice within an esky for transport to the laboratory accompanied with standard chain of custody documentation.

7.1.2 Decontamination of Sampling Equipment

All sampling and drilling equipment were decontaminated prior to use and between each sample location. Decontamination was completed using the following procedure:

- Equipment washed in water;
- Equipment thoroughly scrubbed in water with Decon 90;
- Equipment rinsed in tap water;
- Equipment rinsed in de-ionised water.

7.2 Laboratory

Two NATA certificated laboratories were selected to analyse the samples. ALS Laboratory Group was selected as the primary laboratory. ARLWA; the secondary laboratory, was used for the analysis of replicate samples and for inter-laboratory quality control (QC).

7.3 Quality Control

To ensure the quality of the sampling method and laboratory analysis Quality Control (QC) samples were collected consisting of one (1) Rinsate Blank, one (1) Field Blank, one set of (1) duplicate and triplicate samples of groundwater.

- A rinsate sample was collected for each day of field sampling (RINSATE-002);
- A field blank was collected for each day of field sampling (BLANK-002);

- WRMW4-002 was used as the DUP and TRIP.

Laboratory certificates of analysis including sample receipt notification, chain of custody, and laboratory quality control are available in Appendix F.

The reproducibility of the sampling and analytical methodology is measured as precision. Laboratory and field precision is measured using the Relative Percent Difference (RPD) between the sample and its duplicates. For those RPD values which exceed a generally acceptable 30% - 50% (Australian Standard AS 4482.1), data precision is considered poor, however, consideration needs to be given to sample homogeneity and the concentrations detected. Therefore, the acceptable ranges adopted for the RPDs are based on the laboratories RPD acceptance criteria and are dependent on the magnitude of results in comparison to the limits of reporting (LOR) as follows:

Result < 10 times LOR = No limit

Result 10 – 20 times LOR = 0% - 50%

Result > 20 times LOR = 0% - 20%

Groundwater QC results (Table 1) indicated exceedances of RPD limits of the triplicate sample. Exceedances were noted of total dissolved solids, suspended solids, turbidity, total iron and total phosphorus. As RPD limits between the primary and secondary samples were within allowable limits it is MDWES opinion that the variances noted between the primary and triplicate sample could be due to differing laboratory techniques. ALS Laboratory Group QC documentation indicates the lab's internal QC were observed.

Laboratory analysis of QA samples indicates exceedances of adopted criteria for pH within the Field and Rinsate samples. Detailed results are found in Table 2.

7.4 Waste Disposal

Sampling was completed in consultation with MDWES Standard Operating Procedure and all waste was disposed of appropriately as to not impose a risk or cause contamination.

Table 1 Groundwater Quality Control Results.

Analyte grouping/Analyte	Units	WRMW4	DUP	DUP RL (%)	*DUP RPD (%)*	TRIP	TRIP RL (%)	*TRIP RPD*
pH Value	pH Unit	5.96	5.49	20	*7.89*	5.1	20	*14.43*
Electrical Conductivity	µS/cm	144	151	20	*4.64*	170	50	*15.29*
Total Dissolved Solids	mg/L	83	85	N/L	*2.35*	120	20	*30.83*
Suspended Solids	mg/L	9	16	N/L	*43.75*	48	N/L	*81.25*
Turbidity	NTU	10.8	9.6	20	*11.11*	40	20	*73.00*
Total Alkalinity $CaCO_3$	mg/L	1	<1	N/L	*0.00*	<5	N/L	-
Acidity as $CaCO_3$	mg/L	21	8	50	*61.90*	13	N/L	*38.10*
Sulfate as SO_4^{2-}	mg/L	2	3	N/L	*33.33*	-	-	-
Alkalinity : Sulfate	ratio	0.50	0.00	N/L	*100.00*	-	-	-
Chloride	mg/L	30	31	20	*3.23*	34	N/L	-
Sulfate : Chloride	ratio	0.07	0.10	N/L	*31.11*	-	-	-
Dissolved Metals								
Aluminium	mg/L	0.06	0.06	N/L	*0.00*	0.3	N/L	*80.00*
Arsenic	mg/L	<0.001	<0.001	N/L	-	<0.001	N/L	-
Cadmium	mg/L	0.0001	<0.0001	N/L	-	<0.002	N/L	-
Chromium	mg/L	<0.001	<0.001	N/L	-	<0.01	N/L	-
Manganese	mg/L	0.005	0.004	N/L	*20.00*	<0.01	N/L	-
Nickel	mg/L	0.003	0.002	N/L	*33.33*	<0.01	N/L	-
Selenium	mg/L	<0.01	<0.01	N/L	-	<0.001	N/L	-
Zinc	mg/L	0.01	0.008	N/L	*20.00*	0.02	N/L	*50.00*
Iron	mg/L	<0.05	0.06	N/L	-	0.1	N/L	-
Ferrous Iron	mg/L	<0.010	<0.010	N/L	-	-	-	-
Chromium VI	mg/L	<0.05	<0.05	N/L	-	-	-	-
Total Metals								
Aluminium	mg/L	1.61	1.43	20	*11.18*	2.2	20	*26.82*
Arsenic	mg/L	<0.001	<0.001	N/L	-	0.001	N/L	-
Cadmium	mg/L	<0.0001	<0.0001	N/L	-	<0.002	N/L	-
Chromium	mg/L	0.001	<0.001	N/L	-	<0.01	N/L	-
Copper	mg/L	0.003	0.003	N/L	*0.00*	-	-	-
Lead	mg/L	0.005	0.004	N/L	*20.00*	-	-	-
Manganese	mg/L	0.006	0.006	N/L	*0.00*	<0.01	N/L	-
Molybdenum	mg/L	<0.001	<0.001	N/L	-	-	-	-
Nickel	mg/L	0.003	0.003	N/L	*0.00*	<0.01	N/L	-
Selenium	mg/L	<0.01	<0.01	N/L	-	<0.001	N/L	-
Silver	mg/L	<0.001	<0.001	N/L	-	-	-	-
Zinc	mg/L	0.011	0.011	N/L	*0.00*	0.02	N/L	*45.00*
Iron	mg/L	0.4	0.32	N/L	*20.00*	0.62	20	*35.48*
Mercury	mg/L	<0.0001	<0.0001	N/L	-	-	-	-
Nutrients								
Ammonia as N	mg/L	0.05	0.04	N/L	*20.00*	<0.2	N/L	*0.00*
Nitrite as N	mg/L	<0.01	0.01	N/L	-	0.01	N/L	-
Nitrate as N	mg/L	4.92	4.89	20	*0.61*	6	20	*18.00*
Kjeldhal Nitrogen	mg/L	1.1	1.5	50	*26.67*	<0.2	N/L	*0.00*
Total Nitrogen	mg/L	6	6.4	20	*6.25*	6.1	20	*1.64*
Total Phosphorus	mg/L	0.12	0.09	50	*25.00*	0.02	50	*83.33*
Reactive Phosphorus	mg/L	<0.01	<0.01	N/L	-	<0.01	N/L	-
Sulfide	mg/L	<0.1	<0.1	N/L	-	<0.1	N/L	-
COD	mg/L	7	7	N/L	*0.00*	40	N/L	*82.50*
BOD	mg/L	<2	<2	N/L	-	<5	N/L	-
Organochlorine Pesticides (OC)								
alpha-BHC	µg/L	<0.5	<0.5	N/L	-	<0.001	N/L	-
Hexachlorobenzene (HCB)	µg/L	<0.5	<0.5	N/L	-	<0.001	N/L	-
beta-BHC	µg/L	<0.5	<0.5	N/L	-	<0.001	N/L	-
gamma-BHC	µg/L	<0.5	<0.5	N/L	-	-	-	-
delta-BHC	µg/L	<0.5	<0.5	N/L	-	<0.001	N/L	-
Heptachlor	µg/L	<0.5	<0.5	N/L	-	<0.001	N/L	-
Aldrin	µg/L	<0.5	<0.5	N/L	-	<0.001	N/L	-
Heptachlor epoxide	µg/L	<0.5	<0.5	N/L	-	<0.001	N/L	-
trans-Chlordane	µg/L	<0.5	<0.5	N/L	-	-	-	-
alpha-Endosulfan	µg/L	<0.5	<0.5	N/L	-	-	-	-
cis-Chlordane	µg/L	<0.5	<0.5	N/L	-	-	-	-
Dieldrin	µg/L	<0.5	<0.5	N/L	-	0.054	N/L	-
4.4`-DDE	µg/L	<0.5	<0.5	N/L	-	<0.001	N/L	-
Endrin	µg/L	<0.5	<0.5	N/L	-	<0.01	N/L	-
beta-Endosulfan	µg/L	<0.5	<0.5	N/L	-	-	-	-
4.4`-DDD	µg/L	<0.5	<0.5	N/L	-	<0.001	N/L	-
Endrin aldehyde	µg/L	<0.5	<0.5	N/L	-	-	-	-
Endosulfan sulfate	µg/L	<0.5	<0.5	N/L	-	<0.001	N/L	-
4.4`-DDT	µg/L	<2	<2	N/L	-	<0.001	N/L	-
Endrin ketone	µg/L	<0.5	<0.5	N/L	-	-	-	-
Methoxychlor	µg/L	<2	<2	N/L	-	<0.02	N/L	-
Organophosphorus Pesticides (OP)								
Dichlorvos	µg/L	<0.5	<0.5	N/L	-	-	-	-
Demeton-S-methyl	µg/L	<0.5	<0.5	N/L	-	-	-	-
Monocrotophos	µg/L	<2	<2	N/L	-	-	-	-
Dimethoate	µg/L	<0.5	<0.5	N/L	-	-	-	-
Diazinon	µg/L	<0.5	<0.5	N/L	-	<0.01	N/L	-
Chlorpyrifos-methyl	µg/L	<0.5	<0.5	N/L	-	-	-	-
Parathion-methyl	µg/L	<2	<2	N/L	-	<0.02	N/L	-
Malathion	µg/L	<0.5	<0.5	N/L	-	<0.01	N/L	-
Fenthion	µg/L	<0.5	<0.5	N/L	-	-	-	-
Chlorpyrifos	µg/L	<0.5	<0.5	N/L	-	<0.005	N/L	-
Parathion	µg/L	<2	<2	N/L	-	-	-	-
Pirimphos-ethyl	µg/L	<0.5	<0.5	N/L	-	<0.02	N/L	-
Chlorfenvinphos	µg/L	<0.5	<0.5	N/L	-	-	-	-
Bromophos-ethyl	µg/L	<0.5	<0.5	N/L	-	<0.005	N/L	-
Fenamiphos	µg/L	<0.5	<0.5	N/L	-	-	-	-
Prothiofos	µg/L	<0.5	<0.5	N/L	-	-	-	-
Ethion	µg/L	<0.5	<0.5	N/L	-	<0.01	N/L	-
Carbophenothion	µg/L	<0.5	<0.5	N/L	-	-	-	-
Azinphos Methyl	µg/L	<0.5	<0.5	N/L	-	-	-	-
Monocyclic Aromatic Hydrocarbons								
Benzene	µg/L	<1	<1	N/L	-	<0.001	N/L	-
Toluene	µg/L	<2	<2	N/L	-	<0.001	N/L	-
Ethylbenzene	µg/L	<2	<2	N/L	-	<0.001	N/L	-
meta- & para-Xylene	µg/L	<2	<2	N/L	-	-	-	-
Styrene	µg/L	<5	<5	N/L	-	-	-	-
ortho-Xylene	µg/L	<2	<2	N/L	-	-	-	-
Isopropylbenzene	µg/L	<5	<5	N/L	-	-	-	-
n-Propylbenzene	µg/L	<5	<5	N/L	-	-	-	-
1.3.5-Trimethylbenzene	µg/L	<5	<5	N/L	-	-	-	-
sec-Butylbenzene	µg/L	<5	<5	N/L	-	-	-	-
1.2.4-Trimethylbenzene	µg/L	<5	<5	N/L	-	-	-	-
tert-Butylbenzene	µg/L	<5	<5	N/L	-	-	-	-
p-Isopropyltoluene	µg/L	<5	<5	N/L	-	-	-	-
n-Butylbenzene	µg/L	<5	<5	N/L	-	-	-	-

Oxygenated Compounds								
Vinyl Acetate	µg/L	<50	<50	N/L	-	-	-	-
2-Butanone (MEK)	µg/L	<50	<50	N/L	-	-	-	-
4-Methyl-2-pentanone (MIBK)	µg/L	<50	<50	N/L	-	-	-	-
2-Hexanone (MBK)	µg/L	<50	<50	N/L	-	-	-	-
Sulfonated Compounds								
Carbon disulfide	µg/L	<5	<5	N/L	-	-	-	-
Fumigants								
2.2-Dichloropropane	µg/L	<5	<5	N/L	-	-	-	-
1.2-Dichloropropane	µg/L	<5	<5	N/L	-	-	-	-
cis-1.3-Dichloropropylene	µg/L	<5	<5	N/L	-	-	-	-
trans-1.3-Dichloropropylene	µg/L	<5	<5	N/L	-	-	-	-
1.2-Dibromoethane (EDB)	µg/L	<5	<5	N/L	-	-	-	-
Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	µg/L	<50	<50	N/L	-	-	-	-
Chloromethane	µg/L	<50	<50	N/L	-	-	-	-
Vinyl chloride	µg/L	<50	<50	N/L	-	-	-	-
Bromomethane	µg/L	<50	<50	N/L	-	-	-	-
Chloroethane	µg/L	<50	<50	N/L	-	-	-	-
Trichlorofluoromethane	µg/L	<50	<50	N/L	-	-	-	-
1.1-Dichloroethene	µg/L	<5	<5	N/L	-	-	-	-
Iodomethane	µg/L	<5	<5	N/L	-	-	-	-
trans-1.2-Dichloroethene	µg/L	<5	<5	N/L	-	-	-	-
1.1-Dichloroethane	µg/L	<5	<5	N/L	-	-	-	-
cis-1.2-Dichloroethene	µg/L	<5	<5	N/L	-	-	-	-
1.1.1-Trichloroethane	µg/L	<5	<5	N/L	-	-	-	-
1.1-Dichloropropylene	µg/L	<5	<5	N/L	-	-	-	-
Carbon Tetrachloride	µg/L	<5	<5	N/L	-	-	-	-
1.2-Dichloroethane	µg/L	<5	<5	N/L	-	-	-	-
Trichloroethene	µg/L	<5	<5	N/L	-	-	-	-
Dibromomethane	µg/L	<5	<5	N/L	-	-	-	-
1.1.2-Trichloroethane	µg/L	<5	<5	N/L	-	-	-	-
1.3-Dichloropropane	µg/L	<5	<5	N/L	-	-	-	-
Tetrachloroethene	µg/L	<5	<5	N/L	-	-	-	-
1.1.1.2-Tetrachloroethane	µg/L	<5	<5	N/L	-	-	-	-
trans-1.4-Dichloro-2-butene	µg/L	<5	<5	N/L	-	-	-	-
cis-1.4-Dichloro-2-butene	µg/L	<5	<5	N/L	-	-	-	-
1.1.2.2-Tetrachloroethane	µg/L	<5	<5	N/L	-	-	-	-
1.2.3-Trichloropropane	µg/L	<5	<5	N/L	-	-	-	-
Pentachloroethane	µg/L	<5	<5	N/L	-	-	-	-
1.2-Dibromo-3-chloropropane	µg/L	<5	<5	N/L	-	-	-	-
Hexachlorobutadiene	µg/L	<5	<5	N/L	-	-	-	-
Halogenated Aromatic Compounds								
Chlorobenzene	µg/L	<5	<5	N/L	-	-	-	-
Bromobenzene	µg/L	<5	<5	N/L	-	-	-	-
2-Chlorotoluene	µg/L	<5	<5	N/L	-	-	-	-
4-Chlorotoluene	µg/L	<5	<5	N/L	-	-	-	-
1.3-Dichlorobenzene	µg/L	<5	<5	N/L	-	-	-	-
1.4-Dichlorobenzene	µg/L	<5	<5	N/L	-	-	-	-
1.2-Dichlorobenzene	µg/L	<5	<5	N/L	-	-	-	-
1.2.4-Trichlorobenzene	µg/L	<5	<5	N/L	-	-	-	-
1.2.3-Trichlorobenzene	µg/L	<5	<5	N/L	-	-	-	-
Trihalomethanes								
Chloroform	µg/L	<5	<5	N/L	-	-	-	-
Bromodichloromethane	µg/L	<5	<5	N/L	-	-	-	-
Dibromochloromethane	µg/L	<5	<5	N/L	-	-	-	-
Bromoform	µg/L	<5	<5	N/L	-	-	-	-
Phenolic Compounds								
Phenol	µg/L	<1.0	<1.0	N/L	-	<0.05	N/L	-
2-Chlorophenol	µg/L	<1.0	<1.0	N/L	-	-	-	-
2-Methylphenol	µg/L	<1.0	<1.0	N/L	-	-	-	-
3- & 4-Methylphenol	µg/L	<2.0	<2.0	N/L	-	-	-	-
2-Nitrophenol	µg/L	<1.0	<1.0	N/L	-	-	-	-
2.4-Dimethylphenol	µg/L	<1.0	<1.0	N/L	-	-	-	-
2.4-Dichlorophenol	µg/L	<1.0	<1.0	N/L	-	-	-	-
2.6-Dichlorophenol	µg/L	<1.0	<1.0	N/L	-	-	-	-
4-Chloro-3-Methylphenol	µg/L	<1.0	<1.0	N/L	-	-	-	-
2.4.6-Trichlorophenol	µg/L	<1.0	<1.0	N/L	-	-	-	-
2.4.5-Trichlorophenol	µg/L	<1.0	<1.0	N/L	-	-	-	-
Pentachlorophenol	µg/L	<2.0	<2.0	N/L	-	-	-	-
Polynuclear Aromatic Hydrocarbons								
Naphthalene	µg/L	<1.0	<1.0	N/L	-	<0.1	N/L	-
Acenaphthylene	µg/L	<1.0	<1.0	N/L	-	<0.1	N/L	-
Acenaphthene	µg/L	<1.0	<1.0	N/L	-	<0.1	N/L	-
Fluorene	µg/L	<1.0	<1.0	N/L	-	<0.1	N/L	-
Phenanthrene	µg/L	<1.0	<1.0	N/L	-	<0.1	N/L	-
Anthracene	µg/L	<1.0	<1.0	N/L	-	<0.1	N/L	-
Fluoranthene	µg/L	<1.0	<1.0	N/L	-	<0.1	N/L	-
Pyrene	µg/L	<1.0	<1.0	N/L	-	<0.1	N/L	-
Benz(a)anthracene	µg/L	<1.0	<1.0	N/L	-	<0.1	N/L	-
Chrysene	µg/L	<1.0	<1.0	N/L	-	<0.1	N/L	-
Benzo(b)fluoranthene	µg/L	<1.0	<1.0	N/L	-	<0.1	N/L	-
Benzo(k)fluoranthene	µg/L	<1.0	<1.0	N/L	-	<0.1	N/L	-
Benzo(a)pyrene	µg/L	<0.5	<0.5	N/L	-	<0.1	N/L	-
Indeno(1.2.3.cd)pyrene	µg/L	<1.0	<1.0	N/L	-	<0.1	N/L	-
Dibenz(a.h)anthracene	µg/L	<1.0	<1.0	N/L	-	<0.1	N/L	-
Benzo(g.h.i)perylene	µg/L	<1.0	<1.0	N/L	-	<0.1	N/L	-
Total Petroleum Hydrocarbons								
C6 - C9 Fraction	µg/L	<20	<20	N/L	-	<0.02	N/L	-
C10 - C14 Fraction	µg/L	<50	<50	N/L	-	<0.02	N/L	-
C15 - C28 Fraction	µg/L	<100	<100	N/L	-	<0.04	N/L	-
C29 - C36 Fraction	µg/L	<50	<50	N/L	-	<0.04	N/L	-
C10 - C36 Fraction (sum)	µg/L	<50	<50	N/L	-	<0.04	N/L	-

Table 2 Laboratory Analysis of Field Blank and Rinsate Samples

Analyte grouping/Analyte	Units	ANZECC & ARMCANZ (2000)[1]		ADWG (2004)[2]		DOH (2006)[3]	ANZECC & ARMCANZ (2000)[1]		18/05/2012	18/05/2012
		Fresh Waters[4]	Marine Waters[4]	Drinking Water Health Value (HV)	Drinking Water Aesthetic Value	Domestic non-potable	Short-term Irrigation Water	Long-term Irrigation Water[5]	FIELD	RINSATE
pH Value	pH Unit	6.5-8.5	8.0-8.4		6.5-8.5			6.0-8.5	5.63	5.91
Electrical Conductivity	µS/cm								<1	<1
Total Dissolved Solids	mg/L								<10	<10
Suspended Solids	mg/L								<5	<5
Turbidity	NTU								0.3	<0.1
Total Alkalinity $CaCO_3$	mg/L								<1	<1
Acidity as $CaCO_3$	mg/L								4	2
Sulfate as SO_4^{2-}	mg/L								<1	<1
Alkalinity : Sulfate	ratio			500	250	5000			<1	<1
Chloride	mg/L								<1	<1
Sulfate : Chloride	ratio				250	2500			<1	<1
Total Metals										
Aluminium	mg/L	0.055			0.2	2	20	5	<0.01	<0.01
Arsenic	mg/L	0.013		0.01		0.07	2	0.1	<0.001	<0.001
Cadmium	mg/L	0.0002	0.0007	0.002		0.02	0.05	0.01	<0.0001	<0.0001
Chromium	mg/L						1	0.1	0.003	<0.001
Copper	mg/L	0.0014	0.0013	2	1	20	5	0.2	0.001	0.001
Lead	mg/L	0.0034	0.0044	0.01		0.1	5	2	<0.001	<0.001
Manganese	mg/L	1.9		0.5	0.1	5	10	0.2	<0.001	<0.001
Molybdenum	mg/L			0.05		0.5	0.05	0.01	<0.001	<0.001
Nickel	mg/L	0.011	0.02	0.02		0.2	2	0.2	0.002	<0.001
Selenium	mg/L	0.005		0.01		0.1	0.05	0.02	<0.01	<0.01
Silver	mg/L	0.00005	0.0014	0.1		1			<0.001	<0.001
Zinc	mg/L	0.008	0.015		3	30	5	2	<0.005	<0.005
Iron	mg/L	0.3	1.0 / 0.35		0.33	3	10	0.2	0.08	<0.05
Mercury	mg/L	0.00006	0.0001	0.001		0.01	0.002	0.002	<0.0001	<0.0001
Nutrients										
Ammonia as N	mg/L	0.9	0.91						0.03	0.04
Nitrite as N	mg/L			3.0		30			<0.01	<0.01
Nitrate as N	mg/L			50		500			<0.01	<0.01
Kjeldhal Nitrogen	mg/L								<0.1	<0.1
Total Nitrogen	mg/L	1.0 / 2.0[1]							<0.1	<0.1
Total Phosphorus	mg/L	0.1 / 0.2[1]							<0.01	<0.01
Reactive Phosphorus	mg/L								<0.01	<0.01
Sulfide	mg/L	0.001							<0.1	<0.1
COD	mg/L								<5	<5
BOD	mg/L								3	<2
Organochlorine Pesticides (OC)										
alpha-BHC	µg/L								<0.5	<0.5
Hexachlorobenzene (HCB)	µg/L								<0.5	<0.5
beta-BHC	µg/L								<0.5	<0.5
gamma-BHC	µg/L								<0.5	<0.5
delta-BHC	µg/L								<0.5	<0.5
Heptachlor	µg/L	0.01							<0.5	<0.5
Aldrin	µg/L								<0.5	<0.5
Heptachlor epoxide	µg/L			0.05	0.3	3			<0.5	<0.5
trans-Chlordane	µg/L	0.03[2]		0.01	1	10			<0.5	<0.5
alpha-Endosulfan	µg/L	0.03[3]	0.005[3]	0.05	30	30			<0.5	<0.5
cis-Chlordane	µg/L	0.03[2]		0.01	1	10			<0.5	<0.5
Dieldrin	µg/L								<0.5	<0.5
4.4`-DDE	µg/L								<0.5	<0.5
Endrin	µg/L	0.01	0.004						<0.5	<0.5
beta-Endosulfan	µg/L	0.03[3]	0.005[3]						<0.5	<0.5
4.4`-DDD	µg/L								<0.5	<0.5
Endrin aldehyde	µg/L								<0.5	<0.5
Endosulfan sulfate	µg/L								<0.5	<0.5
4.4`-DDT	µg/L	0.006		0.06	30	0.1			<2	<2
Endrin ketone	µg/L								<0.5	<0.5
Methoxychlor	µg/L								<2	<2
Organophosphorus Pesticides (OP)										
Dichlorvos	µg/L								<0.5	<0.5
Demeton-S-methyl	µg/L								<0.5	<0.5
Monocrotophos	µg/L								<2	<2
Dimethoate	µg/L	0.15			50	50			<0.5	<0.5
Diazinon	µg/L	0.01		1	3	1			<0.5	<0.5
Chlorpyrifos-methyl	µg/L	0.01	0.009		10	100			<0.5	<0.5
Parathion-methyl	µg/L								<2	<2
Malathion	µg/L	0.05							<0.5	<0.5
Fenthion	µg/L								<0.5	<0.5
Chlorpyrifos	µg/L	0.01	0.009						<0.5	<0.5
Parathion	µg/L	0.004			10	10			<2	<2
Pirimphos-ethyl	µg/L								<0.5	<0.5
Chlorfenvinphos	µg/L								<0.5	<0.5
Bromophos-ethyl	µg/L								<0.5	<0.5
Fenamiphos	µg/L								<0.5	<0.5
Prothiofos	µg/L								<0.5	<0.5
Ethion	µg/L								<0.5	<0.5
Carbophenothion	µg/L								<0.5	<0.5
Azinphos Methyl	µg/L	0.02							<0.5	<0.5
Monocyclic Aromatic Hydrocarbons										
Benzene	µg/L	0.95	0.5	0.001		0.01			-	-
Toluene	µg/L			0.80	0.025	0.025			-	-
Ethylbenzene	µg/L			0.30	0.003	0.003			-	-
meta- & para-Xylene	µg/L	200							-	-
Styrene	µg/L			0.03	0.004	0.004			<5	<5
ortho-Xylene	µg/L	350							-	-
Isopropylbenzene	µg/L								<5	<5
n-Propylbenzene	µg/L								<5	<5
1.3.5-Trimethylbenzene	µg/L								<5	<5
sec-Butylbenzene	µg/L								<5	<5
1.2.4-Trimethylbenzene	µg/L								<5	<5
tert-Butylbenzene	µg/L								<5	<5
p-Isopropyltoluene	µg/L								<5	<5
n-Butylbenzene	µg/L								<5	<5

Oxygenated Compounds										
Vinyl Acetate	µg/L								<50	<50
2-Butanone (MEK)	µg/L								<50	<50
4-Methyl-2-pentanone (MIBK)	µg/L								<50	<50
2-Hexanone (MBK)	µg/L								<50	<50
Sulfonated Compounds										
Carbon disulfide	µg/L								<5	<5
Fumigants										
2.2-Dichloropropane	µg/L								<5	<5
1.2-Dichloropropane	µg/L								<5	<5
cis-1.3-Dichloropropylene	µg/L								<5	<5
trans-1.3-Dichloropropylene	µg/L								<5	<5
1.2-Dibromoethane (EDB)	µg/L								<5	<5
Halogenated Aliphatic Compounds										
Dichlorodifluoromethane	µg/L								<50	<50
Chloromethane	µg/L								<50	<50
Vinyl chloride	µg/L			0.0003		0.003			<50	<50
Bromomethane	µg/L								<50	<50
Chloroethane	µg/L								<50	<50
Trichlorofluoromethane	µg/L								<50	<50
1.1-Dichloroethene	µg/L			0.03		0.3			<5	<5
Iodomethane	µg/L								<5	<5
trans-1.2-Dichloroethene	µg/L								<5	<5
1.1-Dichloroethane	µg/L								<5	<5
cis-1.2-Dichloroethene	µg/L								<5	<5
1.1.1-Trichloroethane	µg/L								<5	<5
1.1-Dichloropropylene	µg/L								<5	<5
Carbon Tetrachloride	µg/L								<5	<5
1.2-Dichloroethane	µg/L			0.003		0.03			<5	<5
Trichloroethene	µg/L								<5	<5
Dibromomethane	µg/L								<5	<5
1.1.2-Trichloroethane	µg/L	6500	1900						<5	<5
1.3-Dichloropropane	µg/L								<5	<5
Tetrachloroethene	µg/L			0.05		0.5			<5	<5
1.1.1.2-Tetrachloroethane	µg/L								<5	<5
trans-1.4-Dichloro-2-butene	µg/L								<5	<5
cis-1.4-Dichloro-2-butene	µg/L								<5	<5
1.1.2.2-Tetrachloroethane	µg/L								<5	<5
1.2.3-Trichloropropane	µg/L								<5	<5
Pentachloroethane	µg/L								<5	<5
1.2-Dibromo-3-chloropropane	µg/L								<5	<5
Hexachlorobutadiene	µg/L								<5	<5
Halogenated Aromatic Compounds										
Chlorobenzene	µg/L			0.30	0.01	0.01			<5	<5
Bromobenzene	µg/L								<5	<5
2-Chlorotoluene	µg/L								<5	<5
4-Chlorotoluene	µg/L								<5	<5
1.3-Dichlorobenzene	µg/L	0.26			0.02	0.02			<5	<5
1.4-Dichlorobenzene	µg/L	0.06		0.04	0.003	0.003			<5	<5
1.2-Dichlorobenzene	µg/L	0.16		1.5	0.001	0.001			<5	<5
1.2.4-Trichlorobenzene	µg/L	0.085	80	0.03	0.005	0.005			<5	<5
1.2.3-Trichlorobenzene	µg/L	0.003		0.03	0.005	0.005			<5	<5
Trihalomethanes										
Chloroform	µg/L								<5	<5
Bromodichloromethane	µg/L								<5	<5
Dibromochloromethane	µg/L								<5	<5
Bromoform	µg/L								<5	<5
Phenolic Compounds										
Phenol	µg/L	320	400						<1.0	<1.0
2-Chlorophenol	µg/L	340		300	0.1	3000			<1.0	<1.0
2-Methylphenol	µg/L								<1.0	<1.0
3- & 4-Methylphenol	µg/L								<2.0	<2.0
2-Nitrophenol	µg/L								<1.0	<1.0
2.4-Dimethylphenol	µg/L								<1.0	<1.0
2.4-Dichlorophenol	µg/L	120		200	0.3	2000			<1.0	<1.0
2.6-Dichlorophenol	µg/L								<1.0	<1.0
4-Chloro-3-Methylphenol	µg/L								<1.0	<1.0
2.4.6-Trichlorophenol	µg/L	3		20	2	200			<1.0	<1.0
2.4.5-Trichlorophenol	µg/L								<1.0	<1.0
Pentachlorophenol	µg/L	3.6	11						<2.0	<2.0
Polynuclear Aromatic Hydrocarbons										
Naphthalene	µg/L	16	50						<1.0	<1.0
Acenaphthylene	µg/L								<1.0	<1.0
Acenaphthene	µg/L								<1.0	<1.0
Fluorene	µg/L								<1.0	<1.0
Phenanthrene	µg/L								<1.0	<1.0
Anthracene	µg/L								<1.0	<1.0
Fluoranthene	µg/L								<1.0	<1.0
Pyrene	µg/L								<1.0	<1.0
Benz(a)anthracene	µg/L								<1.0	<1.0
Chrysene	µg/L								<1.0	<1.0
Benzo(b)fluoranthene	µg/L								<1.0	<1.0
Benzo(k)fluoranthene	µg/L								<1.0	<1.0
Benzo(a)pyrene	µg/L			0.01		0.1			<0.5	<0.5
Indeno(1.2.3.cd)pyrene	µg/L								<1.0	<1.0
Dibenz(a.h)anthracene	µg/L								<1.0	<1.0
Benzo(g.h.i)perylene	µg/L								<1.0	<1.0
Total Petroleum Hydrocarbons										
C6 - C9 Fraction	µg/L								<20	<20
C10 - C14 Fraction	µg/L								<50	<50
C15 - C28 Fraction	µg/L								<100	<100
C29 - C36 Fraction	µg/L								<50	<50
C10 - C36 Fraction (sum)	µg/L	600 [4]							<50	<50

NOTES:
1. SRT Healthy Rivers Action Plan Long Term / Short Term Targets
2. ANZECC 99% protection level for Chlordane
3. ANZECC 99% protection level for Endosulfan
4. Dutch intervention values (2000).
5. pH > 6 / pH < 6
6. ASS disturbance indicators
7. Effluent treatment triggers

8 RESULTS

8.1 Laboratory Results

Field results and laboratory analysis of groundwater samples undertaken onsite are presented in Table 3 through to Table 8. To assess the groundwater quality at the Site, water quality results were compared against the criteria outlined within the DEC's *Contaminated Site Management Series - Assessment Levels for Soil, Sediment and Water* (DEC, 2010). Laboratory results were compared against the following criteria;

- Freshwater Ecosystem Trigger Values, Marine Ecosystem Trigger Values, Short-term Irrigation Water and the Long-term Irrigation Water from the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* prepared by the Australian and New Zealand Environment and Conservation Council (ANZECC, 2000);
- Drinking Water Health Value and Drinking Water Aesthetic Value from the *Australian Drinking Water Guidelines* (NHMRC & ARMCANZ, 2004); and,
- Domestic Non-potable Groundwater Use from the Department of Health's (DoH) Contaminated Sites Reporting Guideline for Chemicals in Groundwater (DoH, 2006).

The following notes are the summaries of laboratory results and the comparison to assessment criteria.

Total Petroleum Hydrocarbons (TPH)
Laboratory results indicate the presence of TPH with in WRMW6 however concentrations are below assessment criteria. TPH concentrations within the remaining monitoring wells were below LOR.

Monocyclic Aromatic Hydrocarbons (MAH)
MAHs were not detected in any of the samples analysed.

Polycyclic Aromatic Hydrocarbons
PAHs were not detected in any of the samples analysed.

Phenols
Laboratory results indicate the presence of 3-&4-Methylphenol within WRMW3 all other samples were below laboratory detection limits.

Metals
The following dissolved metals exceedances were detected:

- Dissolved aluminium exceeded the following assessment criteria at the associated locations;
    - WRMW1, WRMW4 and WRMW6 exceeded Fresh Waters assessment criteria for;
    - WRMW5 exceeded both Fresh Waters and ADWG AV assessment criteria.
- Dissolved zinc exceeded the following assessment criteria at the associated locations;

    - WRMW1 And WRMW4 exceeded Fresh Waters assessment criteria;
    - WRMW2, WRMW5 and WRMW6 exceeded Fresh Waters and Marine Waters assessment criteria.
- Dissolved iron exceeded Fresh Waters assessment criteria at WRMW1, WRMW2, and WRMW5.

The following total metals exceedances were detected:

- Total aluminium exceeded the following assessment criteria at the associated locations;
    - WRMW4 and WRMW6 exceeded Fresh Waters and ADWH AV assessment criteria;
    - WRMW2 and WRMW5 exceeded Fresh Waters, ADWG AV and DoH assessment criteria;
    - WRMW1 exceeded all assessment criteria excluding Short Term Irrigation assessment criteria;
    - WRMW3 exceeded all assessment criteria,
- Total copper exceeded the Fresh assessment criteria for all locations,
- Total lead exceeded the following assessment criteria at the associated location;
    - WRMW4 and WRMW6 exceeded Fresh Waters and Marine Waters assessment criteria;
    - WRMW1 and WRMW3 exceeded Fresh Waters, Marine Waters and ADWG HV assessment criteria;
- Total manganese exceeded ADWG AV assessment criteria at WRMW3;
- Total nickel exceeded Fresh Waters assessment criteria within WRMW3;
- Total zinc exceeded the following assessment criteria at the associated location;
    - Fresh Water assessment criteria were exceeded at WRMW4 and WRMW6;
    - WRMW2 and WRMW3 exceeded Fresh Waters and Marine Waters assessment criteria;
- Total iron exceeded the following assessment criteria at the associated locations;
    - WRMW1 exceeded Long-term Irrigation Water assessment criteria;
    - WRMW2 and WRMW4 exceeded Long-term Irrigation Water and Marine Water assessment criteria;
    - WRMW6 exceeded Long-term Irrigation Water, Fresh Waters, Marine Waters and DoH assessment criteria;
    - WRMW3 exceeded all assessment criteria.

OC Pesticides

OC pesticides were below laboratory assessment criteria for all laboratory samples.

OP Pesticides

OP pesticides were not detected in any of the samples analysed. It is noted that the primary laboratory detection limits were not low enough to detect methyl parathion at DNPGW trigger values.

Major Anions and Cations

No exceedances were identified.

Nutrients

Total Nitrogen exceeded Fresh water assessment criteria for all monitoring well locations tested.

Total Phosphorus exceeded Fresh waters criteria at WRMW1, WRMW3, WRMW4 and WRMW5.

8.2 Historical Data

Laboratory analysis of samples completed for GME#2 are tabulated against historical monitoring events to identify changes in groundwater quality. The following points are comparisons of current results from GME#2 against historical data.

- Laboratory results of MW1 samples indicates a decrease in Total Aluminium and an increase in Total Phosphorus, all other analytes remained similar throughout both monitoring events.
- MW2 laboratory results indicate that Total Dissolved Solids (TDS), Suspended Solids (SS), Turbidity, Total Alkalinity, Total Aluminium, Total Copper, Total Iron and 3-&4- Methylphenol have decreased between monitoring events while Acidity has increased; all other analytes have remained similar.
- Results for MW3 show that Electrical Conductivity (EC), TDS, Total Alkalinity, Sulfate, Total Aluminium, Total Manganese and TPH fraction C29-C36 have decreased however SS, Turbidity, Total Nitrogen, Total Phosphorus and 3-&4- Methylphenol have increased. All other analytes remained similar through both monitoring events.
- Laboratory results of MW4 indicate a decrease in EC, TDS, SS, Turbidity, Total Alkalinity, Sulfate, Chloride, Total Aluminium, Total Lead, Total Iron and Trihalomethanes however an increase of Acidity, Total Nitrogen and Total Phosphorus was noted. All other analytes remained similar over the monitoring events.
- Comparison of MW5 results indicate a decrease in EC, TDS, Total Alkalinity, Sulfate, Chloride, Total Aluminium, Total Iron and Trihalomethanes, increases were noted in SS, Turbidity, Total Copper, Total Nitrogen and Total Phosphorus. All other analytes remained similar throughout the monitoring events.
- MW6 laboratory results show a decrease in SS, Turbidity,, Total Alkalinity, Total Aluminium, Total Iron, Ammonia and TPH within the C29-*C36 fraction. An increase was noted of EC, TDS, Acidity, Sulfate, Chloride, Total Nitrogen and TPH within the C15-C28 fraction. All other analytes remained similar throughout the monitoring event.

Table 3 MW1 Groundwater Laboratory Analysis Results

Analyte grouping/Analyte	Units	ANZECC & ARMCANZ		ADWG		DoH	ANZECC & ARMCANZ			
		Fresh Waters	Marine Waters	Drinking Water Health Value (HV)	Drinking Water Aesthetic Value (AV)	Domestic non-potable groundwater use	Short-term Irrigation Water	Long-term Irrigation Water	18/05/2012 WRMW1	30/08/2012 WRMW1
pH Value	pH Unit	6.5-8.5	8.0-8.4		6.5-8.5			6.0-8.5	6.58	6.77
Electrical Conductivity	µS/cm								635	716
Total Dissolved Solids	mg/L								434	474
Suspended Solids	mg/L								582	950
Turbidity	NTU								166	202
Total Alkalinity $CaCO_3$	mg/L								43	36
Acidity as $CaCO_3$	mg/L								15	35
Sulfate as SO_4^{2-}	mg/L			500	250	5000			105	123
Chloride	mg/L				250	2500			134	138
Total Metals										
Aluminium	mg/L	0.055			0.2	2	20	5	11.1	7.69
Arsenic	mg/L	0.013		0.01		0.07	2	0.1	<0.001	<0.001
Cadmium	mg/L	0.0002	0.0007	0.002		0.02	0.05	0.01	<0.0001	<0.0001
Chromium	mg/L						1	0.1	0.007	0.005
Copper	mg/L	0.0014	0.0013	2	1	20	5	0.2	0.004	0.002
Lead	mg/L	0.0034	0.0044	0.01		0.1	5	2	0.013	0.015
Manganese	mg/L	1.9		0.5	0.1	5	10	0.2	0.006	0.004
Molybdenum	mg/L			0.05		0.5	0.05	0.01	<0.001	<0.001
Nickel	mg/L	0.011	0.02	0.02		0.2	2	0.2	0.002	0.003
Selenium	mg/L	0.005		0.01		0.1	0.05	0.02	<0.01	<0.01
Silver	mg/L	0.00005	0.0014	0.1		1			<0.001	<0.001
Zinc	mg/L	0.008	0.015		3	30	5	2	0.008	0.007
Iron	mg/L	0.3	1.0 / 0.35		0.33	3	10	0.2	0.29	0.21
Mercury	mg/L	0.00006	0.0001	0.001		0.01	0.002	0.002	0.0001	0.0001
Nutrients										
Ammonia as N	mg/L	0.9	0.91						0.06	0.03
Nitrite as N	mg/L			3.0		30			0.03	0.02
Nitrate as N	mg/L			50		500			5.15	4.91
Kjeldhal Nitrogen	mg/L								0.5	1.4
Total Nitrogen	mg/L	1.0 / 2.0[1]							5.7	6.3
Total Phosphorus	mg/L	0.1 / 0.2[1]							0.01	0.19
Reactive Phosphorus	mg/L								<0.01	<0.01
Sulfide	mg/L	0.001							0.1	<0.1
COD	mg/L								18	14
BOD	mg/L								<2	<2
Organochlorine Pesticides (OC)										
alpha-BHC	µg/L								<0.5	<0.5
Hexachlorobenzene (HCB)	µg/L								<0.5	<0.5
beta-BHC	µg/L								<0.5	<0.5
gamma-BHC	µg/L								<0.5	<0.5
delta-BHC	µg/L								<0.5	<0.5
Heptachlor	µg/L	0.01							<0.5	<0.5
Aldrin	µg/L								<0.5	<0.5
Heptachlor epoxide	µg/L			0.05	0.3	3			<0.5	<0.5
trans-Chlordane	µg/L	0.03[2]		0.01	1	10			<0.5	<0.5
alpha-Endosulfan	µg/L	0.03[3]	0.005[3]	0.05	30	30			<0.5	<0.5
cis-Chlordane	µg/L	0.03[2]		0.01	1	10			<0.5	<0.5
Dieldrin	µg/L								<0.5	<0.5
4.4`-DDE	µg/L								<0.5	<0.5
Endrin	µg/L	0.01	0.004						<0.5	<0.5
beta-Endosulfan	µg/L	0.03[3]	0.005[3]						<0.5	<0.5
4.4`-DDD	µg/L								<0.5	<0.5
Endrin aldehyde	µg/L								<0.5	<0.5
Endosulfan sulfate	µg/L								<0.5	<0.5
4.4`-DDT	µg/L	0.006		0.06	30	0.1			<2	<2
Endrin ketone	µg/L								<0.5	<0.5
Methoxychlor	µg/L								<2	<2
Aldrin plus dieldrin	µg/L			0.010	0.3	3			<1	<0.5
Organophosphorus Pesticides (OP)										
Dichlorvos	µg/L								<0.5	<0.5
Demeton-S-methyl	µg/L								<0.5	<0.5
Monocrotophos	µg/L								<2	<2
Dimethoate	µg/L	0.15			50	50			<0.5	<0.5
Diazinon	µg/L	0.01		1	3	1			<0.5	<0.5
Chlorpyrifos-methyl	µg/L	0.01	0.009		10	100			<0.5	<0.5
Parathion-methyl	µg/L								<2	<2
Malathion	µg/L	0.05							<0.5	<0.5
Fenthion	µg/L								<0.5	<0.5
Chlorpyrifos	µg/L	0.01	0.009						<0.5	<0.5
Parathion	µg/L	0.004			10	10			<2	<2
Pirimphos-ethyl	µg/L								<0.5	<0.5
Chlorfenvinphos	µg/L								<0.5	<0.5
Bromophos-ethyl	µg/L								<0.5	<0.5
Fenamiphos	µg/L								<0.5	<0.5
Prothiofos	µg/L								<0.5	<0.5
Ethion	µg/L								<0.5	<0.5
Carbophenothion	µg/L								<0.5	<0.5
Azinphos Methyl	µg/L	0.02							<0.5	<0.5
Monocyclic Aromatic Hydrocarbons										
Benzene	µg/L	0.95	0.5	0.001		0.01			-	-
Toluene	µg/L			0.80	0.025	0.025			-	-
Ethylbenzene	µg/L			0.30	0.003	0.003			-	-
meta- & para-Xylene	µg/L	200							-	-
Styrene	µg/L			0.03	0.004	0.004			<5	<5
ortho-Xylene	µg/L	350							-	-
Isopropylbenzene	µg/L								<5	<5
n-Propylbenzene	µg/L								<5	<5
1.3.5-Trimethylbenzene	µg/L								<5	<5
sec-Butylbenzene	µg/L								<5	<5
1.2.4-Trimethylbenzene	µg/L								<5	<5
tert-Butylbenzene	µg/L								<5	<5
p-Isopropyltoluene	µg/L								<5	<5
n-Butylbenzene	µg/L								<5	<5

Oxygenated Compounds										
Vinyl Acetate	µg/L								<50	<50
2-Butanone (MEK)	µg/L								<50	<50
4-Methyl-2-pentanone (MIBK)	µg/L								<50	<50
2-Hexanone (MBK)	µg/L								<50	<50
Sulfonated Compounds										
Carbon disulfide	µg/L								<5	<5
Fumigants										
2.2-Dichloropropane	µg/L								<5	<5
1.2-Dichloropropane	µg/L								<5	<5
cis-1.3-Dichloropropylene	µg/L								<5	<5
trans-1.3-Dichloropropylene	µg/L								<5	<5
1.2-Dibromoethane (EDB)	µg/L								<5	<5
Halogenated Aliphatic Compounds										
Dichlorodifluoromethane	µg/L								<50	<50
Chloromethane	µg/L								<50	<50
Vinyl chloride	µg/L			0.0003		0.003			<50	<50
Bromomethane	µg/L								<50	<50
Chloroethane	µg/L								<50	<50
Trichlorofluoromethane	µg/L								<50	<50
1.1-Dichloroethene	µg/L			0.03		0.3			<5	<5
Iodomethane	µg/L								<5	<5
trans-1.2-Dichloroethene	µg/L								<5	<5
1.1-Dichloroethane	µg/L								<5	<5
cis-1.2-Dichloroethene	µg/L								<5	<5
1.1.1-Trichloroethane	µg/L								<5	<5
1.1-Dichloropropylene	µg/L								<5	<5
Carbon Tetrachloride	µg/L								<5	<5
1.2-Dichloroethane	µg/L			0.003		0.03			<5	<5
Trichloroethene	µg/L								<5	<5
Dibromomethane	µg/L								<5	<5
1.1.2-Trichloroethane	µg/L	6500	1900						<5	<5
1.3-Dichloropropane	µg/L								<5	<5
Tetrachloroethene	µg/L			0.05		0.5			<5	<5
1.1.1.2-Tetrachloroethane	µg/L								<5	<5
trans-1.4-Dichloro-2-butene	µg/L								<5	<5
cis-1.4-Dichloro-2-butene	µg/L								<5	<5
1.1.2.2-Tetrachloroethane	µg/L								<5	<5
1.2.3-Trichloropropane	µg/L								<5	<5
Pentachloroethane	µg/L								<5	<5
1.2-Dibromo-3-chloropropane	µg/L								<5	<5
Hexachlorobutadiene	µg/L								<5	<5
Halogenated Aromatic Compounds										
Chlorobenzene	µg/L			0.30	0.01	0.01			<5	<5
Bromobenzene	µg/L								<5	<5
2-Chlorotoluene	µg/L								<5	<5
4-Chlorotoluene	µg/L								<5	<5
1.3-Dichlorobenzene	µg/L	0.26			0.02	0.02			<5	<5
1.4-Dichlorobenzene	µg/L	0.06		0.04	0.003	0.003			<5	<5
1.2-Dichlorobenzene	µg/L	0.16		1.5	0.001	0.001			<5	<5
1.2.4-Trichlorobenzene	µg/L	0.085	80	0.03	0.005	0.005			<5	<5
1.2.3-Trichlorobenzene	µg/L	0.003		0.03	0.005	0.005			<5	<5
Trihalomethanes										
Chloroform	µg/L								<5	<5
Bromodichloromethane	µg/L								<5	<5
Dibromochloromethane	µg/L								<5	<5
Bromoform	µg/L								<5	<5
Phenolic Compounds										
Phenol	µg/L	320	400						<1.0	<1.0
2-Chlorophenol	µg/L	340		300	0.1	3000			<1.0	<1.0
2-Methylphenol	µg/L								<1.0	<1.0
3- & 4-Methylphenol	µg/L								<2.0	<2.0
2-Nitrophenol	µg/L								<1.0	<1.0
2.4-Dimethylphenol	µg/L								<1.0	<1.0
2.4-Dichlorophenol	µg/L	120		200	0.3	2000			<1.0	<1.0
2.6-Dichlorophenol	µg/L								<1.0	<1.0
4-Chloro-3-Methylphenol	µg/L								<1.0	<1.0
2.4.6-Trichlorophenol	µg/L	3		20	2	200			<1.0	<1.0
2.4.5-Trichlorophenol	µg/L								<1.0	<1.0
Pentachlorophenol	µg/L	3.6	11						<2.0	<2.0
Polynuclear Aromatic Hydrocarbons										
Naphthalene	µg/L	16	50						<1.0	<1.0
Acenaphthylene	µg/L								<1.0	<1.0
Acenaphthene	µg/L								<1.0	<1.0
Fluorene	µg/L								<1.0	<1.0
Phenanthrene	µg/L								<1.0	<1.0
Anthracene	µg/L								<1.0	<1.0
Fluoranthene	µg/L								<1.0	<1.0
Pyrene	µg/L								<1.0	<1.0
Benz(a)anthracene	µg/L								<1.0	<1.0
Chrysene	µg/L								<1.0	<1.0
Benzo(b)fluoranthene	µg/L								<1.0	<1.0
Benzo(k)fluoranthene	µg/L								<1.0	<1.0
Benzo(a)pyrene	µg/L			0.01		0.1			<0.5	<0.5
Indeno(1.2.3.cd)pyrene	µg/L								<1.0	<1.0
Dibenz(a.h)anthracene	µg/L								<1.0	<1.0
Benzo(g.h.i)perylene	µg/L								<1.0	<1.0
Total Petroleum Hydrocarbons										
C6 - C9 Fraction	µg/L								<20	<20
C10 - C14 Fraction	µg/L								<50	<50
C15 - C28 Fraction	µg/L								<100	<100
C29 - C36 Fraction	µg/L								<50	<50
C10 - C36 Fraction (sum)	µg/L	600 [4]							<50	<50

NOTES: 1. SRT Healthy Rivers Action Plan Long Term / Short Term Targets
2. ANZECC 99% protection level for Chlordane
3. ANZECC 99% protection level for Endosulfan
4. Dutch intervention values (2000).
5. pH > 6 / pH < 6
6. ASS disturbance indicators
7. Effluent treatment triggers

Table 4 MW2 Groundwater Laboratory Analysis Results

Analyte grouping/Analyte	Units	ANZECC & ARMCANZ		ADWG		DoH	ANZECC & ARMCANZ			
		Fresh Waters	Marine Waters	Drinking Water Health Value (HV)	Drinking Water Aesthetic Value (AV)	Domestic non-potable groundwater use	Short-term Irrigation Water	Long-term Irrigation Water	18/05/2012 WRMW2	30/08/2012 WRMW2
pH Value	pH Unit	6.5-8.5	8.0-8.4		6.5-8.5			6.0-8.5	6.14	5.72
Electrical Conductivity	µS/cm								307	292
Total Dissolved Solids	mg/L								244	169
Suspended Solids	mg/L								292	106
Turbidity	NTU								236	32
Total Alkalinity $CaCO_3$	mg/L								17	3
Acidity as $CaCO_3$	mg/L								26	42
Sulfate as SO_4^{2-}	mg/L			500	250	5000			13	11
Chloride	mg/L				250	2500			80	82
Total Metals										
Aluminium	mg/L	0.055			0.2	2	20	5	16.2	3.15
Arsenic	mg/L	0.013		0.01		0.07	2	0.1	<0.001	<0.001
Cadmium	mg/L	0.0002	0.0007	0.002		0.02	0.05	0.01	<0.0001	<0.0001
Chromium	mg/L						1	0.1	0.016	0.003
Copper	mg/L	0.0014	0.0013	2	1	20	5	0.2	0.07	0.005
Lead	mg/L	0.0034	0.0044	0.01		0.1	5	2	0.017	0.003
Manganese	mg/L	1.9		0.5	0.1	5	10	0.2	0.026	0.004
Molybdenum	mg/L			0.05		0.5	0.05	0.01	<0.001	<0.001
Nickel	mg/L	0.011	0.02	0.02		0.2	2	0.2	0.005	0.006
Selenium	mg/L	0.005		0.01		0.1	0.05	0.02	<0.01	<0.01
Silver	mg/L	0.00005	0.0014	0.1		1			<0.001	<0.001
Zinc	mg/L	0.008	0.015		3	30	5	2	0.08	0.079
Iron	mg/L	0.3	1.0 / 0.35		0.33	3	10	0.2	4.82	2.12
Mercury	mg/L	0.00006	0.0001	0.001		0.01	0.002	0.002	0.0001	<0.0001
Nutrients										
Ammonia as N	mg/L	0.9	0.91						0.36	0.03
Nitrite as N	mg/L			3.0		30			0.02	0.01
Nitrate as N	mg/L			50		500			0.62	1.09
Kjeldhal Nitrogen	mg/L								0.5	0.3
Total Nitrogen	mg/L	1.0 / 2.0[1]							1.1	1.4
Total Phosphorus	mg/L	0.1 / 0.2[1]							0.15	0.03
Reactive Phosphorus	mg/L								<0.01	<0.01
Sulfide	mg/L	0.001							<0.1	<0.1
COD	mg/L								16	<5
BOD	mg/L								3	<2
Organochlorine Pesticides (OC)										
alpha-BHC	µg/L								<0.5	<0.5
Hexachlorobenzene (HCB)	µg/L								<0.5	<0.5
beta-BHC	µg/L								<0.5	<0.5
gamma-BHC	µg/L								<0.5	<0.5
delta-BHC	µg/L								<0.5	<0.5
Heptachlor	µg/L	0.01							<0.5	<0.5
Aldrin	µg/L								<0.5	<0.5
Heptachlor epoxide	µg/L			0.05	0.3	3			<0.5	<0.5
trans-Chlordane	µg/L	0.03[2]		0.01	1	10			<0.5	<0.5
alpha-Endosulfan	µg/L	0.03[3]	0.005[3]	0.05	30	30			<0.5	<0.5
cis-Chlordane	µg/L	0.03[2]		0.01	1	10			<0.5	<0.5
Dieldrin	µg/L								<0.5	<0.5
4.4`-DDE	µg/L								<0.5	<0.5
Endrin	µg/L	0.01	0.004						<0.5	<0.5
beta-Endosulfan	µg/L	0.03[3]	0.005[3]						<0.5	<0.5
4.4`-DDD	µg/L								<0.5	<0.5
Endrin aldehyde	µg/L								<0.5	<0.5
Endosulfan sulfate	µg/L								<0.5	<0.5
4.4`-DDT	µg/L	0.006		0.06	30	0.1			<2	<2
Endrin ketone	µg/L								<0.5	<0.5
Methoxychlor	µg/L								<2	<2
Aldrin plus dieldrin	µg/L			0.010	0.3	3			<1	<0.5
Organophosphorus Pesticides (OP)										
Dichlorvos	µg/L								<0.5	<0.5
Demeton-S-methyl	µg/L								<0.5	<0.5
Monocrotophos	µg/L								<2	<2
Dimethoate	µg/L	0.15			50	50			<0.5	<0.5
Diazinon	µg/L	0.01		1	3	1			<0.5	<0.5
Chlorpyrifos-methyl	µg/L	0.01	0.009		10	100			<0.5	<0.5
Parathion-methyl	µg/L								<2	<2
Malathion	µg/L	0.05							<0.5	<0.5
Fenthion	µg/L								<0.5	<0.5
Chlorpyrifos	µg/L	0.01	0.009						<0.5	<0.5
Parathion	µg/L	0.004			10	10			<2	<2
Pirimphos-ethyl	µg/L								<0.5	<0.5
Chlorfenvinphos	µg/L								<0.5	<0.5
Bromophos-ethyl	µg/L								<0.5	<0.5
Fenamiphos	µg/L								<0.5	<0.5
Prothiofos	µg/L								<0.5	<0.5
Ethion	µg/L								<0.5	<0.5
Carbophenothion	µg/L								<0.5	<0.5
Azinphos Methyl	µg/L	0.02							<0.5	<0.5
Monocyclic Aromatic Hydrocarbons										
Benzene	µg/L	0.95	0.5	0.001		0.01			-	-
Toluene	µg/L			0.80	0.025	0.025			-	-
Ethylbenzene	µg/L			0.30	0.003	0.003			-	-
meta- & para-Xylene	µg/L	200							-	-
Styrene	µg/L			0.03	0.004	0.004			<5	<5
ortho-Xylene	µg/L	350							-	-
Isopropylbenzene	µg/L								<5	<5
n-Propylbenzene	µg/L								<5	<5
1.3.5-Trimethylbenzene	µg/L								<5	<5
sec-Butylbenzene	µg/L								<5	<5
1.2.4-Trimethylbenzene	µg/L								<5	<5
tert-Butylbenzene	µg/L								<5	<5
p-Isopropyltoluene	µg/L								<5	<5
n-Butylbenzene	µg/L								<5	<5

Oxygenated Compounds										
Vinyl Acetate	µg/L								<50	<50
2-Butanone (MEK)	µg/L								<50	<50
4-Methyl-2-pentanone (MIBK)	µg/L								<50	<50
2-Hexanone (MBK)	µg/L								<50	<50
Sulfonated Compounds										
Carbon disulfide	µg/L								<5	<5
Fumigants										
2.2-Dichloropropane	µg/L								<5	<5
1.2-Dichloropropane	µg/L								<5	<5
cis-1.3-Dichloropropylene	µg/L								<5	<5
trans-1.3-Dichloropropylene	µg/L								<5	<5
1.2-Dibromoethane (EDB)	µg/L								<5	<5
Halogenated Aliphatic Compounds										
Dichlorodifluoromethane	µg/L								<50	<50
Chloromethane	µg/L								<50	<50
Vinyl chloride	µg/L			0.0003		0.003			<50	<50
Bromomethane	µg/L								<50	<50
Chloroethane	µg/L								<50	<50
Trichlorofluoromethane	µg/L								<50	<50
1.1-Dichloroethene	µg/L			0.03		0.3			<5	<5
Iodomethane	µg/L								<5	<5
trans-1.2-Dichloroethene	µg/L								<5	<5
1.1-Dichloroethane	µg/L								<5	<5
cis-1.2-Dichloroethene	µg/L								<5	<5
1.1.1-Trichloroethane	µg/L								<5	<5
1.1-Dichloropropylene	µg/L								<5	<5
Carbon Tetrachloride	µg/L								<5	<5
1.2-Dichloroethane	µg/L			0.003		0.03			<5	<5
Trichloroethene	µg/L								<5	<5
Dibromomethane	µg/L								<5	<5
1.1.2-Trichloroethane	µg/L	6500	1900						<5	<5
1.3-Dichloropropane	µg/L								<5	<5
Tetrachloroethene	µg/L			0.05		0.5			<5	<5
1.1.1.2-Tetrachloroethane	µg/L								<5	<5
trans-1.4-Dichloro-2-butene	µg/L								<5	<5
cis-1.4-Dichloro-2-butene	µg/L								<5	<5
1.1.2.2-Tetrachloroethane	µg/L								<5	<5
1.2.3-Trichloropropane	µg/L								<5	<5
Pentachloroethane	µg/L								<5	<5
1.2-Dibromo-3-chloropropane	µg/L								<5	<5
Hexachlorobutadiene	µg/L								<5	<5
Halogenated Aromatic Compounds										
Chlorobenzene	µg/L			0.30	0.01	0.01			<5	<5
Bromobenzene	µg/L								<5	<5
2-Chlorotoluene	µg/L								<5	<5
4-Chlorotoluene	µg/L								<5	<5
1.3-Dichlorobenzene	µg/L	0.26			0.02	0.02			<5	<5
1.4-Dichlorobenzene	µg/L	0.06		0.04	0.003	0.003			<5	<5
1.2-Dichlorobenzene	µg/L	0.16		1.5	0.001	0.001			<5	<5
1.2.4-Trichlorobenzene	µg/L	0.085	80	0.03	0.005	0.005			<5	<5
1.2.3-Trichlorobenzene	µg/L	0.003		0.03	0.005	0.005			<5	<5
Trihalomethanes										
Chloroform	µg/L								<5	<5
Bromodichloromethane	µg/L								<5	<5
Dibromochloromethane	µg/L								<5	<5
Bromoform	µg/L								<5	<5
Phenolic Compounds										
Phenol	µg/L	320	400						<1.0	<1.0
2-Chlorophenol	µg/L	340		300	0.1	3000			<1.0	<1.0
2-Methylphenol	µg/L								<1.0	<1.0
3- & 4-Methylphenol	µg/L								**2.6**	<2.0
2-Nitrophenol	µg/L								<1.0	<1.0
2.4-Dimethylphenol	µg/L								<1.0	<1.0
2.4-Dichlorophenol	µg/L	120		200	0.3	2000			<1.0	<1.0
2.6-Dichlorophenol	µg/L								<1.0	<1.0
4-Chloro-3-Methylphenol	µg/L								<1.0	<1.0
2.4.6-Trichlorophenol	µg/L	3		20	2	200			<1.0	<1.0
2.4.5-Trichlorophenol	µg/L								<1.0	<1.0
Pentachlorophenol	µg/L	3.6	11						<2.0	<2.0
Polynuclear Aromatic Hydrocarbons										
Naphthalene	µg/L	16	50						<1.0	<1.0
Acenaphthylene	µg/L								<1.0	<1.0
Acenaphthene	µg/L								<1.0	<1.0
Fluorene	µg/L								<1.0	<1.0
Phenanthrene	µg/L								<1.0	<1.0
Anthracene	µg/L								<1.0	<1.0
Fluoranthene	µg/L								<1.0	<1.0
Pyrene	µg/L								<1.0	<1.0
Benz(a)anthracene	µg/L								<1.0	<1.0
Chrysene	µg/L								<1.0	<1.0
Benzo(b)fluoranthene	µg/L								<1.0	<1.0
Benzo(k)fluoranthene	µg/L								<1.0	<1.0
Benzo(a)pyrene	µg/L			0.01		0.1			<0.5	<0.5
Indeno(1.2.3.cd)pyrene	µg/L								<1.0	<1.0
Dibenz(a.h)anthracene	µg/L								<1.0	<1.0
Benzo(g.h.i)perylene	µg/L								<1.0	<1.0
Total Petroleum Hydrocarbons										
C6 - C9 Fraction	µg/L								<20	<20
C10 - C14 Fraction	µg/L								<50	<50
C15 - C28 Fraction	µg/L								<100	<100
C29 - C36 Fraction	µg/L								<50	<50
C10 - C36 Fraction (sum)	µg/L	600 [4]							<50	<50

NOTES: 1. SRT Healthy Rivers Action Plan Long Term / Short Term Targets
2. ANZECC 99% protection level for Chlordane
3. ANZECC 99% protection level for Endosulfan
4. Dutch intervention values (2000).
5. pH > 6 / pH < 6
6. ASS disturbance indicators
7. Effluent treatment triggers

Table 5 MW3 Groundwater Laboratory Analysis Results

Analyte grouping/Analyte	Units	ANZECC & ARMCANZ		ADWG		DoH	ANZECC & ARMCANZ			
		Fresh Waters	Marine Waters	Drinking Water Health Value (HV)	Drinking Water Aesthetic Value (AV)	Domestic non-potable groundwater use	Short-term Irrigation Water	Long-term Irrigation Water	18/05/2012 WRMW3	30/08/2012 WRMW3
pH Value	pH Unit	6.5-8.5	8.0-8.4		6.5-8.5			6.0-8.5	7.41	7.83
Electrical Conductivity	µS/cm								1070	901
Total Dissolved Solids	mg/L								704	567
Suspended Solids	mg/L								425	1610
Turbidity	NTU								383	1120
Total Alkalinity $CaCO_3$	mg/L								292	157
Acidity as $CaCO_3$	mg/L								16	18
Sulfate as SO_4^{2-}	mg/L			500	250	5000			40	18
Chloride	mg/L				250	2500			216	219
Total Metals										
Aluminium	mg/L	0.055			0.2	2	20	5	34.4	24.9
Arsenic	mg/L	0.013		0.01		0.07	2	0.1	0.01	0.007
Cadmium	mg/L	0.0002	0.0007	0.002		0.02	0.05	0.01	0.0001	0.0002
Chromium	mg/L						1	0.1	0.047	0.044
Copper	mg/L	0.0014	0.0013	2	1	20	5	0.2	0.032	0.036
Lead	mg/L	0.0034	0.0044	0.01		0.1	5	2	0.087	0.079
Manganese	mg/L	1.9		0.5	0.1	5	10	0.2	0.191	0.129
Molybdenum	mg/L			0.05		0.5	0.05	0.01	<0.001	0.001
Nickel	mg/L	0.011	0.02	0.02		0.2	2	0.2	0.014	0.019
Selenium	mg/L	0.005		0.01		0.1	0.05	0.02	<0.01	<0.01
Silver	mg/L	0.00005	0.0014	0.1		1			<0.001	<0.001
Zinc	mg/L	0.008	0.015		3	30	5	2	0.068	0.079
Iron	mg/L	0.3	1.0 / 0.35		0.33	3	10	0.2	11.9	12.4
Mercury	mg/L	0.00006	0.0001	0.001		0.01	0.002	0.002	<0.0001	<0.0001
Nutrients										
Ammonia as N	mg/L	0.9	0.91						0.03	0.45
Nitrite as N	mg/L			3.0		30			<0.01	0.02
Nitrate as N	mg/L			50		500			0.17	0.31
Kjeldhal Nitrogen	mg/L								0.3	1.4
Total Nitrogen	mg/L	1.0 / 2.0[1]							0.5	1.7
Total Phosphorus	mg/L	0.1 / 0.2[1]							0.24	0.51
Reactive Phosphorus	mg/L								<0.01	<0.01
Sulfide	mg/L	0.001							<0.1	<0.1
COD	mg/L								155	21
BOD	mg/L								69	5
Organochlorine Pesticides (OC)										
alpha-BHC	µg/L								<0.5	<0.5
Hexachlorobenzene (HCB)	µg/L								<0.5	<0.5
beta-BHC	µg/L								<0.5	<0.5
gamma-BHC	µg/L								<0.5	<0.5
delta-BHC	µg/L								<0.5	<0.5
Heptachlor	µg/L	0.01							<0.5	<0.5
Aldrin	µg/L								<0.5	<0.5
Heptachlor epoxide	µg/L			0.05	0.3	3			<0.5	<0.5
trans-Chlordane	µg/L	0.03[2]		0.01	1	10			<0.5	<0.5
alpha-Endosulfan	µg/L	0.03[3]	0.005[3]	0.05	30	30			<0.5	<0.5
cis-Chlordane	µg/L	0.03[2]		0.01	1	10			<0.5	<0.5
Dieldrin	µg/L								<0.5	<0.5
4.4`-DDE	µg/L								<0.5	<0.5
Endrin	µg/L	0.01	0.004						<0.5	<0.5
beta-Endosulfan	µg/L	0.03[3]	0.005[3]						<0.5	<0.5
4.4`-DDD	µg/L								<0.5	<0.5
Endrin aldehyde	µg/L								<0.5	<0.5
Endosulfan sulfate	µg/L								<0.5	<0.5
4.4`-DDT	µg/L	0.006		0.06	30	0.1			<2	<2
Endrin ketone	µg/L								<0.5	<0.5
Methoxychlor	µg/L								<2	<2
Aldrin plus dieldrin	µg/L			0.010	0.3	3			<1	<0.5
Organophosphorus Pesticides (OP)										
Dichlorvos	µg/L								<0.5	<0.5
Demeton-S-methyl	µg/L								<0.5	<0.5
Monocrotophos	µg/L								<2	<2
Dimethoate	µg/L	0.15			50	50			<0.5	<0.5
Diazinon	µg/L	0.01		1	3	1			<0.5	<0.5
Chlorpyrifos-methyl	µg/L	0.01	0.009		10	100			<0.5	<0.5
Parathion-methyl	µg/L								<2	<2
Malathion	µg/L	0.05							<0.5	<0.5
Fenthion	µg/L								<0.5	<0.5
Chlorpyrifos	µg/L	0.01	0.009						<0.5	<0.5
Parathion	µg/L	0.004			10	10			<2	<2
Pirimphos-ethyl	µg/L								<0.5	<0.5
Chlorfenvinphos	µg/L								<0.5	<0.5
Bromophos-ethyl	µg/L								<0.5	<0.5
Fenamiphos	µg/L								<0.5	<0.5
Prothiofos	µg/L								<0.5	<0.5
Ethion	µg/L								<0.5	<0.5
Carbophenothion	µg/L								<0.5	<0.5
Azinphos Methyl	µg/L	0.02							<0.5	<0.5
Monocyclic Aromatic Hydrocarbons										
Benzene	µg/L	0.95	0.5	0.001		0.01			-	-
Toluene	µg/L			0.80	0.025	0.025			-	-
Ethylbenzene	µg/L			0.30	0.003	0.003			-	-
meta- & para-Xylene	µg/L	200							-	-
Styrene	µg/L			0.03	0.004	0.004			<5	<5
ortho-Xylene	µg/L	350							-	-
Isopropylbenzene	µg/L								<5	<5
n-Propylbenzene	µg/L								<5	<5
1.3.5-Trimethylbenzene	µg/L								<5	<5
sec-Butylbenzene	µg/L								<5	<5
1.2.4-Trimethylbenzene	µg/L								<5	<5
tert-Butylbenzene	µg/L								<5	<5
p-Isopropyltoluene	µg/L								<5	<5
n-Butylbenzene	µg/L								<5	<5

Oxygenated Compounds										
Vinyl Acetate	µg/L								<50	<50
2-Butanone (MEK)	µg/L								<50	<50
4-Methyl-2-pentanone (MIBK)	µg/L								<50	<50
2-Hexanone (MBK)	µg/L								<50	<50
Sulfonated Compounds										
Carbon disulfide	µg/L								<5	<5
Fumigants										
2.2-Dichloropropane	µg/L								<5	<5
1.2-Dichloropropane	µg/L								<5	<5
cis-1.3-Dichloropropylene	µg/L								<5	<5
trans-1.3-Dichloropropylene	µg/L								<5	<5
1.2-Dibromoethane (EDB)	µg/L								<5	<5
Halogenated Aliphatic Compounds										
Dichlorodifluoromethane	µg/L								<50	<50
Chloromethane	µg/L								<50	<50
Vinyl chloride	µg/L			0.0003		0.003			<50	<50
Bromomethane	µg/L								<50	<50
Chloroethane	µg/L								<50	<50
Trichlorofluoromethane	µg/L								<50	<50
1.1-Dichloroethene	µg/L			0.03		0.3			<5	<5
Iodomethane	µg/L								<5	<5
trans-1.2-Dichloroethene	µg/L								<5	<5
1.1-Dichloroethane	µg/L								<5	<5
cis-1.2-Dichloroethene	µg/L								<5	<5
1.1.1-Trichloroethane	µg/L								<5	<5
1.1-Dichloropropylene	µg/L								<5	<5
Carbon Tetrachloride	µg/L								<5	<5
1.2-Dichloroethane	µg/L			0.003		0.03			<5	<5
Trichloroethene	µg/L								<5	<5
Dibromomethane	µg/L								<5	<5
1.1.2-Trichloroethane	µg/L	6500	1900						<5	<5
1.3-Dichloropropane	µg/L								<5	<5
Tetrachloroethene	µg/L			0.05		0.5			<5	<5
1.1.1.2-Tetrachloroethane	µg/L								<5	<5
trans-1.4-Dichloro-2-butene	µg/L								<5	<5
cis-1.4-Dichloro-2-butene	µg/L								<5	<5
1.1.2.2-Tetrachloroethane	µg/L								<5	<5
1.2.3-Trichloropropane	µg/L								<5	<5
Pentachloroethane	µg/L								<5	<5
1.2-Dibromo-3-chloropropane	µg/L								<5	<5
Hexachlorobutadiene	µg/L								<5	<5
Halogenated Aromatic Compounds										
Chlorobenzene	µg/L			0.30	0.01	0.01			<5	<5
Bromobenzene	µg/L								<5	<5
2-Chlorotoluene	µg/L								<5	<5
4-Chlorotoluene	µg/L								<5	<5
1.3-Dichlorobenzene	µg/L	0.26			0.02	0.02			<5	<5
1.4-Dichlorobenzene	µg/L	0.06		0.04	0.003	0.003			<5	<5
1.2-Dichlorobenzene	µg/L	0.16		1.5	0.001	0.001			<5	<5
1.2.4-Trichlorobenzene	µg/L	0.085	80	0.03	0.005	0.005			<5	<5
1.2.3-Trichlorobenzene	µg/L	0.003		0.03	0.005	0.005			<5	<5
Trihalomethanes										
Chloroform	µg/L								<5	<5
Bromodichloromethane	µg/L								<5	<5
Dibromochloromethane	µg/L								<5	<5
Bromoform	µg/L								<5	<5
Phenolic Compounds										
Phenol	µg/L	320	400						<1.0	<1.0
2-Chlorophenol	µg/L	340		300	0.1	3000			<1.0	<1.0
2-Methylphenol	µg/L								<1.0	<1.0
3- & 4-Methylphenol	µg/L								<2.0	**3.3**
2-Nitrophenol	µg/L								<1.0	<1.0
2.4-Dimethylphenol	µg/L								<1.0	<1.0
2.4-Dichlorophenol	µg/L	120		200	0.3	2000			<1.0	<1.0
2.6-Dichlorophenol	µg/L								<1.0	<1.0
4-Chloro-3-Methylphenol	µg/L								<1.0	<1.0
2.4.6-Trichlorophenol	µg/L	3		20	2	200			<1.0	<1.0
2.4.5-Trichlorophenol	µg/L								<1.0	<1.0
Pentachlorophenol	µg/L	3.6	11						<2.0	<2.0
Polynuclear Aromatic Hydrocarbons										
Naphthalene	µg/L	16	50						<1.0	<1.0
Acenaphthylene	µg/L								<1.0	<1.0
Acenaphthene	µg/L								<1.0	<1.0
Fluorene	µg/L								<1.0	<1.0
Phenanthrene	µg/L								<1.0	<1.0
Anthracene	µg/L								<1.0	<1.0
Fluoranthene	µg/L								<1.0	<1.0
Pyrene	µg/L								<1.0	<1.0
Benz(a)anthracene	µg/L								<1.0	<1.0
Chrysene	µg/L								<1.0	<1.0
Benzo(b)fluoranthene	µg/L								<1.0	<1.0
Benzo(k)fluoranthene	µg/L								<1.0	<1.0
Benzo(a)pyrene	µg/L			0.01		0.1			<0.5	<0.5
Indeno(1.2.3.cd)pyrene	µg/L								<1.0	<1.0
Dibenz(a.h)anthracene	µg/L								<1.0	<1.0
Benzo(g.h.i)perylene	µg/L								<1.0	<1.0
Total Petroleum Hydrocarbons										
C6 - C9 Fraction	µg/L								<20	<20
C10 - C14 Fraction	µg/L								<50	<50
C15 - C28 Fraction	µg/L								<100	<100
C29 - C36 Fraction	µg/L								**270**	<50
C10 - C36 Fraction (sum)	µg/L	600 [4]							**270**	<50

NOTES: 1. SRT Healthy Rivers Action Plan Long Term / Short Term Targets
2. ANZECC 99% protection level for Chlordane
3. ANZECC 99% protection level for Endosulfan
4. Dutch intervention values (2000).
5. pH > 6 / pH < 6
6. ASS disturbance indicators
7. Effluent treatment triggers

Table 6 MW4 Groundwater Laboratory Analysis Results

Analyte grouping/Analyte	Units	ANZECC & ARMCANZ		ADWG		DoH	ANZECC & ARMCANZ		18/05/2012	30/08/2012
		Fresh Waters	Marine Waters	Drinking Water Health Value (HV)	Drinking Water Aesthetic Value (AV)	Domestic non-potable groundwater use	Short-term Irrigation Water	Long-term Irrigation Water	WRMW4	WRMW4
pH Value	pH Unit	6.5-8.5	8.0-8.4		6.5-8.5			6.0-8.5	6.04	5.96
Electrical Conductivity	µS/cm								354	144
Total Dissolved Solids	mg/L								226	83
Suspended Solids	mg/L								144	9
Turbidity	NTU								86.9	10.8
Total Alkalinity $CaCO_3$	mg/L								5	1
Acidity as $CaCO_3$	mg/L								8	21
Sulfate as SO_4^{2-}	mg/L			500	250	5000			17	2
Chloride	mg/L				250	2500			89	30
Total Metals										
Aluminium	mg/L	0.055			0.2	2	20	5	4.3	1.61
Arsenic	mg/L	0.013		0.01		0.07	2	0.1	0.001	<0.001
Cadmium	mg/L	0.0002	0.0007	0.002		0.02	0.05	0.01	<0.0001	<0.0001
Chromium	mg/L						1	0.1	0.004	0.001
Copper	mg/L	0.0014	0.0013	2	1	20	5	0.2	0.005	0.003
Lead	mg/L	0.0034	0.0044	0.01		0.1	5	2	0.011	0.005
Manganese	mg/L	1.9		0.5	0.1	5	10	0.2	0.016	0.006
Molybdenum	mg/L			0.05		0.5	0.05	0.01	<0.001	<0.001
Nickel	mg/L	0.011	0.02	0.02		0.2	2	0.2	0.001	0.003
Selenium	mg/L	0.005		0.01		0.1	0.05	0.02	<0.01	<0.01
Silver	mg/L	0.00005	0.0014	0.1		1			<0.001	<0.001
Zinc	mg/L	0.008	0.015		3	30	5	2	0.017	0.011
Iron	mg/L	0.3	1.0 / 0.35		0.33	3	10	0.2	0.88	0.4
Mercury	mg/L	0.00006	0.0001	0.001		0.01	0.002	0.002	<0.0001	<0.0001
Nutrients										
Ammonia as N	mg/L	0.9	0.91						0.11	0.05
Nitrite as N	mg/L			3.0		30			0.01	<0.01
Nitrate as N	mg/L			50		500			3.75	4.92
Kjeldhal Nitrogen	mg/L								0.5	1.1
Total Nitrogen	mg/L	1.0 / 2.0[1]							4.3	6
Total Phosphorus	mg/L	0.1 / 0.2[1]							0.04	0.12
Reactive Phosphorus	mg/L								<0.01	<0.01
Sulfide	mg/L	0.001							<0.1	<0.1
COD	mg/L								11	7
BOD	mg/L								4	<2
Organochlorine Pesticides (OC)										
alpha-BHC	µg/L								<0.5	<0.5
Hexachlorobenzene (HCB)	µg/L								<0.5	<0.5
beta-BHC	µg/L								<0.5	<0.5
gamma-BHC	µg/L								<0.5	<0.5
delta-BHC	µg/L								<0.5	<0.5
Heptachlor	µg/L	0.01							<0.5	<0.5
Aldrin	µg/L								<0.5	<0.5
Heptachlor epoxide	µg/L			0.05	0.3	3			<0.5	<0.5
trans-Chlordane	µg/L	0.03[2]		0.01	1	10			<0.5	<0.5
alpha-Endosulfan	µg/L	0.03[3]	0.005[3]	0.05	30	30			<0.5	<0.5
cis-Chlordane	µg/L	0.03[2]		0.01	1	10			<0.5	<0.5
Dieldrin	µg/L								<0.5	<0.5
4.4`-DDE	µg/L								<0.5	<0.5
Endrin	µg/L	0.01	0.004						<0.5	<0.5
beta-Endosulfan	µg/L	0.03[3]	0.005[3]						<0.5	<0.5
4.4`-DDD	µg/L								<0.5	<0.5
Endrin aldehyde	µg/L								<0.5	<0.5
Endosulfan sulfate	µg/L								<0.5	<0.5
4.4`-DDT	µg/L	0.006		0.06	30	0.1			<2	<2
Endrin ketone	µg/L								<0.5	<0.5
Methoxychlor	µg/L								<2	<2
Aldrin plus dieldrin	µg/L			0.010	0.3	3			<1	<0.5
Organophosphorus Pesticides (OP)										
Dichlorvos	µg/L								<0.5	<0.5
Demeton-S-methyl	µg/L								<0.5	<0.5
Monocrotophos	µg/L								<2	<2
Dimethoate	µg/L	0.15			50	50			<0.5	<0.5
Diazinon	µg/L	0.01		1	3	1			<0.5	<0.5
Chlorpyrifos-methyl	µg/L	0.01	0.009		10	100			<0.5	<0.5
Parathion-methyl	µg/L								<2	<2
Malathion	µg/L	0.05							<0.5	<0.5
Fenthion	µg/L								<0.5	<0.5
Chlorpyrifos	µg/L	0.01	0.009						<0.5	<0.5
Parathion	µg/L	0.004			10	10			<2	<2
Pirimphos-ethyl	µg/L								<0.5	<0.5
Chlorfenvinphos	µg/L								<0.5	<0.5
Bromophos-ethyl	µg/L								<0.5	<0.5
Fenamiphos	µg/L								<0.5	<0.5
Prothiofos	µg/L								<0.5	<0.5
Ethion	µg/L								<0.5	<0.5
Carbophenothion	µg/L								<0.5	<0.5
Azinphos Methyl	µg/L	0.02							<0.5	<0.5
Monocyclic Aromatic Hydrocarbons										
Benzene	µg/L	0.95	0.5	0.001		0.01			-	-
Toluene	µg/L			0.80	0.025	0.025			-	-
Ethylbenzene	µg/L			0.30	0.003	0.003			-	-
meta- & para-Xylene	µg/L	200							-	-
Styrene	µg/L			0.03	0.004	0.004			<5	<5
ortho-Xylene	µg/L	350							-	-
Isopropylbenzene	µg/L								<5	<5
n-Propylbenzene	µg/L								<5	<5
1.3.5-Trimethylbenzene	µg/L								<5	<5
sec-Butylbenzene	µg/L								<5	<5
1.2.4-Trimethylbenzene	µg/L								<5	<5
tert-Butylbenzene	µg/L								<5	<5
p-Isopropyltoluene	µg/L								<5	<5
n-Butylbenzene	µg/L								<5	<5

Oxygenated Compounds										
Vinyl Acetate	µg/L								<50	<50
2-Butanone (MEK)	µg/L								<50	<50
4-Methyl-2-pentanone (MIBK)	µg/L								<50	<50
2-Hexanone (MBK)	µg/L								<50	<50
Sulfonated Compounds										
Carbon disulfide	µg/L								<5	<5
Fumigants										
2.2-Dichloropropane	µg/L								<5	<5
1.2-Dichloropropane	µg/L								<5	<5
cis-1.3-Dichloropropylene	µg/L								<5	<5
trans-1.3-Dichloropropylene	µg/L								<5	<5
1.2-Dibromoethane (EDB)	µg/L								<5	<5
Halogenated Aliphatic Compounds										
Dichlorodifluoromethane	µg/L								<50	<50
Chloromethane	µg/L								<50	<50
Vinyl chloride	µg/L			0.0003		0.003			<50	<50
Bromomethane	µg/L								<50	<50
Chloroethane	µg/L								<50	<50
Trichlorofluoromethane	µg/L								<50	<50
1.1-Dichloroethene	µg/L			0.03		0.3			<5	<5
Iodomethane	µg/L								<5	<5
trans-1.2-Dichloroethene	µg/L								<5	<5
1.1-Dichloroethane	µg/L								<5	<5
cis-1.2-Dichloroethene	µg/L								<5	<5
1.1.1-Trichloroethane	µg/L								<5	<5
1.1-Dichloropropylene	µg/L								<5	<5
Carbon Tetrachloride	µg/L								<5	<5
1.2-Dichloroethane	µg/L			0.003		0.03			<5	<5
Trichloroethene	µg/L								<5	<5
Dibromomethane	µg/L								<5	<5
1.1.2-Trichloroethane	µg/L	6500	1900						<5	<5
1.3-Dichloropropane	µg/L								<5	<5
Tetrachloroethene	µg/L			0.05		0.5			<5	<5
1.1.1.2-Tetrachloroethane	µg/L								<5	<5
trans-1.4-Dichloro-2-butene	µg/L								<5	<5
cis-1.4-Dichloro-2-butene	µg/L								<5	<5
1.1.2.2-Tetrachloroethane	µg/L								<5	<5
1.2.3-Trichloropropane	µg/L								<5	<5
Pentachloroethane	µg/L								<5	<5
1.2-Dibromo-3-chloropropane	µg/L								<5	<5
Hexachlorobutadiene	µg/L								<5	<5
Halogenated Aromatic Compounds										
Chlorobenzene	µg/L			0.30	0.01	0.01			<5	<5
Bromobenzene	µg/L								<5	<5
2-Chlorotoluene	µg/L								<5	<5
4-Chlorotoluene	µg/L								<5	<5
1.3-Dichlorobenzene	µg/L	0.26			0.02	0.02			<5	<5
1.4-Dichlorobenzene	µg/L	0.06		0.04	0.003	0.003			<5	<5
1.2-Dichlorobenzene	µg/L	0.16		1.5	0.001	0.001			<5	<5
1.2.4-Trichlorobenzene	µg/L	0.085	80	0.03	0.005	0.005			<5	<5
1.2.3-Trichlorobenzene	µg/L	0.003		0.03	0.005	0.005			<5	<5
Trihalomethanes										
Chloroform	µg/L								<5	<5
Bromodichloromethane	µg/L								<5	<5
Dibromochloromethane	µg/L								**12**	<5
Bromoform	µg/L								**13**	<5
Phenolic Compounds										
Phenol	µg/L	320	400						<1.0	<1.0
2-Chlorophenol	µg/L	340		300	0.1	3000			<1.0	<1.0
2-Methylphenol	µg/L								<1.0	<1.0
3- & 4-Methylphenol	µg/L								<2.0	<2.0
2-Nitrophenol	µg/L								<1.0	<1.0
2.4-Dimethylphenol	µg/L								<1.0	<1.0
2.4-Dichlorophenol	µg/L	120		200	0.3	2000			<1.0	<1.0
2.6-Dichlorophenol	µg/L								<1.0	<1.0
4-Chloro-3-Methylphenol	µg/L								<1.0	<1.0
2.4.6-Trichlorophenol	µg/L	3		20	2	200			<1.0	<1.0
2.4.5-Trichlorophenol	µg/L								<1.0	<1.0
Pentachlorophenol	µg/L	3.6	11						<2.0	<2.0
Polynuclear Aromatic Hydrocarbons										
Naphthalene	µg/L	16	50						<1.0	<1.0
Acenaphthylene	µg/L								<1.0	<1.0
Acenaphthene	µg/L								<1.0	<1.0
Fluorene	µg/L								<1.0	<1.0
Phenanthrene	µg/L								<1.0	<1.0
Anthracene	µg/L								<1.0	<1.0
Fluoranthene	µg/L								<1.0	<1.0
Pyrene	µg/L								<1.0	<1.0
Benz(a)anthracene	µg/L								<1.0	<1.0
Chrysene	µg/L								<1.0	<1.0
Benzo(b)fluoranthene	µg/L								<1.0	<1.0
Benzo(k)fluoranthene	µg/L								<1.0	<1.0
Benzo(a)pyrene	µg/L			0.01		0.1			<0.5	<0.5
Indeno(1.2.3.cd)pyrene	µg/L								<1.0	<1.0
Dibenz(a.h)anthracene	µg/L								<1.0	<1.0
Benzo(g.h.i)perylene	µg/L								<1.0	<1.0
Total Petroleum Hydrocarbons										
C6 - C9 Fraction	µg/L								<20	<20
C10 - C14 Fraction	µg/L								<50	<50
C15 - C28 Fraction	µg/L								<100	<100
C29 - C36 Fraction	µg/L								<50	<50
C10 - C36 Fraction (sum)	µg/L	600 [4]							<50	<50

NOTES: 1. SRT Healthy Rivers Action Plan Long Term / Short Term Targets
2. ANZECC 99% protection level for Chlordane
3. ANZECC 99% protection level for Endosulfan
4. Dutch intervention values (2000).
5. pH > 6 / pH < 6
6. ASS disturbance indicators
7. Effluent treatment triggers

Table 7 MW5 Groundwater Laboratory Analysis Results

Analyte grouping/Analyte	Units	ANZECC & ARMCANZ		ADWG		DoH	ANZECC & ARMCANZ			
		Fresh Waters	Marine Waters	Drinking Water Health Value (HV)	Drinking Water Aesthetic Value (AV)	Domestic non-potable groundwater use	Short-term Irrigation Water	Long-term Irrigation Water	18/05/2012 WRMW5	30/08/2012 WRMW5
pH Value	pH Unit	6.5-8.5	8.0-8.4		6.5-8.5			6.0-8.5	5.86	5.72
Electrical Conductivity	µS/cm								449	97
Total Dissolved Solids	mg/L								341	56
Suspended Solids	mg/L								59	660
Turbidity	NTU								137	854
Total Alkalinity $CaCO_3$	mg/L								5	<1
Acidity as $CaCO_3$	mg/L								13	11
Sulfate as SO_4^{2-}	mg/L			500	250	5000			19	7
Chloride	mg/L				250	2500			132	17
Total Metals										
Aluminium	mg/L	0.055			0.2	2	20	5	10	2.57
Arsenic	mg/L	0.013		0.01		0.07	2	0.1	0.001	<0.001
Cadmium	mg/L	0.0002	0.0007	0.002		0.02	0.05	0.01	<0.0001	<0.0001
Chromium	mg/L						1	0.1	0.005	0.001
Copper	mg/L	0.0014	0.0013	2	1	20	5	0.2	0.005	0.015
Lead	mg/L	0.0034	0.0044	0.01		0.1	5	2	0.015	0.002
Manganese	mg/L	1.9		0.5	0.1	5	10	0.2	0.01	0.002
Molybdenum	mg/L			0.05		0.5	0.05	0.01	<0.001	<0.001
Nickel	mg/L	0.011	0.02	0.02		0.2	2	0.2	0.003	0.002
Selenium	mg/L	0.005		0.01		0.1	0.05	0.02	<0.01	<0.01
Silver	mg/L	0.00005	0.0014	0.1		1			<0.001	<0.001
Zinc	mg/L	0.008	0.015		3	30	5	2	0.011	0.007
Iron	mg/L	0.3	1.0 / 0.35		0.33	3	10	0.2	0.49	0.13
Mercury	mg/L	0.00006	0.0001	0.001		0.01	0.002	0.002	<0.0001	<0.0001
Nutrients										
Ammonia as N	mg/L	0.9	0.91						0.01	0.06
Nitrite as N	mg/L			3.0		30			0.04	<0.01
Nitrate as N	mg/L			50		500			0.45	2.03
Kjeldhal Nitrogen	mg/L								0.1	1.5
Total Nitrogen	mg/L	1.0 / 2.0[1]							0.6	3.5
Total Phosphorus	mg/L	0.1 / 0.2[1]							0.02	0.23
Reactive Phosphorus	mg/L								<0.01	<0.01
Sulfide	mg/L	0.001							<0.1	<0.1
COD	mg/L								9	<5
BOD	mg/L								3	3
Organochlorine Pesticides (OC)										
alpha-BHC	µg/L								<0.5	<0.5
Hexachlorobenzene (HCB)	µg/L								<0.5	<0.5
beta-BHC	µg/L								<0.5	<0.5
gamma-BHC	µg/L								<0.5	<0.5
delta-BHC	µg/L								<0.5	<0.5
Heptachlor	µg/L	0.01							<0.5	<0.5
Aldrin	µg/L								<0.5	<0.5
Heptachlor epoxide	µg/L			0.05	0.3	3			<0.5	<0.5
trans-Chlordane	µg/L	0.03 [2]		0.01	1	10			<0.5	<0.5
alpha-Endosulfan	µg/L	0.03 [3]	0.005 [3]	0.05	30	30			<0.5	<0.5
cis-Chlordane	µg/L	0.03 [2]		0.01	1	10			<0.5	<0.5
Dieldrin	µg/L								<0.5	<0.5
4.4`-DDE	µg/L								<0.5	<0.5
Endrin	µg/L	0.01	0.004						<0.5	<0.5
beta-Endosulfan	µg/L	0.03 [3]	0.005 [3]						<0.5	<0.5
4.4`-DDD	µg/L								<0.5	<0.5
Endrin aldehyde	µg/L								<0.5	<0.5
Endosulfan sulfate	µg/L								<0.5	<0.5
4.4`-DDT	µg/L	0.006		0.06	30	0.1			<2	<2
Endrin ketone	µg/L								<0.5	<0.5
Methoxychlor	µg/L								<2	<2
Aldrin plus dieldrin	µg/L			0.010	0.3	3			<1	<0.5
Organophosphorus Pesticides (OP)										
Dichlorvos	µg/L								<0.5	<0.5
Demeton-S-methyl	µg/L								<0.5	<0.5
Monocrotophos	µg/L								<2	<2
Dimethoate	µg/L	0.15			50	50			<0.5	<0.5
Diazinon	µg/L	0.01		1	3	1			<0.5	<0.5
Chlorpyrifos-methyl	µg/L	0.01	0.009		10	100			<0.5	<0.5
Parathion-methyl	µg/L								<2	<2
Malathion	µg/L	0.05							<0.5	<0.5
Fenthion	µg/L								<0.5	<0.5
Chlorpyrifos	µg/L	0.01	0.009						<0.5	<0.5
Parathion	µg/L	0.004			10	10			<2	<2
Pirimphos-ethyl	µg/L								<0.5	<0.5
Chlorfenvinphos	µg/L								<0.5	<0.5
Bromophos-ethyl	µg/L								<0.5	<0.5
Fenamiphos	µg/L								<0.5	<0.5
Prothiofos	µg/L								<0.5	<0.5
Ethion	µg/L								<0.5	<0.5
Carbophenothion	µg/L								<0.5	<0.5
Azinphos Methyl	µg/L	0.02							<0.5	<0.5
Monocyclic Aromatic Hydrocarbons										
Benzene	µg/L	0.95	0.5	0.001		0.01			-	-
Toluene	µg/L			0.80	0.025	0.025			-	-
Ethylbenzene	µg/L			0.30	0.003	0.003			-	-
meta- & para-Xylene	µg/L	200							-	-
Styrene	µg/L			0.03	0.004	0.004			<5	<5
ortho-Xylene	µg/L	350							-	-
Isopropylbenzene	µg/L								<5	<5
n-Propylbenzene	µg/L								<5	<5
1.3.5-Trimethylbenzene	µg/L								<5	<5
sec-Butylbenzene	µg/L								<5	<5
1.2.4-Trimethylbenzene	µg/L								<5	<5
tert-Butylbenzene	µg/L								<5	<5
p-Isopropyltoluene	µg/L								<5	<5
n-Butylbenzene	µg/L								<5	<5

Oxygenated Compounds										
Vinyl Acetate	µg/L								<50	<50
2-Butanone (MEK)	µg/L								<50	<50
4-Methyl-2-pentanone (MIBK)	µg/L								<50	<50
2-Hexanone (MBK)	µg/L								<50	<50
Sulfonated Compounds										
Carbon disulfide	µg/L								<5	<5
Fumigants										
2.2-Dichloropropane	µg/L								<5	<5
1.2-Dichloropropane	µg/L								<5	<5
cis-1.3-Dichloropropylene	µg/L								<5	<5
trans-1.3-Dichloropropylene	µg/L								<5	<5
1.2-Dibromoethane (EDB)	µg/L								<5	<5
Halogenated Aliphatic Compounds										
Dichlorodifluoromethane	µg/L								<50	<50
Chloromethane	µg/L								<50	<50
Vinyl chloride	µg/L			0.0003		0.003			<50	<50
Bromomethane	µg/L								<50	<50
Chloroethane	µg/L								<50	<50
Trichlorofluoromethane	µg/L								<50	<50
1.1-Dichloroethene	µg/L			0.03		0.3			<5	<5
Iodomethane	µg/L								<5	<5
trans-1.2-Dichloroethene	µg/L								<5	<5
1.1-Dichloroethane	µg/L								<5	<5
cis-1.2-Dichloroethene	µg/L								<5	<5
1.1.1-Trichloroethane	µg/L								<5	<5
1.1-Dichloropropylene	µg/L								<5	<5
Carbon Tetrachloride	µg/L								<5	<5
1.2-Dichloroethane	µg/L			0.003		0.03			<5	<5
Trichloroethene	µg/L								<5	<5
Dibromomethane	µg/L								<5	<5
1.1.2-Trichloroethane	µg/L	6500	1900						<5	<5
1.3-Dichloropropane	µg/L								<5	<5
Tetrachloroethene	µg/L			0.05		0.5			<5	<5
1.1.1.2-Tetrachloroethane	µg/L								<5	<5
trans-1.4-Dichloro-2-butene	µg/L								<5	<5
cis-1.4-Dichloro-2-butene	µg/L								<5	<5
1.1.2.2-Tetrachloroethane	µg/L								<5	<5
1.2.3-Trichloropropane	µg/L								<5	<5
Pentachloroethane	µg/L								<5	<5
1.2-Dibromo-3-chloropropane	µg/L								<5	<5
Hexachlorobutadiene	µg/L								<5	<5
Halogenated Aromatic Compounds										
Chlorobenzene	µg/L			0.30	0.01	0.01			<5	<5
Bromobenzene	µg/L								<5	<5
2-Chlorotoluene	µg/L								<5	<5
4-Chlorotoluene	µg/L								<5	<5
1.3-Dichlorobenzene	µg/L	0.26			0.02	0.02			<5	<5
1.4-Dichlorobenzene	µg/L	0.06		0.04	0.003	0.003			<5	<5
1.2-Dichlorobenzene	µg/L	0.16		1.5	0.001	0.001			<5	<5
1.2.4-Trichlorobenzene	µg/L	0.085	80	0.03	0.005	0.005			<5	<5
1.2.3-Trichlorobenzene	µg/L	0.003		0.03	0.005	0.005			<5	<5
Trihalomethanes										
Chloroform	µg/L								<5	<5
Bromodichloromethane	µg/L								5	<5
Dibromochloromethane	µg/L								**20**	<5
Bromoform	µg/L								**22**	<5
Phenolic Compounds										
Phenol	µg/L	320	400						<1.0	<1.0
2-Chlorophenol	µg/L	340		300	0.1	3000			<1.0	<1.0
2-Methylphenol	µg/L								<1.0	<1.0
3- & 4-Methylphenol	µg/L								<2.0	<2.0
2-Nitrophenol	µg/L								<1.0	<1.0
2.4-Dimethylphenol	µg/L								<1.0	<1.0
2.4-Dichlorophenol	µg/L	120		200	0.3	2000			<1.0	<1.0
2.6-Dichlorophenol	µg/L								<1.0	<1.0
4-Chloro-3-Methylphenol	µg/L								<1.0	<1.0
2.4.6-Trichlorophenol	µg/L	3		20	2	200			<1.0	<1.0
2.4.5-Trichlorophenol	µg/L								<1.0	<1.0
Pentachlorophenol	µg/L	3.6	11						<2.0	<2.0
Polynuclear Aromatic Hydrocarbons										
Naphthalene	µg/L	16	50						<1.0	<1.0
Acenaphthylene	µg/L								<1.0	<1.0
Acenaphthene	µg/L								<1.0	<1.0
Fluorene	µg/L								<1.0	<1.0
Phenanthrene	µg/L								<1.0	<1.0
Anthracene	µg/L								<1.0	<1.0
Fluoranthene	µg/L								<1.0	<1.0
Pyrene	µg/L								<1.0	<1.0
Benz(a)anthracene	µg/L								<1.0	<1.0
Chrysene	µg/L								<1.0	<1.0
Benzo(b)fluoranthene	µg/L								<1.0	<1.0
Benzo(k)fluoranthene	µg/L								<1.0	<1.0
Benzo(a)pyrene	µg/L			0.01		0.1			<0.5	<0.5
Indeno(1.2.3.cd)pyrene	µg/L								<1.0	<1.0
Dibenz(a.h)anthracene	µg/L								<1.0	<1.0
Benzo(g.h.i)perylene	µg/L								<1.0	<1.0
Total Petroleum Hydrocarbons										
C6 - C9 Fraction	µg/L								<20	<20
C10 - C14 Fraction	µg/L								<50	<50
C15 - C28 Fraction	µg/L								<100	<100
C29 - C36 Fraction	µg/L								<50	<50
C10 - C36 Fraction (sum)	µg/L	600 [4]							<50	<50

NOTES: 1. SRT Healthy Rivers Action Plan Long Term / Short Term Targets
2. ANZECC 99% protection level for Chlordane
3. ANZECC 99% protection level for Endosulfan
4. Dutch intervention values (2000).
5. pH > 6 / pH < 6
6. ASS disturbance indicators
7. Effluent treatment triggers

Table 8 MW6 Groundwater Laboratory Analysis Results

Analyte grouping/Analyte	Units	ANZECC & ARMCANZ		ADWG		DoH	ANZECC & ARMCANZ			
		Fresh Waters	Marine Waters	Drinking Water Health Value (HV)	Drinking Water Aesthetic Value (AV)	Domestic non-potable groundwater use	Short-term Irrigation Water	Long-term Irrigation Water	18/05/2012 WRMW6	30/08/2012 WRMW6
pH Value	pH Unit	6.5-8.5	8.0-8.4		6.5-8.5			6.0-8.5	5.83	5.87
Electrical Conductivity	µS/cm								808	914
Total Dissolved Solids	mg/L								492	578
Suspended Solids	mg/L								50	6
Turbidity	NTU								76.6	4
Total Alkalinity $CaCO_3$	mg/L								38	10
Acidity as $CaCO_3$	mg/L								22	39
Sulfate as SO_4^{2-}	mg/L			500	250	5000			173	203
Chloride	mg/L				250	2500			124	153
Total Metals										
Aluminium	mg/L	0.055			0.2	2	20	5	0.74	0.41
Arsenic	mg/L	0.013		0.01		0.07	2	0.1	<0.001	<0.001
Cadmium	mg/L	0.0002	0.0007	0.002		0.02	0.05	0.01	<0.0001	<0.0001
Chromium	mg/L						1	0.1	<0.001	<0.001
Copper	mg/L	0.0014	0.0013	2	1	20	5	0.2	0.002	0.003
Lead	mg/L	0.0034	0.0044	0.01		0.1	5	2	0.007	0.009
Manganese	mg/L	1.9		0.5	0.1	5	10	0.2	0.034	0.034
Molybdenum	mg/L			0.05		0.5	0.05	0.01	<0.001	<0.001
Nickel	mg/L	0.011	0.02	0.02		0.2	2	0.2	0.002	0.003
Selenium	mg/L	0.005		0.01		0.1	0.05	0.02	<0.01	<0.01
Silver	mg/L	0.00005	0.0014	0.1		1			<0.001	<0.001
Zinc	mg/L	0.008	0.015		3	30	5	2	0.012	0.011
Iron	mg/L	0.3	1.0 / 0.35		0.33	3	10	0.2	10.4	3.21
Mercury	mg/L	0.00006	0.0001	0.001		0.01	0.002	0.002	<0.0001	<0.0001
Nutrients										
Ammonia as N	mg/L	0.9	0.91						1.64	0.73
Nitrite as N	mg/L			3.0		30			0.05	0.02
Nitrate as N	mg/L			50		500			0.17	1.43
Kjeldhal Nitrogen	mg/L								1.6	1.1
Total Nitrogen	mg/L	1.0 / 2.0[1]							1.8	2.6
Total Phosphorus	mg/L	0.1 / 0.2[1]							0.03	0.02
Reactive Phosphorus	mg/L								<0.01	<0.01
Sulfide	mg/L	0.001							<0.1	<0.1
COD	mg/L								25	30
BOD	mg/L								26	2
Organochlorine Pesticides (OC)										
alpha-BHC	µg/L								<0.5	<0.5
Hexachlorobenzene (HCB)	µg/L								<0.5	<0.5
beta-BHC	µg/L								<0.5	<0.5
gamma-BHC	µg/L								<0.5	<0.5
delta-BHC	µg/L								<0.5	<0.5
Heptachlor	µg/L	0.01							<0.5	<0.5
Aldrin	µg/L								<0.5	<0.5
Heptachlor epoxide	µg/L			0.05	0.3	3			<0.5	<0.5
trans-Chlordane	µg/L	0.03 [2]		0.01	1	10			<0.5	<0.5
alpha-Endosulfan	µg/L	0.03 [3]	0.005 [3]	0.05	30	30			<0.5	<0.5
cis-Chlordane	µg/L	0.03 [2]		0.01	1	10			<0.5	<0.5
Dieldrin	µg/L								<0.5	<0.5
4.4`-DDE	µg/L								<0.5	<0.5
Endrin	µg/L	0.01	0.004						<0.5	<0.5
beta-Endosulfan	µg/L	0.03 [3]	0.005 [3]						<0.5	<0.5
4.4`-DDD	µg/L								<0.5	<0.5
Endrin aldehyde	µg/L								<0.5	<0.5
Endosulfan sulfate	µg/L								<0.5	<0.5
4.4`-DDT	µg/L	0.006		0.06	30	0.1			<2	<2
Endrin ketone	µg/L								<0.5	<0.5
Methoxychlor	µg/L								<2	<2
Aldrin plus dieldrin	µg/L			0.010	0.3	3			<1	<0.5
Organophosphorus Pesticides (OP)										
Dichlorvos	µg/L								<0.5	<0.5
Demeton-S-methyl	µg/L								<0.5	<0.5
Monocrotophos	µg/L								<2	<2
Dimethoate	µg/L	0.15			50	50			<0.5	<0.5
Diazinon	µg/L	0.01		1	3	1			<0.5	<0.5
Chlorpyrifos-methyl	µg/L	0.01	0.009		10	100			<0.5	<0.5
Parathion-methyl	µg/L								<2	<2
Malathion	µg/L	0.05							<0.5	<0.5
Fenthion	µg/L								<0.5	<0.5
Chlorpyrifos	µg/L	0.01	0.009						<0.5	<0.5
Parathion	µg/L	0.004			10	10			<2	<2
Pirimphos-ethyl	µg/L								<0.5	<0.5
Chlorfenvinphos	µg/L								<0.5	<0.5
Bromophos-ethyl	µg/L								<0.5	<0.5
Fenamiphos	µg/L								<0.5	<0.5
Prothiofos	µg/L								<0.5	<0.5
Ethion	µg/L								<0.5	<0.5
Carbophenothion	µg/L								<0.5	<0.5
Azinphos Methyl	µg/L	0.02							<0.5	<0.5
Monocyclic Aromatic Hydrocarbons										
Benzene	µg/L	0.95	0.5	0.001		0.01			-	-
Toluene	µg/L			0.80	0.025	0.025			-	-
Ethylbenzene	µg/L			0.30	0.003	0.003			-	-
meta- & para-Xylene	µg/L	200							-	-
Styrene	µg/L			0.03	0.004	0.004			<5	<5
ortho-Xylene	µg/L	350							-	-
Isopropylbenzene	µg/L								<5	<5
n-Propylbenzene	µg/L								<5	<5
1.3.5-Trimethylbenzene	µg/L								<5	<5
sec-Butylbenzene	µg/L								<5	<5
1.2.4-Trimethylbenzene	µg/L								<5	<5
tert-Butylbenzene	µg/L								<5	<5
p-Isopropyltoluene	µg/L								<5	<5
n-Butylbenzene	µg/L								<5	<5

Oxygenated Compounds										
Vinyl Acetate	µg/L								<50	<50
2-Butanone (MEK)	µg/L								<50	<50
4-Methyl-2-pentanone (MIBK)	µg/L								<50	<50
2-Hexanone (MBK)	µg/L								<50	<50
Sulfonated Compounds										
Carbon disulfide	µg/L								<5	<5
Fumigants										
2.2-Dichloropropane	µg/L								<5	<5
1.2-Dichloropropane	µg/L								<5	<5
cis-1.3-Dichloropropylene	µg/L								<5	<5
trans-1.3-Dichloropropylene	µg/L								<5	<5
1.2-Dibromoethane (EDB)	µg/L								<5	<5
Halogenated Aliphatic Compounds										
Dichlorodifluoromethane	µg/L								<50	<50
Chloromethane	µg/L								<50	<50
Vinyl chloride	µg/L			0.0003		0.003			<50	<50
Bromomethane	µg/L								<50	<50
Chloroethane	µg/L								<50	<50
Trichlorofluoromethane	µg/L								<50	<50
1.1-Dichloroethene	µg/L			0.03		0.3			<5	<5
Iodomethane	µg/L								<5	<5
trans-1.2-Dichloroethene	µg/L								<5	<5
1.1-Dichloroethane	µg/L								<5	<5
cis-1.2-Dichloroethene	µg/L								<5	<5
1.1.1-Trichloroethane	µg/L								<5	<5
1.1-Dichloropropylene	µg/L								<5	<5
Carbon Tetrachloride	µg/L								<5	<5
1.2-Dichloroethane	µg/L			0.003		0.03			<5	<5
Trichloroethene	µg/L								<5	<5
Dibromomethane	µg/L								<5	<5
1.1.2-Trichloroethane	µg/L	6500	1900						<5	<5
1.3-Dichloropropane	µg/L								<5	<5
Tetrachloroethene	µg/L			0.05		0.5			<5	<5
1.1.1.2-Tetrachloroethane	µg/L								<5	<5
trans-1.4-Dichloro-2-butene	µg/L								<5	<5
cis-1.4-Dichloro-2-butene	µg/L								<5	<5
1.1.2.2-Tetrachloroethane	µg/L								<5	<5
1.2.3-Trichloropropane	µg/L								<5	<5
Pentachloroethane	µg/L								<5	<5
1.2-Dibromo-3-chloropropane	µg/L								<5	<5
Hexachlorobutadiene	µg/L								<5	<5
Halogenated Aromatic Compounds										
Chlorobenzene	µg/L			0.30	0.01	0.01			<5	<5
Bromobenzene	µg/L								<5	<5
2-Chlorotoluene	µg/L								<5	<5
4-Chlorotoluene	µg/L								<5	<5
1.3-Dichlorobenzene	µg/L	0.26			0.02	0.02			<5	<5
1.4-Dichlorobenzene	µg/L	0.06		0.04	0.003	0.003			<5	<5
1.2-Dichlorobenzene	µg/L	0.16		1.5	0.001	0.001			<5	<5
1.2.4-Trichlorobenzene	µg/L	0.085	80	0.03	0.005	0.005			<5	<5
1.2.3-Trichlorobenzene	µg/L	0.003		0.03	0.005	0.005			<5	<5
Trihalomethanes										
Chloroform	µg/L								<5	<5
Bromodichloromethane	µg/L								<5	<5
Dibromochloromethane	µg/L								<5	<5
Bromoform	µg/L								<5	<5
Phenolic Compounds										
Phenol	µg/L	320	400						<1.0	<1.0
2-Chlorophenol	µg/L	340		300	0.1	3000			<1.0	<1.0
2-Methylphenol	µg/L								<1.0	<1.0
3- & 4-Methylphenol	µg/L								<2.0	<2.0
2-Nitrophenol	µg/L								<1.0	<1.0
2.4-Dimethylphenol	µg/L								<1.0	<1.0
2.4-Dichlorophenol	µg/L	120		200	0.3	2000			<1.0	<1.0
2.6-Dichlorophenol	µg/L								<1.0	<1.0
4-Chloro-3-Methylphenol	µg/L								<1.0	<1.0
2.4.6-Trichlorophenol	µg/L	3		20	2	200			<1.0	<1.0
2.4.5-Trichlorophenol	µg/L								<1.0	<1.0
Pentachlorophenol	µg/L	3.6	11						<2.0	<2.0
Polynuclear Aromatic Hydrocarbons										
Naphthalene	µg/L	16	50						<1.0	<1.0
Acenaphthylene	µg/L								<1.0	<1.0
Acenaphthene	µg/L								<1.0	<1.0
Fluorene	µg/L								<1.0	<1.0
Phenanthrene	µg/L								<1.0	<1.0
Anthracene	µg/L								<1.0	<1.0
Fluoranthene	µg/L								<1.0	<1.0
Pyrene	µg/L								<1.0	<1.0
Benz(a)anthracene	µg/L								<1.0	<1.0
Chrysene	µg/L								<1.0	<1.0
Benzo(b)fluoranthene	µg/L								<1.0	<1.0
Benzo(k)fluoranthene	µg/L								<1.0	<1.0
Benzo(a)pyrene	µg/L			0.01		0.1			<0.5	<0.5
Indeno(1.2.3.cd)pyrene	µg/L								<1.0	<1.0
Dibenz(a.h)anthracene	µg/L								<1.0	<1.0
Benzo(g.h.i)perylene	µg/L								<1.0	<1.0
Total Petroleum Hydrocarbons										
C6 - C9 Fraction	µg/L								<20	<20
C10 - C14 Fraction	µg/L								<50	<50
C15 - C28 Fraction	µg/L								**260**	**380**
C29 - C36 Fraction	µg/L								**60**	<50
C10 - C36 Fraction (sum)	µg/L	600 [4]							**320**	**380**

NOTES: 1. SRT Healthy Rivers Action Plan Long Term / Short Term Targets
2. ANZECC 99% protection level for Chlordane
3. ANZECC 99% protection level for Endosulfan
4. Dutch intervention values (2000).
5. pH > 6 / pH < 6
6. ASS disturbance indicators
7. Effluent treatment triggers

8.3 Groundwater Levels

The depth to groundwater was measured on 30th September 2012 and tabulated with historical data (Table 4). An interface meter was used to verify the presence / absence of free phase hydrocarbon products over the groundwater: no free phase products were detected. Groundwater is intercepted between 20 RL mAHD (Relative level metres Australian Height Datum) and 24 RL mAHD.

Plotting the water table values enable determination of groundwater direction. Figure 3 identifies a groundwater flux towards the northwest.

Table 9 Groundwater Measurements

Groundwater Well I.D.	Date	Top of Casing	Water Level		
		RL mAHD	mBGL	RL mAHD	Change mm
WRMW1	18/05/2012	27.281	3.700	23.581	N/A
	30/08/2012		3.455	23.826	-245
	11/10/2012		3.130	24.151	-325
WRMW2	18/05/2012	30.607	7.666	22.941	N/A
	30/08/2012		7.26	23.347	-406
	11/10/2012		7.316	23.291	56
WRMW3	18/05/2012	34.622	11.846	22.776	N/A
	30/08/2012		11.725	22.897	-121
	11/10/2012		11.794	22.828	69
WRMW4	18/05/2012	27.751	8.509	19.242	N/A
	30/08/2012		7.79	19.961	-719
	11/10/2012		7.753	19.998	-37
WRMW5	18/05/2012	29.034	8.836	20.198	N/A
	30/08/2012		8.28	20.754	-556
	11/10/2012		8.170	20.864	-110
WRMW6	18/05/2012	31.611	8.759	22.852	N/A
	30/08/2012		9.215	22.396	456
	11/10/2012		8.998	22.613	-217

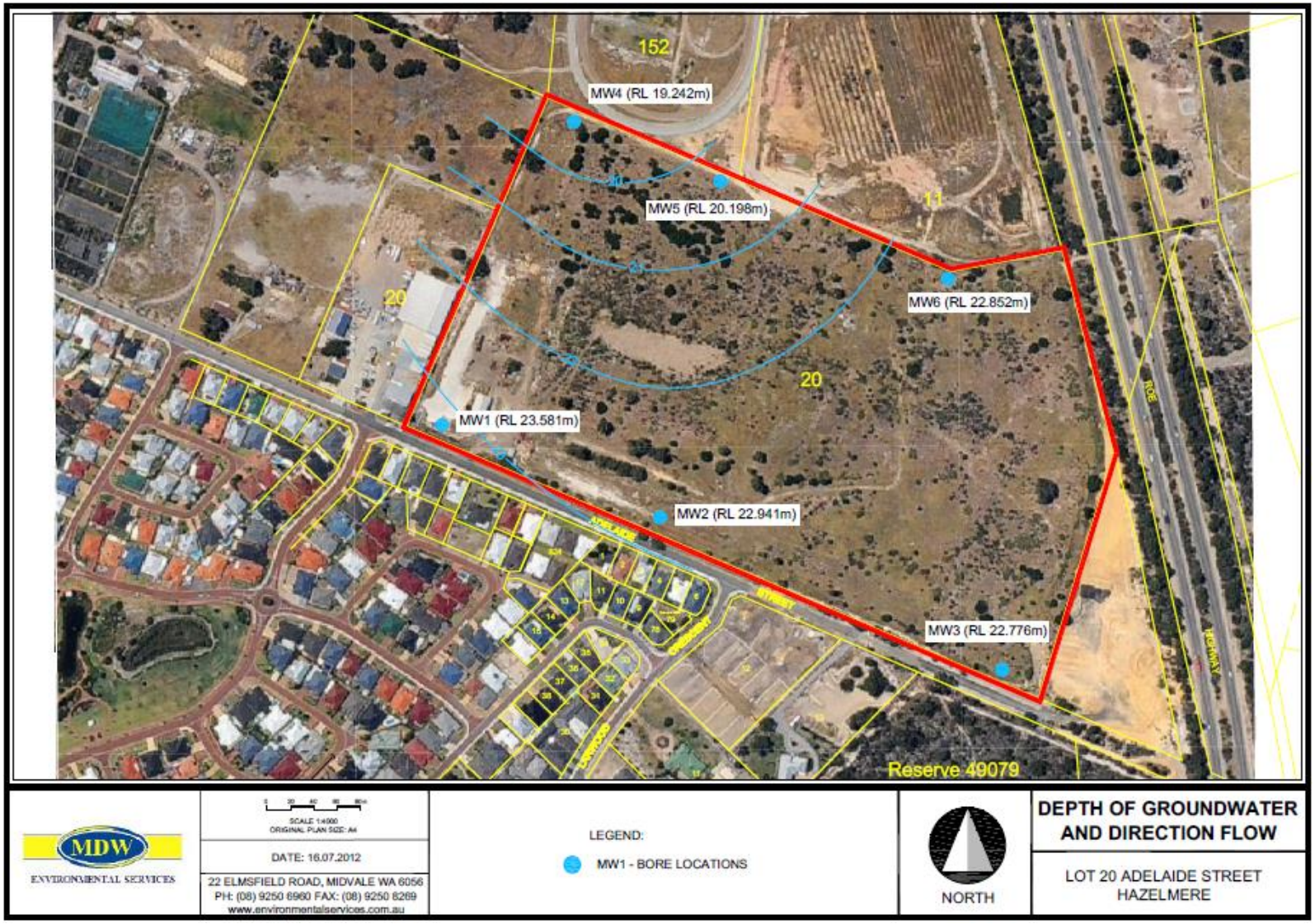

Figure 3 Groundwater Contours

9 DISCUSSION

Standing water level measurements recorded by MDWES during the GME sampling indicate that groundwater is encountered between RL 20.0 mAHD and 24.1 mAHD beneath the Site. Based upon current redevelopment plans, groundwater will not be intercepted during the proposed remediation work.

Field results indicate that the groundwater beneath the site is fresh and mildly acidic with pH ranging from 5.72 to 7.83. This is an acceptable range of pH for groundwater within this locality.

Contamination of the groundwater from material previously deposited on the Site appears to be minimal. With the exception of metalloids, nutrients and low levels of TPH in WRMW6, all other PCOC were below laboratory detection limits.

Metalloid results could be considered higher than expected for background waters within this locality, however, elevated levels of suspended solids within majority of the samples could have contributed to artificially increasing the results. It is further suspected that if dissolved metal concentrations were requested, these would be significantly lower than the total metal results and more indicative of the quality of water that would be abstracted for use for dust suppression and compaction.

Although nutrient levels were slightly elevated above ANZECC criteria, surface waters are not located in the immediate vicinity of the site and downstream receptors are likely to be more significantly impacted upon by land uses to the north of the site including rendering facilities. Comparison of historical data indicates that concentrations of contaminants of high concern (TPH and 3-&4- Methylphenol) are decreasing however further data is needed to accurately determine fluctuations in groundwater quality.

MDWES are of the opinion that the contamination of the groundwater from material previously deposited on the Site is minimal and the site does not appear to be a source site for contamination external to the site boundaries. Groundwater flux appears to be in a northwest direction and if the properties to the north of the site are to be included in the redevelopment proposal for this site, it is recommended that additional groundwater investigations are completed on these properties.

It has been recommended that groundwater gauging be completed on a monthly basis and laboratory analysis be completed on a quarterly basis until the remediation commence to gather additional groundwater data prior to the inert wastes being disturbed during remediation earthmoving activities.

10 REFERENCES

ANZECC (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* Australian and New Zealand Environment and Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ).

DEC (2010) *Contaminated Site Management Series - Assessment Levels for Soil, Sediment and Water*. Contaminated Sites Branch, Department of Environment and Conservation.

DEC 2009. Department of Environment and Conservation, Contaminated Sites Management Series - Site classification scheme.

DEC 2006a. Department of Environment and Conservation: Contaminated Sites Management Series – The Use of Risk Assessment in Contaminated Site Assessment Management.

DEC 2006b. Department of Environment and Conservation: Contaminated Sites Management Series – Community Consultation Guideline

DEC 2010. Department of Environment and Conservation: Assessment Levels for Soil, Sediment, and Water, Feb 2010

DEP 2004. Department of Environmental Protection, Contaminated Sites Management Series - Potentially contaminating activities, Industries and land uses
DoH 2006. Department of Health Domestic non-potable groundwater use.

DEP 2001. Department of Environmental Protection, Contaminated Sites Management Series - Reporting of site assessments.

Standards Australia/Standards New Zealand. 1998. AS/NZS 5667.1:1998. Water Quality – Sampling. Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of sample. Standards Australia and Standards New Zealand, Homebush NSW and Wellington NZ.

MDW
ENVIRONMENTAL SERVICES

Monitoring Well Field Record

Job #: E2012-031 Client: WASTEROCK Location: ADELAIDE ST

Well ID: MW1 Date: 30.8.12 Sampler: DA/NF

Monitoring Well Information

Depth to Water: 3455 (mm TOC) Depth to Bottom: 6.65 → 6.51 (m)

Standpipe: 0.445 (m) Monument Cover ☑

Lock: ☐ None ☑ Padlock (YL) ☐ Enviro Cap ☐ Gatic

Equipment IDs

Water Quality Meter: YSI TTA Kit: _____

Pump: LOW-FLOW TALK Kit: _____

Dipper: CON-SITES

Sampling

Sample ID: WRMW1-002 COC No: E2012-031-003

Time	pH	EC	DO	Temp	Redox	TTA	TALK
12:57 0	8.71	608	5.64	22.7	85.5		
5	5.81	652	2.4	21.3	192.5		
10	5.56	672	0.5	21.8	195.9		
15	5.60	687	—	21.2	192.1	35	54

Bottles

ASSESSMENT SUITE 2

1 x 1000mL plastic GREEN ☐	2 x 40mL vials MAROON ☑	1 x 500mL plastic GREEN** ☑
1 x 125mL plastic YELLOW ☐	1 x 500mL glass ORANGE ☑	**BRING BACK &FILTER INTO:
1 x 125mL plastic PURPLE ☑	2 x 500mL glass ORANGE per sample set (Lab Dups) ☐	1 x 60mL plastic MAROON ☑
1 x 60mL plastic BLUE ☑		1 x 60mL plastic RED/GREEN ☐
1 x 60mL plastic RED/GREEN ☐	1 x 500mL plastic GREEN ☑	

Comments

MDW
ENVIRONMENTAL SERVICES

Monitoring Well Field Record

Job #: E2012-031 Client: WASTEROCK Location: ADELAIDE ST

Well ID: MW2 Date: 30.8.12 Sampler: DA/NF

Monitoring Well Information

Depth to Water: 7260 (mm TOC) Depth to Bottom: 10.443 → 10.95 (m)

Standpipe: 0.615 (m) Monument Cover ☑

Lock: ☐ None ☑ Padlock (YL) ☐ Enviro Cap ☐ Gatic

Equipment IDs

Water Quality Meter: YSI TTA Kit: _____

Pump: LOW-FLOW TALK Kit: _____

Dipper: ~~☑~~ CON/SITES.

Sampling

Sample ID: WRMW2-002 COC No: E2012-031-003

Time	pH	EC	DO	Temp	Redox	TTA	TALK
11:59 0	6.42	314	6.3	21.5	86.3		
5	4.87	283	1.6	21.3	176.5		
10	4.61	282	1.4	21.3	191.1		
15	4.60	288	1.4	21.4	191.8		
20	4.62	292	1.4	21.4	190.8	36	18

Bottles — ASSESSMENT SUITE 2

1 x 1000mL plastic GREEN ☑	2 x 40mL vials MAROON ☑	1 x 500mL plastic GREEN** ☑
1 x 125mL plastic YELLOW ☑	1 x 500mL glass ORANGE ☑	**BRING BACK &FILTER INTO:
1 x 125mL plastic PURPLE ☑	2 x 500mL glass ORANGE per sample set (Lab Dups) ☑	1 x 60mL plastic MAROON ☑
1 x 60mL plastic BLUE ☑		1 x 60mL plastic RED/GREEN ☐
1 x 60mL plastic RED/GREEN ☑	1 x 500mL plastic GREEN ☑	

Comments

MDW
ENVIRONMENTAL SERVICES

Monitoring Well Field Record

Job #: E2012-031 Client: WASTEROCK Location: ADELAIDE ST

Well ID: WR MW3 Date: 30.8.12 Sampler: DA/NF

Monitoring Well Information

Depth to Water: 11725 (mm TOC) Depth to Bottom: 14.58 (m)

Standpipe: 0.510 (m) Monument Cover ☑

Lock: ☐ None ☑ Padlock (YL) ☐ Enviro Cap ☐ Gatic

Equipment IDs

Water Quality Meter: YSI TTA Kit: _____

Pump: LOWFLOW TALK Kit: _____

Dipper: CON-SITES

Sampling

Sample ID: WRMW3-002 COC No: E2012-031-003

Time	pH	EC µS	DO	Temp	Redox	TTA	TALK
0 (11:05)	7.09	979	4.6	22.8	9.2		
5	7.17	960	3.9	22.7	-61.7		
10	7.15	943	3.2	22.6	-36.8		
15	7.13	930	3.1	22.6	-40.6	20	15.0

Bottles — ASSESSMENT SUITE 2

1 x 1000mL plastic GREEN ☑	2 x 40mL vials MAROON ☑	1 x 500mL plastic GREEN** ☑
1 x 125mL plastic YELLOW ☐	1 x 500mL glass ORANGE ☐	**BRING BACK &FILTER INTO:
1 x 125mL plastic PURPLE ☑	2 x 500mL glass ORANGE per sample set (Lab Dups) ☐	1 x 60mL plastic MAROON ☐
1 x 60mL plastic BLUE ☑		1 x 60mL plastic RED/GREEN ☑
1 x 60mL plastic RED/GREEN ☐	1 x 500mL plastic GREEN ☑	

Comments

MDW ENVIRONMENTAL SERVICES

Monitoring Well Field Record

Job #: E2012-031 Client: WASTEROCK Location: ADELAIDE ST

Well ID: MW4 Date: 30.8.12 Sampler: DA/NF

Monitoring Well Information

Depth to Water: 7.790 (mm TOC) Depth to Bottom: ~~11.750~~ 11.750 (m)

Standpipe: 0.625 (m) Monument Cover ☑

Lock: ☐ None ☑ Padlock (YL) ☐ Enviro Cap ☐ Gatic

Equipment IDs

Water Quality Meter: TS1 TTA Kit: _____

Pump: LOW FLOW TALK Kit: _____

Dipper: CON-SITES

Sampling

Sample ID: WRMW4-002 COC No: E2012-031-003

Time	pH	EC	DO	Temp	Redox	TTA	TALK
13:40	5.05	165.7	4.5	22.0	229.6		
5	5.01	165.5	4.3	21.9	235.6		
10	4.50	163.6	2.6	21.8			
15	4.49	163.0	1.9	21.9	25.4	17	12.0

Bottles

ASSESSMENT SUITE 2

1 x 1000mL plastic GREEN ☐	2 x 40mL vials MAROON ☑	1 x 500mL plastic GREEN** ☑
1 x 125mL plastic YELLOW ☐	1 x 500mL glass ORANGE ☑	**BRING BACK &FILTER INTO:
1 x 125mL plastic PURPLE ☑	2 x 500mL glass ORANGE per sample set (Lab Dups) ☑	1 x 60mL plastic MAROON ☐
1 x 60mL plastic BLUE ☐		1 x 60mL plastic RED/GREEN ☐
1 x 60mL plastic RED/GREEN ☑	1 x 500mL plastic GREEN ☑	

Comments

DUP & TRIP

MDW
ENVIRONMENTAL SERVICES

Monitoring Well Field Record

Job #: E2012-031 Client: WASTEROCK Location: ADELAIDE ST

Well ID: MW5 Date: 30.8.12 Sampler: DA/NF

Monitoring Well Information

Depth to Water: 8280 (mm TOC) Depth to Bottom: 12.162 (m)

Standpipe: 0.56 (m) Monument Cover ☑

Lock: ☐ None ☑ Padlock (YL) ☐ Enviro Cap ☐ Gatic

Equipment IDs

Water Quality Meter: YSI TTA Kit: _____

Pump: LOW FLOW TALK Kit: _____

Dipper: CON-SITES

Sampling

Sample ID: WRMW5-002 COC No: E2012-031-003

Time	pH	EC	DO	Temp	Redox	TTA	TALK
14:55	5.79	111.7	—	23.6	228.7		
5	5.70	107.2	—	23.2	233.5		
10	5.17	101.8	—	22.4	268.0	12	12
15							

Bottles

ASSESSMENT SUITE 2

1 x 1000mL plastic GREEN ☑	2 x 40mL vials MAROON ☑	1 x 500mL plastic GREEN** ☑
1 x 125mL plastic YELLOW ☐	1 x 500mL glass ORANGE ☐	**BRING BACK &FILTER INTO:
1 x 125mL plastic PURPLE ☐	2 x 500mL glass ORANGE per sample set (Lab Dups) ☑	1 x 60mL plastic MAROON ☐
1 x 60mL plastic BLUE ☐		1 x 60mL plastic RED/GREEN ☐
1 x 60mL plastic RED/GREEN ☐	1 x 500mL plastic GREEN ☐	

Comments

MDW
ENVIRONMENTAL SERVICES

Monitoring Well Field Record

Job #: EZ012-031 Client: WASTEROCK Location: ADELAIDE ST

Well ID: MW6 Date: 30.8.12 Sampler: DA/NF

Monitoring Well Information				9.810
Depth to Water:	9.215 (mm TOC)	Depth to Bottom:	9.895	(m)
Standpipe:	0.640 (m)	Monument Cover	☐	
Lock: ☐ None	☑ Padlock (YL)	☐ Enviro Cap	☐ Gatic	
Equipment IDs				
Water Quality Meter:	YSI	TTA Kit:		
Pump:	Low-Flow	TALK Kit:		
Dipper:	CON-SITES			
Sampling				
Sample ID: RMWRMW6-002		COC No: EZ012-031-003		

Time	pH	EC	DO	Temp	Redox	TTA	TALK
15:45	4.96	865	—	23.1	269.2		
:50	4.71	889	—	23.1	267.9		
:55	4.67	894	—	23.0	268.5		
16:00	4.67	896	—	23.0	267.9	31	30

Bottles	**ASSESSMENT SUITE 2**	
1 x 1000mL plastic GREEN ☑	2 x 40mL vials MAROON ☑	1 x 500mL plastic GREEN** ☑
1 x 125mL plastic YELLOW ☑	1 x 500mL glass ORANGE ☑	**BRING BACK &FILTER INTO:
1 x 125mL plastic PURPLE ☐	2 x 500mL glass ORANGE per sample set (Lab Dups) ☑	1 x 60mL plastic MAROON ☑
1 x 60mL plastic BLUE ☑		1 x 60mL plastic RED/GREEN ☑
1 x 60mL plastic RED/GREEN ☑	1 x 500mL plastic GREEN ☑	

Comments

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EP1207278**	Page	: 1 of 18
Client	: **MOBILE DEWATERING**	Laboratory	: Environmental Division Perth
Contact	: INFO	Contact	: Lauren Ockwell
Address	: PO BOX 239 MIDLAND WA, AUSTRALIA 6939	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: info@environmentalservices.com.au	E-mail	: lauren.ockwell@alsenviro.com
Telephone	: +61 08 9250 4995	Telephone	: 08 9209 7606
Facsimile	: ----	Facsimile	: 08 9209 7600
Project	: E2012-031	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----		
C-O-C number	: E2012-031-003	Date Samples Received	: 31-AUG-2012
Sampler	: Dale A./ Nathan F.	Issue Date	: 07-SEP-2012
Site	: WASTEROCK		
		No. of samples received	: 9
Quote number	: EP/324/12	No. of samples analysed	: 9

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Metals Instrument Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics
Cicelia Bartels	Metals Instrument Chemist	Perth Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Organics
Hoa Nguyen	Inorganic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics

General Comments

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

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

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

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

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

- **EK057G: Poor spike recovery due to sample matrix interference. Confirmed by re-analysis.**

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: WRMW1-002	WRMW2-002	WRMW3-002	WRMW4-002	WRMW5-002
				Client sampling date / time: 30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00
				EP1207278-001	EP1207278-002	EP1207278-003	EP1207278-004	EP1207278-005
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**6.77**	**5.72**	**7.83**	**5.96**	**5.72**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**716**	**292**	**901**	**144**	**97**
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	**474**	**169**	**567**	**83**	**56**
EA025: Suspended Solids								
Suspended Solids (SS)	----	5	mg/L	**950**	**106**	**1610**	**9**	**660**
EA045: Turbidity								
Turbidity	----	0.1	NTU	**202**	**32.0**	**1120**	**10.8**	**854**
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	**36**	**3**	**157**	**1**	<1
Total Alkalinity as CaCO3	----	1	mg/L	**36**	**3**	**157**	**1**	<1
ED038A: Acidity								
Acidity as CaCO3	----	1	mg/L	**35**	**42**	**18**	**21**	**11**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**123**	**11**	**18**	**2**	**7**
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	**138**	**82**	**219**	**30**	**17**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**0.09**	**0.03**	**0.02**	**0.06**	**1.48**
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	**0.002**	<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	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	**0.004**	**0.003**	**0.108**	**0.005**	**0.005**
Nickel	7440-02-0	0.001	mg/L	**0.002**	**0.006**	**0.003**	**0.003**	**0.004**
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	**0.013**	**0.025**	**0.006**	**0.010**	**0.021**
Iron	7439-89-6	0.05	mg/L	**0.52**	**0.75**	<0.05	<0.05	**0.54**
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**7.69**	**3.15**	**24.9**	**1.61**	**2.57**
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	**0.007**	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	**0.0002**	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	**0.005**	**0.003**	**0.044**	**0.001**	**0.001**
Copper	7440-50-8	0.001	mg/L	**0.002**	**0.005**	**0.036**	**0.003**	**0.015**

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: WRMW1-002	WRMW2-002	WRMW3-002	WRMW4-002	WRMW5-002
				Client sampling date / time: 30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00
				EP1207278-001	EP1207278-002	EP1207278-003	EP1207278-004	EP1207278-005
EG020T: Total Metals by ICP-MS - Continued								
Lead	7439-92-1	0.001	mg/L	**0.015**	**0.003**	**0.079**	**0.005**	**0.002**
Manganese	7439-96-5	0.001	mg/L	**0.004**	**0.004**	**0.129**	**0.006**	**0.002**
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	**0.001**	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	**0.003**	**0.006**	**0.019**	**0.003**	**0.002**
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	**0.007**	**0.079**	**0.079**	**0.011**	**0.007**
Iron	7439-89-6	0.05	mg/L	**0.21**	**2.12**	**12.4**	**0.40**	**0.13**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	**0.0001**	<0.0001	<0.0001	<0.0001	<0.0001
EG050F: Dissolved Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.010	mg/L	<0.010	<0.010	<0.010	----	<0.010
Hexavalent Chromium	18540-29-9	0.01	mg/L	----	----	----	<0.01	----
EG051G: Ferrous Iron by Discrete Analyser								
Ferrous Iron	----	0.05	mg/L	**0.34**	**0.76**	<0.05	<0.05	**0.12**
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.03**	**0.03**	**0.45**	**0.05**	**0.06**
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	----	0.01	mg/L	**0.02**	**0.01**	**0.02**	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	**4.91**	**1.09**	**0.31**	**4.92**	**2.03**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**4.93**	**1.10**	**0.33**	**4.92**	**2.03**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**1.4**	**0.3**	**1.4**	**1.1**	**1.5**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**6.3**	**1.4**	**1.7**	**6.0**	**3.5**
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.19**	**0.03**	**0.51**	**0.12**	**0.23**
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EK085M: Sulfide as S2-								
Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
EP026ST: Chemical Oxygen Demand (Sealed Tube)								
Chemical Oxygen Demand	----	5	mg/L	**14**	<5	**21**	**7**	<5
EP030: Biochemical Oxygen Demand (BOD)								

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: WRMW1-002	WRMW2-002	WRMW3-002	WRMW4-002	WRMW5-002
				Client sampling date / time: 30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00
				EP1207278-001	EP1207278-002	EP1207278-003	EP1207278-004	EP1207278-005
EP030: Biochemical Oxygen Demand (BOD) - Continued								
Biochemical Oxygen Demand	----	2	mg/L	<2	<2	**5**	<2	**3**
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4.4`-DDT	50-29-3	2	µg/L	<2	<2	<2	<2	<2
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Methoxychlor	72-43-5	2	µg/L	<2	<2	<2	<2	<2
^ **Total Chlordane (sum)**	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of DDD + DDE + DDT**	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Monocrotophos	6923-22-4	2	µg/L	<2	<2	<2	<2	<2
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Parathion-methyl	298-00-0	2	µg/L	<2	<2	<2	<2	<2
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Parathion	56-38-2	2	µg/L	<2	<2	<2	<2	<2

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: WRMW1-002	WRMW2-002	WRMW3-002	WRMW4-002	WRMW5-002
				Client sampling date / time: 30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00
				EP1207278-001	EP1207278-002	EP1207278-003	EP1207278-004	EP1207278-005
EP068B: Organophosphorus Pesticides (OP) - Continued								
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	<5
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	<50
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	<5
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	<50
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: WRMW1-002	WRMW2-002	WRMW3-002	WRMW4-002	WRMW5-002
				Client sampling date / time: 30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00
				EP1207278-001	EP1207278-002	EP1207278-003	EP1207278-004	EP1207278-005
EP074E: Halogenated Aliphatic Compounds - Continued								
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	<5
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	<5
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	<5

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: WRMW1-002	WRMW2-002	WRMW3-002	WRMW4-002	WRMW5-002
				Client sampling date / time: 30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00
				EP1207278-001	EP1207278-002	EP1207278-003	EP1207278-004	EP1207278-005
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	**3.3**	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-Methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (WHO)**	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID	WRMW1-002	WRMW2-002	WRMW3-002	WRMW4-002	WRMW5-002
				Client sampling date / time	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00
					EP1207278-001	EP1207278-002	EP1207278-003	EP1207278-004	EP1207278-005
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft - Continued									
C6 - C10 Fraction	----	20	µg/L		<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	----	20	µg/L		<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	<100	<100	<100
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L		<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.1	%		87.3	85.4	80.3	91.1	63.2
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.1	%		76.3	77.8	74.3	81.7	70.4
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		111	111	116	116	115
Toluene-D8	2037-26-5	0.1	%		117	116	124	120	123
4-Bromofluorobenzene	460-00-4	0.1	%		113	112	116	118	118
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		33.6	32.4	36.7	37.1	22.6
2-Chlorophenol-D4	93951-73-6	0.1	%		85.1	78.6	86.1	83.9	53.3
2.4.6-Tribromophenol	118-79-6	0.1	%		88.4	95.6	90.8	100	57.0
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		92.1	94.3	85.7	90.7	63.0
Anthracene-d10	1719-06-8	0.1	%		95.5	99.0	97.4	101	80.6
4-Terphenyl-d14	1718-51-0	0.1	%		89.8	89.4	90.8	101	65.9
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		108	107	112	112	111
Toluene-D8	2037-26-5	0.1	%		112	112	119	123	118
4-Bromofluorobenzene	460-00-4	0.1	%		111	110	112	115	115

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: WRMW6-002	DUP-002	RINSATE-002	BLANK-002	----
				Client sampling date / time: 30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	----
				EP1207278-006	EP1207278-007	EP1207278-008	EP1207278-009	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**5.87**	**5.49**	**5.63**	**5.91**	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**914**	**151**	<1	<1	----
EA015: Total Dissolved Solids								
Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	**578**	**85**	<10	<10	----
EA025: Suspended Solids								
Suspended Solids (SS)	----	5	mg/L	**6**	**16**	<5	<5	----
EA045: Turbidity								
Turbidity	----	0.1	NTU	**4.0**	**9.6**	**0.3**	<0.1	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**10**	<1	<1	<1	----
Total Alkalinity as CaCO3	----	1	mg/L	**10**	<1	<1	<1	----
ED038A: Acidity								
Acidity as CaCO3	----	1	mg/L	**39**	**8**	**4**	**2**	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**203**	**3**	<1	<1	----
ED045G: Chloride Discrete analyser								
Chloride	16887-00-6	1	mg/L	**153**	**31**	<1	<1	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**0.15**	**0.06**	<0.01	<0.01	----
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Manganese	7439-96-5	0.001	mg/L	**0.032**	**0.004**	<0.001	<0.001	----
Nickel	7440-02-0	0.001	mg/L	**0.004**	**0.002**	<0.001	<0.001	----
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	----
Zinc	7440-66-6	0.005	mg/L	**0.016**	**0.008**	<0.005	<0.005	----
Iron	7439-89-6	0.05	mg/L	**0.11**	**0.06**	<0.05	<0.05	----
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**0.41**	**1.43**	<0.01	<0.01	----
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	**0.003**	<0.001	----
Copper	7440-50-8	0.001	mg/L	**0.003**	**0.003**	**0.001**	**0.001**	----

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: WRMW6-002	DUP-002	RINSATE-002	BLANK-002	----
				Client sampling date / time: 30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	----
				EP1207278-006	EP1207278-007	EP1207278-008	EP1207278-009	----
EG020T: Total Metals by ICP-MS - Continued								
Lead	7439-92-1	0.001	mg/L	**0.009**	**0.004**	<0.001	<0.001	----
Manganese	7439-96-5	0.001	mg/L	**0.034**	**0.006**	<0.001	<0.001	----
Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Nickel	7440-02-0	0.001	mg/L	**0.003**	**0.003**	**0.002**	<0.001	----
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	----
Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L	**0.011**	**0.011**	<0.005	<0.005	----
Iron	7439-89-6	0.05	mg/L	**3.21**	**0.32**	**0.08**	<0.05	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
EG050F: Dissolved Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	----
EG051G: Ferrous Iron by Discrete Analyser								
Ferrous Iron	----	0.05	mg/L	<0.05	<0.05	<0.05	<0.05	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.73**	**0.04**	**0.03**	**0.04**	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	----	0.01	mg/L	**0.02**	**0.01**	<0.01	<0.01	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	**1.43**	**4.89**	<0.01	<0.01	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**1.45**	**4.90**	<0.01	<0.01	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**1.1**	**1.5**	<0.1	<0.1	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ **Total Nitrogen as N**	----	0.1	mg/L	**2.6**	**6.4**	<0.1	<0.1	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.02**	**0.09**	<0.01	<0.01	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	----
EK085M: Sulfide as S2-								
Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	----
EP026ST: Chemical Oxygen Demand (Sealed Tube)								
Chemical Oxygen Demand	----	5	mg/L	**30**	**7**	<5	<5	----
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	**2**	<2	**3**	<2	----

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: WRMW6-002	DUP-002	RINSATE-002	BLANK-002	----
				Client sampling date / time: 30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	----
				EP1207278-006	EP1207278-007	EP1207278-008	EP1207278-009	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
4.4`-DDT	50-29-3	2	µg/L	<2	<2	<2	<2	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Methoxychlor	72-43-5	2	µg/L	<2	<2	<2	<2	----
^ **Total Chlordane (sum)**	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
^ **Sum of DDD + DDE + DDT**	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Monocrotophos	6923-22-4	2	µg/L	<2	<2	<2	<2	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Parathion-methyl	298-00-0	2	µg/L	<2	<2	<2	<2	----
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Parathion	56-38-2	2	µg/L	<2	<2	<2	<2	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: WRMW6-002	DUP-002	RINSATE-002	BLANK-002	----
				Client sampling date / time: 30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	----
				EP1207278-006	EP1207278-007	EP1207278-008	EP1207278-009	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	----
Isopropylbenzene	98-82-8	5	µg/L	<5	<5	<5	<5	----
n-Propylbenzene	103-65-1	5	µg/L	<5	<5	<5	<5	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	<5	<5	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	<5	<5	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	<5	<5	----
tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	<5	<5	----
p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	<5	<5	----
n-Butylbenzene	104-51-8	5	µg/L	<5	<5	<5	<5	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	<50	<50	<50	<50	----
2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	<50	<50	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	<50	<50	----
2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	<50	<50	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	<5	<5	<5	<5	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	<5	<5	----
1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	<5	<5	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	<5	<5	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	<5	<5	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	<5	<5	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	<50	<50	----
Chloromethane	74-87-3	50	µg/L	<50	<50	<50	<50	----
Vinyl chloride	75-01-4	50	µg/L	<50	<50	<50	<50	----
Bromomethane	74-83-9	50	µg/L	<50	<50	<50	<50	----
Chloroethane	75-00-3	50	µg/L	<50	<50	<50	<50	----
Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	<50	<50	----
1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	<5	<5	----

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: WRMW6-002	DUP-002	RINSATE-002	BLANK-002	----
				Client sampling date / time: 30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	----
				EP1207278-006	EP1207278-007	EP1207278-008	EP1207278-009	----
EP074E: Halogenated Aliphatic Compounds - Continued								
Iodomethane	74-88-4	5	µg/L	<5	<5	<5	<5	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	<5	<5	----
1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	<5	<5	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	<5	<5	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	<5	<5	----
1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	<5	<5	----
Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	<5	<5	----
1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	<5	<5	----
Trichloroethene	79-01-6	5	µg/L	<5	<5	<5	<5	----
Dibromomethane	74-95-3	5	µg/L	<5	<5	<5	<5	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	<5	<5	----
1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	<5	<5	----
Tetrachloroethene	127-18-4	5	µg/L	<5	<5	<5	<5	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	<5	<5	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	<5	<5	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	<5	<5	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	<5	<5	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	<5	<5	----
Pentachloroethane	76-01-7	5	µg/L	<5	<5	<5	<5	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	<5	<5	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<5	----
Bromobenzene	108-86-1	5	µg/L	<5	<5	<5	<5	----
2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	<5	<5	----
4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	<5	<5	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	<5	<5	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<5	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	<5	<5	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	<5	<5	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	<5	<5	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	<5	<5	<5	<5	----
Bromodichloromethane	75-27-4	5	µg/L	<5	<5	<5	<5	----
Dibromochloromethane	124-48-1	5	µg/L	<5	<5	<5	<5	----
Bromoform	75-25-2	5	µg/L	<5	<5	<5	<5	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: WRMW6-002	DUP-002	RINSATE-002	BLANK-002	----
				Client sampling date / time: 30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	----
				EP1207278-006	EP1207278-007	EP1207278-008	EP1207278-009	----
EP075(SIM)A: Phenolic Compounds - Continued								
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
4-Chloro-3-Methylphenol	59-50-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(b)fluoranthene	205-99-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (WHO)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	µg/L	**380**	<100	<100	<100	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	**380**	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft								
C6 - C10 Fraction	----	20	µg/L	<20	<20	<20	<20	----

Analytical Results

Sub-Matrix: **WATER**

Compound	CAS Number	LOR	Unit	Client sample ID: WRMW6-002	DUP-002	RINSATE-002	BLANK-002	----
				Client sampling date / time: 30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	30-AUG-2012 11:00	----
				EP1207278-006	EP1207278-007	EP1207278-008	EP1207278-009	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft - Continued								
^ **C6 - C10 Fraction minus BTEX (F1)**	----	20	µg/L	<20	<20	<20	<20	----
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	----
>C16 - C34 Fraction	----	100	µg/L	**410**	<100	<100	<100	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	**410**	<100	<100	<100	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	----
^ **Total Xylenes**	1330-20-7	2	µg/L	<2	<2	<2	<2	----
^ **Sum of BTEX**	----	1	µg/L	<1	<1	<1	<1	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	**78.2**	**70.0**	**83.8**	**83.1**	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	**76.5**	**60.3**	**80.2**	**75.8**	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	**118**	**113**	**114**	**112**	----
Toluene-D8	2037-26-5	0.1	%	**119**	**117**	**118**	**116**	----
4-Bromofluorobenzene	460-00-4	0.1	%	**122**	**112**	**112**	**111**	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	**37.0**	**27.5**	**37.0**	**37.3**	----
2-Chlorophenol-D4	93951-73-6	0.1	%	**81.9**	**73.6**	**87.1**	**91.2**	----
2.4.6-Tribromophenol	118-79-6	0.1	%	**108**	**76.6**	**88.1**	**95.3**	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	**103**	**78.3**	**83.8**	**92.2**	----
Anthracene-d10	1719-06-8	0.1	%	**104**	**85.2**	**96.1**	**102**	----
4-Terphenyl-d14	1718-51-0	0.1	%	**95.7**	**75.8**	**90.7**	**97.0**	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	**114**	**109**	**110**	**108**	----
Toluene-D8	2037-26-5	0.1	%	**112**	**112**	**113**	**111**	----
4-Bromofluorobenzene	460-00-4	0.1	%	**118**	**109**	**110**	**108**	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	33.6	142.5
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	28.1	147.7
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78.3	133.2
Toluene-D8	2037-26-5	79.1	128.9
4-Bromofluorobenzene	460-00-4	80.8	123.7
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	64.1
2-Chlorophenol-D4	93951-73-6	11.3	122.9
2.4.6-Tribromophenol	118-79-6	11.7	144.0
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	19.9	122.8
Anthracene-d10	1719-06-8	23.3	125.8
4-Terphenyl-d14	1718-51-0	20.3	134.5
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

Environmental Division

QUALITY CONTROL REPORT

Work Order	: **EP1207278**	Page	: 1 of 22
Client	: **MOBILE DEWATERING**	Laboratory	: Environmental Division Perth
Contact	: INFO	Contact	: Lauren Ockwell
Address	: PO BOX 239 MIDLAND WA, AUSTRALIA 6939	Address	: 10 Hod Way Malaga WA Australia 6090
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Project	: E2012-031	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: WASTEROCK		
C-O-C number	: E2012-031-003	Date Samples Received	: 31-AUG-2012
Sampler	: Dale A./ Nathan F.	Issue Date	: 07-SEP-2012
Order number	: ----		
		No. of samples received	: 9
Quote number	: EP/324/12	No. of samples analysed	: 9

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

This Quality Control Report contains the following information:

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

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Canhuang Ke	Metals Instrument Chemist	Perth Inorganics
Chas Tucker	Inorganic Chemist	Perth Inorganics
Cicelia Bartels	Metals Instrument Chemist	Perth Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Organics
Hoa Nguyen	Inorganic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Phalak Inthaksone	Laboratory Manager - Organics	Sydney Organics

General Comments

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

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA005P: pH by PC Titrator (QC Lot: 2477807)									
EP1207259-003	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	6.60	6.51	1.4	0% - 20%
EP1207264-003	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	5.01	5.05	0.8	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 2477810)									
EP1207278-006	WRMW6-002	EA005-P: pH Value	----	0.01	pH Unit	5.87	5.91	0.7	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2477805)									
EP1207248-008	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	25600	25000	2.3	0% - 20%
EP1207259-003	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	584	575	1.6	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 2477808)									
EP1207278-006	WRMW6-002	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	914	892	2.4	0% - 20%
EA015: Total Dissolved Solids (QC Lot: 2482069)									
EP1207278-001	WRMW1-002	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	474	482	1.7	0% - 20%
EP1207278-009	BLANK-002	EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	<10	0.0	No Limit
EA025: Suspended Solids (QC Lot: 2482340)									
EP1207260-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	131	136	3.7	0% - 20%
EP1207278-009	BLANK-002	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
EA045: Turbidity (QC Lot: 2477904)									
EP1207278-001	WRMW1-002	EA045: Turbidity	----	0.1	NTU	202	208	3.2	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 2477806)									
EP1207248-008	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	323	325	0.8	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	323	325	0.8	0% - 20%
EP1207259-003	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	21	21	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	21	21	0.0	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 2477809)									
EP1207278-006	WRMW6-002	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	10	10	0.0	0% - 50%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	10	10	0.0	0% - 50%
ED038A: Acidity (QC Lot: 2485063)									
EP1207259-001	Anonymous	ED038: Acidity as CaCO3	----	1	mg/L	35	36	0.0	0% - 20%
EP1207278-001	WRMW1-002	ED038: Acidity as CaCO3	----	1	mg/L	35	38	7.8	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 (%)*
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 2477925)									
EP1207264-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<10	<10	0.0	No Limit
EP1207278-006	WRMW6-002	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	203	205	0.7	0% - 20%
ED045G: Chloride Discrete analyser (QC Lot: 2477924)									
EP1207264-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	119	120	1.1	0% - 20%
EP1207278-006	WRMW6-002	ED045G: Chloride	16887-00-6	1	mg/L	153	157	2.6	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 2483241)									
EP1207259-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.003	0.002	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.026	0.027	0.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.005	0.005	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.025	0.025	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	1.62	1.64	0.8	0% - 20%
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	10.8	11.0	1.9	0% - 20%
EP1207278-003	WRMW3-002	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.108	0.107	0.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.006	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.02	0.02	0.0	No Limit
		EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 2483220)									
EP1207257-002	Anonymous	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EP1207278-008	RINSATE-002	EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 2483221)									
EP1207257-002	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	0.002	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.432	0.437	1.1	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.007	0.007	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.005	0.003	37.8	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.154	0.152	1.2	0% - 20%
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	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 (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 2483221) - continued									
EP1207257-002	Anonymous	EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EP1207278-008	RINSATE-002	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	0.003	<0.001	99.3	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	<0.001	84.1	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.08	<0.05	38.6	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2485210)									
EP1207257-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP1207278-007	DUP-002	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG050F: Dissolved Hexavalent Chromium (QC Lot: 2482429)									
EP1207219-001	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.010	0.02	0.0	No Limit
EP1207259-003	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.010	<0.01	0.0	No Limit
EG051G: Ferrous Iron by Discrete Analyser (QC Lot: 2484335)									
EP1207182-002	Anonymous	EG051G: Ferrous Iron	----	0.05	mg/L	0.22	0.21	0.0	No Limit
EP1207278-005	WRMW5-002	EG051G: Ferrous Iron	----	0.05	mg/L	0.12	0.12	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 2478533)									
EP1207260-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.10	0.10	0.0	0% - 50%
EP1207278-001	WRMW1-002	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.03	0.03	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 2477922)									
EP1207264-001	Anonymous	EK057G: Nitrite as N	----	0.01	mg/L	0.04	0.03	0.0	No Limit
EP1207265-001	Anonymous	EK057G: Nitrite as N	----	0.01	mg/L	0.01	0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 2478532)									
EP1207260-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	2.01	2.01	0.0	0% - 20%
EP1207278-001	WRMW1-002	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	4.93	4.93	0.0	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 2481449)									
EP1207041-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.6	1.4	8.0	0% - 50%
EP1207278-007	DUP-002	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.5	1.1	35.2	0% - 50%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 2481450)									
EP1207041-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.49	0.47	4.4	0% - 20%
EP1207278-007	DUP-002	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.09	0.05	56.1	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 2477923)									

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 (%)*
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 2477923) - continued									
EP1207264-001	Anonymous	EK071G: Reactive Phosphorus as P	----	0.01	mg/L	0.81	0.79	3.4	0% - 20%
EP1207278-006	WRMW6-002	EK071G: Reactive Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK085M: Sulfide as S2- (QC Lot: 2483210)									
EP1207265-001	Anonymous	EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	0.1	0.0	No Limit
EP1207278-009	BLANK-002	EK085: Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EP026ST: Chemical Oxygen Demand (Sealed Tube) (QC Lot: 2484044)									
EP1207184-001	Anonymous	EP026ST: Chemical Oxygen Demand	----	5	mg/L	<5	<5	0.0	No Limit
EP1207184-001	Anonymous	EP026ST: Chemical Oxygen Demand	----	5	mg/L	<5	<5	0.0	No Limit
EP030: Biochemical Oxygen Demand (BOD) (QC Lot: 2477990)									
EP1207235-002	Anonymous	EP030: Biochemical Oxygen Demand	----	2	mg/L	<2	<2	0.0	No Limit
EP1207278-008	RINSATE-002	EP030: Biochemical Oxygen Demand	----	2	mg/L	3	<2	49.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 2486254)									
EP1207278-001	WRMW1-002	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP1207278-008	RINSATE-002	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 2486254)									
EP1207278-001	WRMW1-002	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP1207278-008	RINSATE-002	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	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 (%)*
EP074C: Sulfonated Compounds (QC Lot: 2486254)									
EP1207278-001	WRMW1-002	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP1207278-008	RINSATE-002	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 2486254)									
EP1207278-001	WRMW1-002	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP1207278-008	RINSATE-002	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2486254)									
EP1207278-001	WRMW1-002	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	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 (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 2486254) - continued									
EP1207278-001	WRMW1-002	EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP1207278-008	RINSATE-002	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 2486254)									
EP1207278-001	WRMW1-002	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	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 (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 2486254) - continued									
EP1207278-001	WRMW1-002	EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP1207278-008	RINSATE-002	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 2486254)									
EP1207278-001	WRMW1-002	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP1207278-008	RINSATE-002	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2480669)									
ES1221161-001	Anonymous	EP071: C15 - C28 Fraction	----	100	µg/L	13300	13000	2.9	0% - 20%
		EP071: C10 - C14 Fraction	----	50	µg/L	190	200	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	5100	5000	2.1	0% - 20%
EP1207278-005	WRMW5-002	EP071: C15 - C28 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
		EP071: C29 - C36 Fraction	----	50	µg/L	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2486255)									
EP1207278-001	WRMW1-002	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2480669)									
ES1221161-001	Anonymous	EP071: >C10 - C16 Fraction	----	100	µg/L	2040	2140	4.9	0% - 20%
		EP071: >C16 - C34 Fraction	----	100	µg/L	13600	13600	0.3	0% - 20%
		EP071: >C34 - C40 Fraction	----	100	µg/L	660	590	11.0	No Limit
EP1207278-005	WRMW5-002	EP071: >C10 - C16 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C16 - C34 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	µg/L	<100	<100	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QC Lot: 2486255)									
EP1207278-001	WRMW1-002	EP080: C6 - C10 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 2486255)									

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 (%)*
EP080: BTEXN (QC Lot: 2486255) - continued									
EP1207278-001	WRMW1-002	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 2477807)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA005P: pH by PC Titrator (QCLot: 2477810)								
EA005-P: pH Value	----	0.01	pH Unit	----	7.00 pH Unit	100	70	130
EA010P: Conductivity by PC Titrator (QCLot: 2477805)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	99.5	98	102
EA010P: Conductivity by PC Titrator (QCLot: 2477808)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	24800 µS/cm	99.7	98	102
EA015: Total Dissolved Solids (QCLot: 2482069)								
EA015H: Total Dissolved Solids @180°C	GIS-210-010	10	mg/L	<10	2000 mg/L	92.0	79.8	116
EA025: Suspended Solids (QCLot: 2482340)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	111	82	122
EA045: Turbidity (QCLot: 2477904)								
EA045: Turbidity	----	0.1	NTU	<0.1	40 NTU	96.5	90.1	107
ED037P: Alkalinity by PC Titrator (QCLot: 2477806)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	200 mg/L	108	87	125
ED037P: Alkalinity by PC Titrator (QCLot: 2477809)								
ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	<1	200 mg/L	122	87	125
ED038A: Acidity (QCLot: 2485063)								
ED038: Acidity as CaCO3	----	1	mg/L	----	20 mg/L	113	85	119
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2477925)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	106	85	130
ED045G: Chloride Discrete analyser (QCLot: 2477924)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	1000 mg/L	98.1	78	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 2483241)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.50 mg/L	96.2	77	113

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
EG020F: Dissolved Metals by ICP-MS (QCLot: 2483241) - continued								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.100 mg/L	93.9	79	111
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1000 mg/L	97.7	81	109
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.100 mg/L	93.9	81	109
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.100 mg/L	95.3	79	109
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.100 mg/L	95.2	79	109
EG020A-F: Selenium	7782-49-2	0.01	mg/L	<0.01	0.10 mg/L	95.6	80	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.100 mg/L	95.9	79	113
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.50 mg/L	90.0	76	112
EG020T: Total Metals by ICP-MS (QCLot: 2483220)								
EG020B-T: Silver	7440-22-4	0.001	mg/L	<0.001	0.01 mg/L	118	70	130
EG020T: Total Metals by ICP-MS (QCLot: 2483221)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	104	78	116
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.5	77	109
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	78	108
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.4	80	112
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.0	79	111
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.8	81	109
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	100	80	112
EG020A-T: Molybdenum	7439-98-7	0.001	mg/L	<0.001	0.1 mg/L	102	86	118
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.3	80	112
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	102	75	107
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.6	74	108
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	98.6	75	115
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2485210)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.0100 mg/L	104	82.3	118
EG050F: Dissolved Hexavalent Chromium (QCLot: 2482429)								
EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.5 mg/L	103	90	114
EG051G: Ferrous Iron by Discrete Analyser (QCLot: 2484335)								
EG051G: Ferrous Iron	----	0.05	mg/L	<0.05	2.00 mg/L	101	87	111
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2478533)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	104	87.5	124
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2477922)								
EK057G: Nitrite as N	----	0.01	mg/L	<0.01	0.5 mg/L	101	86	124
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2478532)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	105	75.6	124
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2481449)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	91.5	70	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2481450)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	91.2	70	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2477923)								
EK071G: Reactive Phosphorus as P	----	0.01	mg/L	<0.01	0.5 mg/L	100	82	128
EK085M: Sulfide as S2- (QCLot: 2483210)								
EK085: Sulfide as S2-	18496-25-8	0.10	mg/L	<0.1	0.50 mg/L	96.6	82	116
EP026ST: Chemical Oxygen Demand (Sealed Tube) (QCLot: 2484044)								
EP026ST: Chemical Oxygen Demand	----	5	mg/L	<5	500 mg/L	98.0	88	114
EP030: Biochemical Oxygen Demand (BOD) (QCLot: 2477990)								
EP030: Biochemical Oxygen Demand	----	2	mg/L	<2	198 mg/L	85.2	84	114
EP068A: Organochlorine Pesticides (OC) (QCLot: 2480671)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	84.6	61	117
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	74.7	56	116
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	97.1	60	118
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	90.4	62	118
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	86.3	64	116
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	80.6	63	117
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	89.8	65	121
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	83.5	63	117
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	94.5	64	120
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	95.4	67	119
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	92.2	63	123
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	87.3	64	122
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	92.2	64	118
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	90.6	64	126
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	100	68	122
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	95.1	66	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	86.5	62	112
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	103	60	124
EP068: 4.4`-DDT	50-29-3	2.0	µg/L	<2	5 µg/L	92.0	54	126
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	91.0	55	119
EP068: Methoxychlor	72-43-5	2.0	µg/L	<2	5 µg/L	96.7	53	127
EP068A: Organochlorine Pesticides (OC) (QCLot: 2481317)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	90.3	61	117
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	90.4	56	116
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	90.7	60	118
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	90.0	62	118
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	83.3	64	116
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	78.9	63	117

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
EP068A: Organochlorine Pesticides (OC) (QCLot: 2481317) - continued								
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	86.3	65	121
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	77.5	63	117
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	88.4	64	120
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	91.3	67	119
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	87.1	63	123
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	77.5	64	122
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	85.1	64	118
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	82.4	64	126
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	93.7	68	122
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	89.7	66	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	82.4	62	112
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	91.8	60	124
EP068: 4.4`-DDT	50-29-3	2.0	µg/L	<2	5 µg/L	85.4	54	126
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	80.4	55	119
EP068: Methoxychlor	72-43-5	2.0	µg/L	<2	5 µg/L	86.9	53	127
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2480671)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	106	52	128
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	105	28.4	150
EP068: Monocrotophos	6923-22-4	0.5	µg/L	----	5 µg/L	22.2	10	89.1
		2.0	µg/L	<2	----	----	----	----
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	108	61	117
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	97.7	64	122
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	97.2	67	121
EP068: Parathion-methyl	298-00-0	2.0	µg/L	<2	5 µg/L	87.8	59	123
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	95.4	57	123
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	87.9	67	119
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	87.4	67	121
EP068: Parathion	56-38-2	2.0	µg/L	<2	5 µg/L	91.0	64	118
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	81.4	64	118
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	94.7	59	123
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	87.7	62	122
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	93.9	59	131
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	85.2	64	116
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	102	68	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	103	62	120
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	98.2	39	131
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2481317)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	74.6	52	128
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	90.4	28.4	150

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
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2481317) - continued								
EP068: Monocrotophos	6923-22-4	0.5	µg/L	----	5 µg/L	24.3	10	89.1
		2.0	µg/L	<2	----	----	----	----
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	90.5	61	117
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	93.1	64	122
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	79.1	67	121
EP068: Parathion-methyl	298-00-0	2.0	µg/L	<2	5 µg/L	80.4	59	123
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	83.7	57	123
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	82.2	67	119
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	76.9	67	121
EP068: Parathion	56-38-2	2.0	µg/L	<2	5 µg/L	74.9	64	118
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	74.7	64	118
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	81.6	59	123
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	77.0	62	122
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	78.8	59	131
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	77.3	64	116
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	90.3	68	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	89.7	62	120
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	96.5	39	131
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 2486254)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	98.9	71	121
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	99.2	74	122
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	101	67	123
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	101	69	123
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	100	70	124
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	100	70	122
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	102	71	123
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	101	66	124
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	102	61	127
EP074B: Oxygenated Compounds (QCLot: 2486254)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	103	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	108	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	95.9	61	139
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	103	61	139
EP074C: Sulfonated Compounds (QCLot: 2486254)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	99.0	72.8	127
EP074D: Fumigants (QCLot: 2486254)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	97.6	62	128
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	101	75	123
EP074: cis-1.3-Dichloropropylene	10061-01-5	10	µg/L	<10	10 µg/L	96.4	62	120

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074D: Fumigants (QCLot: 2486254) - continued								
EP074: trans-1.3-Dichloropropylene	10061-02-6	10	µg/L	<10	10 µg/L	96.6	61	119
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	99.4	70	124
EP074E: Halogenated Aliphatic Compounds (QCLot: 2486254)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	96.4	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	105	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	98.4	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	90.4	56	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	98.9	63	135
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	101	61	135
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	103	66	128
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	104	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	103	70	124
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	102	72	126
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	102	74	126
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	97.8	65	121
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	101	70	122
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	95.6	63	121
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	99.6	74	130
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	100	72	124
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	98.9	70	124
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	96.9	75	127
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	102	79	125
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	99.1	73	125
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	96.3	66	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	102	54	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	103	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	97.8	67	131
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	99.2	70	134
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	97.6	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	87.9	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	98.2	58	132
EP074F: Halogenated Aromatic Compounds (QCLot: 2486254)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	99.8	79	121
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	99.9	79	119
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	101	75	121
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	101	73	121
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	102	76	120
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	101	75	121
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	101	79	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP074F: Halogenated Aromatic Compounds (QCLot: 2486254) - continued								
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	99.6	60	128
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	98.4	67	129
EP074G: Trihalomethanes (QCLot: 2486254)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	101	71	127
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	98.4	64	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	94.4	65	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	97.5	73.5	126
EP075(SIM)A: Phenolic Compounds (QCLot: 2480670)								
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	5 µg/L	33.0	24.5	61.9
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	5 µg/L	65.8	63.8	110
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	5 µg/L	67.2	55.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	10 µg/L	87.8	42.5	114
		2	µg/L	<2.0	----	----	----	----
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	5 µg/L	68.3	62.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	5 µg/L	67.0	59.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	5 µg/L	68.8	59.3	122
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.2	µg/L	----	5 µg/L	68.5	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	5 µg/L	66.9	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	5 µg/L	70.3	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	5 µg/L	69.0	51.2	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	10 µg/L	50.8	6.85	95.6
		2	µg/L	<2.0	----	----	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 2481319)								
EP075(SIM): Phenol	108-95-2	0.2	µg/L	----	20 µg/L	42.7	24.5	61.9
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Chlorophenol	95-57-8	0.2	µg/L	----	20 µg/L	88.8	63.8	110
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2-Methylphenol	95-48-7	0.2	µg/L	----	20 µg/L	90.2	55.9	112
		1	µg/L	<1.0	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075(SIM)A: Phenolic Compounds (QCLot: 2481319) - continued								
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	0.4	µg/L	----	40 µg/L	80.7	42.5	114
		2	µg/L	<2.0	----	----	----	----
EP075(SIM): 2-Nitrophenol	88-75-5	0.2	µg/L	----	20 µg/L	88.1	62.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.2	µg/L	----	20 µg/L	90.1	59.9	112
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.2	µg/L	----	20 µg/L	88.2	59.3	122
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.2	µg/L	----	20 µg/L	89.3	64.3	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 4-Chloro-3-Methylphenol	59-50-7	0.2	µg/L	----	20 µg/L	85.0	63	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.2	µg/L	----	20 µg/L	84.3	58.7	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.2	µg/L	----	20 µg/L	82.3	51.2	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pentachlorophenol	87-86-5	0.4	µg/L	----	40 µg/L	54.3	6.85	95.6
		2	µg/L	<2.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2480670)								
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	5 µg/L	69.1	58.6	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	5 µg/L	66.7	63.6	114
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	5 µg/L	70.0	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	5 µg/L	73.3	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	5 µg/L	83.6	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	5 µg/L	82.2	64.3	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	5 µg/L	83.9	63.6	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	5 µg/L	84.5	63.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	5 µg/L	68.0	64.1	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	5 µg/L	76.9	62.5	116
		1	µg/L	<1.0	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2480670) - continued								
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	5 µg/L	69.1	61.7	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	5 µg/L	77.8	61.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	5 µg/L	71.5	63.3	117
		0.5	µg/L	<0.5	----	----	----	----
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	5 µg/L	70.0	59.9	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.2	µg/L	----	5 µg/L	68.8	61.2	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.2	µg/L	----	5 µg/L	69.4	59.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2481319)								
EP075(SIM): Naphthalene	91-20-3	0.2	µg/L	----	20 µg/L	101	58.6	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthylene	208-96-8	0.2	µg/L	----	20 µg/L	101	63.6	114
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Acenaphthene	83-32-9	0.2	µg/L	----	20 µg/L	101	62.2	113
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluorene	86-73-7	0.2	µg/L	----	20 µg/L	96.5	63.9	115
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Phenanthrene	85-01-8	0.2	µg/L	----	20 µg/L	95.0	62.6	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Anthracene	120-12-7	0.2	µg/L	----	20 µg/L	94.1	64.3	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Fluoranthene	206-44-0	0.2	µg/L	----	20 µg/L	95.4	63.6	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Pyrene	129-00-0	0.2	µg/L	----	20 µg/L	97.3	63.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benz(a)anthracene	56-55-3	0.2	µg/L	----	20 µg/L	100	64.1	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Chrysene	218-01-9	0.2	µg/L	----	20 µg/L	100	62.5	116
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(b)fluoranthene	205-99-2	0.2	µg/L	----	20 µg/L	95.6	61.7	119
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.2	µg/L	----	20 µg/L	98.5	61.7	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	----	20 µg/L	104	63.3	117
		0.5	µg/L	<0.5	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2481319) - continued								
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.2	µg/L	----	20 µg/L	90.7	59.9	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.2	µg/L	----	20 µg/L	91.3	61.2	117
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.2	µg/L	----	20 µg/L	90.1	59.1	118
		1	µg/L	<1.0	----	----	----	----
EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	1	µg/L	<1.0	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2480669)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	200 µg/L	61.5	58.9	131
EP071: C15 - C28 Fraction	----	100	µg/L	<100	250 µg/L	101	73.9	138
EP071: C29 - C36 Fraction	----	50	µg/L	<50	200 µg/L	90.0	62.7	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2481318)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	200 µg/L	105	58.9	131
EP071: C15 - C28 Fraction	----	100	µg/L	<100	300 µg/L	113	73.9	138
EP071: C29 - C36 Fraction	----	50	µg/L	<50	200 µg/L	108	62.7	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2486255)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	118	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2480669)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	250 µg/L	67.6	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	350 µg/L	79.1	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	150 µg/L	96.7	62.7	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2481318)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	250 µg/L	113	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	350 µg/L	100	73.9	138
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
		50	µg/L	----	150 µg/L	109	62.7	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2486255)								
EP080: C6 - C10 Fraction	----	20	µg/L	<20	310 µg/L	118	75	127
EP080: BTEXN (QCLot: 2486255)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	111	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	113	66	132
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	108	70	120
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	106	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	109	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	72.8	70	124

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 2477925)							
EP1207264-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	100 mg/L	# Not Determined	70	130
ED045G: Chloride Discrete analyser (QCLot: 2477924)							
EP1207264-001	Anonymous	ED045G: Chloride	16887-00-6	250 mg/L	111	70	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 2483241)							
EP1207259-002	Anonymous	EG020A-F: Arsenic	7440-38-2	0.200 mg/L	99.5	70	130
		EG020A-F: Cadmium	7440-43-9	0.0500 mg/L	98.5	70	130
		EG020A-F: Chromium	7440-47-3	0.200 mg/L	88.5	70	130
		EG020A-F: Manganese	7439-96-5	0.200 mg/L	92.8	70	130
		EG020A-F: Nickel	7440-02-0	0.200 mg/L	97.6	70	130
		EG020A-F: Zinc	7440-66-6	0.200 mg/L	98.0	70	130
EG020T: Total Metals by ICP-MS (QCLot: 2483221)							
EP1207257-003	Anonymous	EG020A-T: Arsenic	7440-38-2	1.00 mg/L	107	70	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	107	70	130
		EG020A-T: Chromium	7440-47-3	1.00 mg/L	97.2	70	130
		EG020A-T: Copper	7440-50-8	1.00 mg/L	101	70	130
		EG020A-T: Lead	7439-92-1	1.00 mg/L	81.9	70	130
		EG020A-T: Manganese	7439-96-5	1.00 mg/L	93.0	70	130
		EG020A-T: Nickel	7440-02-0	1.00 mg/L	103	70	130
		EG020A-T: Zinc	7440-66-6	1.00 mg/L	103	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2485210)							
EP1207257-002	Anonymous	EG035T: Mercury	7439-97-6	0.0100 mg/L	85.2	70	130
EG050F: Dissolved Hexavalent Chromium (QCLot: 2482429)							
EP1207219-001	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.5 mg/L	89.0	70	130
EG051G: Ferrous Iron by Discrete Analyser (QCLot: 2484335)							
EP1207182-002	Anonymous	EG051G: Ferrous Iron	----	2.5 mg/L	102	70	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 2478533)							
EP1207260-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1.00 mg/L	119	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 2477922)							
EP1207260-001	Anonymous	EK057G: Nitrite as N	----	0.6 mg/L	# 43.0	70	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 2478532)							
EP1207260-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.6 mg/L	101	70	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 2481449)							
EP1207264-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	25 mg/L	98.4	70	130

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Spike Recovery (%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 2481450)							
EP1207264-002	Anonymous	EK067G: Total Phosphorus as P	----	5 mg/L	91.3	70	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 2477923)							
EP1207264-001	Anonymous	EK071G: Reactive Phosphorus as P	----	0.5 mg/L	94.1	70	130
EP026ST: Chemical Oxygen Demand (Sealed Tube) (QCLot: 2484044)							
EP1207184-001	Anonymous	EP026ST: Chemical Oxygen Demand	----	143 mg/L	122	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 2486254)							
EP1207278-001	WRMW1-002	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	77.5	70	130
		EP074: Trichloroethene	79-01-6	25 µg/L	86.9	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 2486254)							
EP1207278-001	WRMW1-002	EP074: Chlorobenzene	108-90-7	25 µg/L	90.2	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2480669)							
ES1221161-001	Anonymous	EP071: C10 - C14 Fraction	----	200 µg/L	110	74	150
		EP071: C15 - C28 Fraction	----	250 µg/L	# Not Determined	77	153
		EP071: C29 - C36 Fraction	----	200 µg/L	# Not Determined	67	153
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2486255)							
EP1207278-001	WRMW1-002	EP080: C6 - C9 Fraction	----	325 µg/L	118	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2480669)							
ES1221161-001	Anonymous	EP071: >C10 - C16 Fraction	----	250 µg/L	# Not Determined	74	150
		EP071: >C16 - C34 Fraction	----	350 µg/L	# Not Determined	77	153
		EP071: >C34 - C40 Fraction	----	150 µg/L	# Not Determined	67	153
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft (QCLot: 2486255)							
EP1207278-001	WRMW1-002	EP080: C6 - C10 Fraction	----	375 µg/L	120	70	130
EP080: BTEXN (QCLot: 2486255)							
EP1207278-001	WRMW1-002	EP080: Benzene	71-43-2	25 µg/L	113	70	130
		EP080: Toluene	108-88-3	25 µg/L	91.5	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	88.2	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	85.9	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	86.8	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	107	70	130

Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **EP1207278**	Page	: 1 of 16
Client	: MOBILE DEWATERING	Laboratory	: Environmental Division Perth
Contact	: INFO	Contact	: Lauren Ockwell
Address	: PO BOX 239 MIDLAND WA, AUSTRALIA 6939	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: info@environmentalservices.com.au	E-mail	: lauren.ockwell@alsenviro.com
Telephone	: +61 08 9250 4995	Telephone	: 08 9209 7606
Facsimile	: ----	Facsimile	: 08 9209 7600
Project	: E2012-031	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: WASTEROCK		
C-O-C number	: E2012-031-003	Date Samples Received	: 31-AUG-2012
Sampler	: Dale A./ Nathan F.	Issue Date	: 07-SEP-2012
Order number	: ----		
		No. of samples received	: 9
Quote number	: EP/324/12	No. of samples analysed	: 9

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: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**---**	30-AUG-2012	----	**31-AUG-2012**	30-AUG-2012	×
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**---**	27-SEP-2012	----	**31-AUG-2012**	27-SEP-2012	✓
EA015: Total Dissolved Solids							
Clear Plastic Bottle - Natural							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**----**	----	----	**04-SEP-2012**	06-SEP-2012	✓
EA025: Suspended Solids							
Clear Plastic Bottle - Natural							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**----**	----	----	**04-SEP-2012**	06-SEP-2012	✓
EA045: Turbidity							
Clear Plastic Bottle - Natural							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**----**	----	----	**31-AUG-2012**	01-SEP-2012	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**---**	13-SEP-2012	----	**31-AUG-2012**	13-SEP-2012	✓
ED038A: Acidity							
Clear Plastic Bottle - Natural							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**----**	----	----	**06-SEP-2012**	13-SEP-2012	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**---**	27-SEP-2012	----	**31-AUG-2012**	27-SEP-2012	✓
ED045G: Chloride Discrete analyser							
Clear Plastic Bottle - Natural							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**---**	27-SEP-2012	----	**31-AUG-2012**	27-SEP-2012	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Filtered; Lab-acidified							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**---**	26-FEB-2013	----	**05-SEP-2012**	26-FEB-2013	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Unfiltered; Lab-acidified							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**05-SEP-2012**	26-FEB-2013	✓	**05-SEP-2012**	26-FEB-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
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Unfiltered; Lab-acidified							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**----**	----	----	**06-SEP-2012**	27-SEP-2012	✓
EG050F: Dissolved Hexavalent Chromium							
Clear Plastic Bottle - NaOH							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**----**	----	----	**05-SEP-2012**	27-SEP-2012	✓
EG051G: Ferrous Iron by Discrete Analyser							
Clear Plastic Bottle - HCl - Filtered							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**----**	----	----	**06-SEP-2012**	06-SEP-2012	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**---**	27-SEP-2012	----	**31-AUG-2012**	27-SEP-2012	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**---**	01-SEP-2012	----	**31-AUG-2012**	01-SEP-2012	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**---**	27-SEP-2012	----	**31-AUG-2012**	27-SEP-2012	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**05-SEP-2012**	27-SEP-2012	✓	**05-SEP-2012**	27-SEP-2012	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**05-SEP-2012**	27-SEP-2012	✓	**05-SEP-2012**	27-SEP-2012	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**---**	01-SEP-2012	----	**31-AUG-2012**	01-SEP-2012	✓
EK085M: Sulfide as S2-							
Clear Plastic Bottle - Zinc Acetate/NaOH							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**----**	----	----	**05-SEP-2012**	06-SEP-2012	✓
EP026ST: Chemical Oxygen Demand (Sealed Tube)							
Clear Plastic Bottle - Sulfuric Acid							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**----**	----	----	**05-SEP-2012**	27-SEP-2012	✓
EP030: Biochemical Oxygen Demand (BOD)							
Clear Plastic Bottle - Natural							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**----**	----	----	**31-AUG-2012**	01-SEP-2012	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**04-SEP-2012**	06-SEP-2012	✓	**05-SEP-2012**	14-OCT-2012	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**04-SEP-2012**	06-SEP-2012	✓	**05-SEP-2012**	14-OCT-2012	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**06-SEP-2012**	13-SEP-2012	✓	**06-SEP-2012**	13-SEP-2012	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**06-SEP-2012**	13-SEP-2012	✓	**06-SEP-2012**	13-SEP-2012	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**06-SEP-2012**	13-SEP-2012	✓	**06-SEP-2012**	13-SEP-2012	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**06-SEP-2012**	13-SEP-2012	✓	**06-SEP-2012**	13-SEP-2012	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**06-SEP-2012**	13-SEP-2012	✓	**06-SEP-2012**	13-SEP-2012	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**06-SEP-2012**	13-SEP-2012	✓	**06-SEP-2012**	13-SEP-2012	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**06-SEP-2012**	13-SEP-2012	✓	**06-SEP-2012**	13-SEP-2012	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**04-SEP-2012**	06-SEP-2012	✓	**04-SEP-2012**	14-OCT-2012	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**04-SEP-2012**	06-SEP-2012	✓	**04-SEP-2012**	14-OCT-2012	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**04-SEP-2012**	06-SEP-2012	✓	**05-SEP-2012**	14-OCT-2012	✓
Amber VOC Vial - Sulfuric Acid							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**06-SEP-2012**	13-SEP-2012	✓	**06-SEP-2012**	13-SEP-2012	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2010 Draft							
Amber Glass Bottle - Unpreserved							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**04-SEP-2012**	06-SEP-2012	✓	**05-SEP-2012**	14-OCT-2012	✓
Amber VOC Vial - Sulfuric Acid							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**06-SEP-2012**	13-SEP-2012	✓	**06-SEP-2012**	13-SEP-2012	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid							
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	**30-AUG-2012**	**06-SEP-2012**	13-SEP-2012	✓	**06-SEP-2012**	13-SEP-2012	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **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)							
Acidity as Calcium Carbonate	ED038	2	19	**10.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Alkalinity by PC Titrator	ED037-P	3	24	**12.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Ammonia as N by Discrete analyser	EK055G	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Biochemical Oxygen Demand (BOD)	EP030	2	19	**10.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chemical Oxygen Demand (Sealed Tube)	EP026ST	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	14	**14.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Conductivity by PC Titrator	EA010-P	3	26	**11.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	18	**11.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Ferrous Iron by Discrete Analyser	EG051G	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH by PC Titrator	EA005-P	3	23	**13.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	14	**14.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	14	**14.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfide as S2-	EK085	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Suspended Solids (High Level)	EA025H	2	16	**12.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	2	9	**22.2**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	14	**14.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	13	**15.4**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	14	**14.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite B	EG020B-T	2	13	**15.4**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	2	13	**15.4**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	12	**16.7**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	10	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Turbidity	EA045	1	9	**11.1**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	16	**12.5**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Acidity as Calcium Carbonate	ED038	1	19	**5.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Alkalinity by PC Titrator	ED037-P	4	24	**16.7**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Ammonia as N by Discrete analyser	EK055G	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Biochemical Oxygen Demand (BOD)	EP030	1	19	**5.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chemical Oxygen Demand (Sealed Tube)	EP026ST	2	20	**10.0**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	2	14	**14.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Conductivity by PC Titrator	EA010-P	6	26	**23.1**	**15.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	**5.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Ferrous Iron by Discrete Analyser	EG051G	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.0**	**5.0**	✓	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							
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	18	**11.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	2	9	**22.2**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
pH by PC Titrator	EA005-P	4	23	**17.4**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	14	**7.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	14	**14.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfide as S2-	EK085	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Suspended Solids (High Level)	EA025H	1	16	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	1	9	**11.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	14	**14.3**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	13	**7.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	**7.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite B	EG020B-T	1	13	**7.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	2	13	**15.4**	**10.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	21	**9.5**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	10	**10.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Turbidity	EA045	1	9	**11.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	16	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Alkalinity by PC Titrator	ED037-P	2	24	**8.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Ammonia as N by Discrete analyser	EK055G	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Biochemical Oxygen Demand (BOD)	EP030	1	19	**5.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chemical Oxygen Demand (Sealed Tube)	EP026ST	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	1	14	**7.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Conductivity by PC Titrator	EA010-P	2	26	**7.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	**5.6**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Ferrous Iron by Discrete Analyser	EG051G	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	2	18	**11.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	2	9	**22.2**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	14	**7.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	14	**7.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Sulfide as S2-	EK085	1	20	**5.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Suspended Solids (High Level)	EA025H	1	16	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Dissolved Solids (High Level)	EA015H	1	9	**11.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	14	**7.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	13	**7.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	**7.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite B	EG020B-T	1	13	**7.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	1	13	**7.7**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	21	**9.5**	**5.0**	✓	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*	
Method Blanks (MB) - Continued							
TPH Volatiles/BTEX	EP080	1	10	**10.0**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Turbidity	EA045	1	9	**11.1**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	16	**6.3**	**5.0**	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.0**	**5.0**	✓	ALS QCS3 requirement
Chemical Oxygen Demand (Sealed Tube)	EP026ST	1	20	**5.0**	**5.0**	✓	ALS QCS3 requirement
Chloride by Discrete Analyser	ED045G	1	14	**7.1**	**5.0**	✓	ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	**5.6**	**5.0**	✓	ALS QCS3 requirement
Ferrous Iron by Discrete Analyser	EG051G	1	20	**5.0**	**5.0**	✓	ALS QCS3 requirement
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	20	**5.0**	**5.0**	✓	ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.0**	**5.0**	✓	ALS QCS3 requirement
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.0**	**5.0**	✓	ALS QCS3 requirement
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	14	**7.1**	**5.0**	✓	ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	14	**7.1**	**5.0**	✓	ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	14	**7.1**	**5.0**	✓	ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	13	**7.7**	**5.0**	✓	ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	**7.1**	**5.0**	✓	ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	1	13	**7.7**	**5.0**	✓	ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	1	12	**8.3**	**5.0**	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	1	10	**10.0**	**5.0**	✓	ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	16	**6.3**	**5.0**	✓	ALS QCS3 requirement

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH by PC Titrator	EA005-P	WATER	APHA 21st ed. 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Conductivity by PC Titrator	EA010-P	WATER	APHA 21st ed., 2510 B This procedure determines conductivity by automated ISE. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Dissolved Solids (High Level)	EA015H	WATER	In-House, APHA 21st ed., 2540C A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Suspended Solids (High Level)	EA025H	WATER	In-House, APHA 21st ed., 2540D A gravimetric procedure employed to determine the amount of `non-filterable` residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Turbidity	EA045	WATER	APHA 21st ed., 2130 B. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Alkalinity by PC Titrator	ED037-P	WATER	APHA 21st ed., 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Acidity as Calcium Carbonate	ED038	WATER	APHA 21st ed., 2310 B Acidity is determined by titration with a standardised alkali to an end-point pH of 8.3. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	APHA 21st ed., 4500-SO4 Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Chloride by Discrete Analyser	ED045G	WATER	APHA 21st ed., 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite B	EG020B-T	WATER	(APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020): The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.

Analytical Methods	Method	Matrix	Method Descriptions
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)
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	WATER	APHA 21st ed., 3500 Cr-A & B. Samples are 0.45 um filtered prior to analysis. Hexavalent chromium is determined directly on water sample by Descrete Analyser as received by pH adjustment and colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Ferrous Iron by Discrete Analyser	EG051G	WATER	APHA 21st ed., 3500 Fe-B. A colorimetric determination based on the reaction between phenanthroline and ferrous iron at pH 3.2-3.3 to form an orange-red complex that is measured against a five-point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Ammonia as N by Discrete analyser	EK055G	WATER	APHA 21st ed., 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrite as N by Discrete Analyser	EK057G	WATER	APHA 21st ed., 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrate as N by Discrete Analyser	EK058G	WATER	APHA 21st ed., 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	APHA 21st ed., 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	APHA 21st ed., 4500-Norg D. 25mL water samples are digested using a traditional Kjeldahl digestion followed by determination by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	APHA 21st ed., 4500-Norg / 4500-NO3-. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	APHA 21st ed., 4500-P B&F This procedure involves sulphuric acid digestion of a 100mL sample to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	APHA 21st ed., 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Sulfide as S2-	EK085	WATER	APHA 21st ed., 4500-S2- D Sulfide species present in water samples are immediately precipitated when collected in pretreated caustic/zinc acetate preserved sample containers. After the supernatant is discarded, the resultant precipitate is then coloured using methylene blue indicator and measured using UV-VIS detection at 664nm. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Chemical Oxygen Demand (Sealed Tube)	EP026ST	WATER	(APHA 21st ed., 5220C, ALS QWI-EN/EP026) Samples are digested with a known excess of an acidic potassium dichromate solution using silver sulfate as a catalyst. The chromium is reduced from the Cr (VI) oxidation state to the Cr (III) state by the oxygen present in the organic material. The unreacted Cr (VI) can then be titrated with ferrous ammonium sulfate to determine the amount of Cr (VI) consumed. The oxidisable organic matter can be calculated in terms of oxygen equivalents.

Analytical Methods	Method	Matrix	Method Descriptions
Biochemical Oxygen Demand (BOD)	EP030	WATER	APHA 21st ed., 5210 B The 5-Day BOD test provides an empirical measure of the oxygen consumption capacity of a given water. A portion of the sample is diluted into oxygenated, nutrient rich water, and a seed added to begin biological decay. The initial dissolved oxygen content is measured, then the bottle is sealed and incubated for five days. The remaining dissolved oxygen is measured, and from the difference, the demand for oxygen, by biological decay, is determined. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Pesticides by GCMS	EP068	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
TPH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)
TPH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2)

Preparation Methods	Method	Matrix	Method Descriptions
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)
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 500 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (1999) Schedule B(3) (Appdx. 2). ALS default excludes sediment which may be resident in the container.

Summary of Outliers

Outliers : Quality Control Samples

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

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	EP1207264-001	Anonymous	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**Background level of analyte not determined in original.**
EK057G: Nitrite as N by Discrete Analyser	EP1207260-001	Anonymous	**Nitrite as N**	----	43.0 %	70-130%	**Recovery less than lower data quality objective**
EP080/071: Total Petroleum Hydrocarbons	ES1221161-001	Anonymous	**C15 - C28 Fraction**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP080/071: Total Petroleum Hydrocarbons	ES1221161-001	Anonymous	**C29 - C36 Fraction**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	ES1221161-001	Anonymous	**>C10 - C16 Fraction**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	ES1221161-001	Anonymous	**>C16 - C34 Fraction**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	ES1221161-001	Anonymous	**>C34 - C40 Fraction**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

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

Regular Sample Surrogates

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

Outliers : Analysis Holding Time Compliance

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

Matrix: **WATER**

Method	*Extraction / Preparation*			*Analysis*		
Container / Client Sample ID(s)	*Date extracted*	*Due for extraction*	***Days overdue***	*Date analysed*	*Due for analysis*	***Days overdue***
EA005P: pH by PC Titrator						

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator - Analysis Holding Time Compliance						
Clear Plastic Bottle - Natural						
WRMW1-002, WRMW2-002, WRMW3-002, WRMW4-002, WRMW5-002, WRMW6-002, DUP-002, RINSATE-002, BLANK-002	----	----	----	31-AUG-2012	30-AUG-2012	1

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.**

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: **EP1207278**		
Client	: **MOBILE DEWATERING**	Laboratory	: Environmental Division Perth
Contact	: INFO	Contact	: Lauren Ockwell
Address	: PO BOX 239 MIDLAND WA, AUSTRALIA 6939	Address	: 10 Hod Way Malaga WA Australia 6090
E-mail	: info@environmentalservices.com.au	E-mail	: lauren.ockwell@alsenviro.com
Telephone	: +61 08 9250 4995	Telephone	: 08 9209 7606
Facsimile	: ----	Facsimile	: 08 9209 7600
Project	: E2012-031	Page	: 1 of 3
Order number	: ----		
C-O-C number	: E2012-031-003	Quote number	: EP2012MOBDEW0131 (EP/324/12)
Site	: WASTEROCK		
Sampler	: Dale A./ Nathan F.	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 31-AUG-2012	Issue Date	: 31-AUG-2012 14:09
Client Requested Due Date	: 07-SEP-2012	Scheduled Reporting Date	: **07-SEP-2012**

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 5.1 - Ice present
No. of coolers/boxes	: 3 medium hard	No. of samples received	: 9
Security Seal	: Intact.	No. of samples analysed	: 9

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Samples received in appropriately pretreated and preserved containers.
- Please see scanned COC for sample discrepencies: extra samples , samples not received etc.
- **Samples received in appropriately pretreated and preserved containers.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **COD/Organics analysis will be conducted by ALS Environmental, Sydney, NATA accreditation no. 825, Site No. 10911.**
- **pH analysis should be conducted within 6 hours of sampling.**
- Analytical work for this work order will be conducted at ALS Environmental Perth.
- Please direct any turnaround / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Sample Receipt (SamplesPerth@alsenviro.com)
- Sample Disposal - Aqueous (14 days), Solid (90 days) from date of completion of Work Order.

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	WATER - EA005P pH (PC)	WATER - EA010P Conductivity (PC)	WATER - EA015H Total Dissolved Solids - High Level	WATER - EA025H Suspended Solids (High Level)	WATER - EA045 Turbidity	WATER - ED038 Acidity as CaCO3	WATER - EG020F Dissolved Metals by ICPMS	WATER - EG020T Total Recoverable Metals by ICPMS
EP1207278-001	30-AUG-2012 11:00	WRMW1-002	✓	✓	✓	✓	✓	✓	✓	✓
EP1207278-002	30-AUG-2012 11:00	WRMW2-002	✓	✓	✓	✓	✓	✓	✓	✓
EP1207278-003	30-AUG-2012 11:00	WRMW3-002	✓	✓	✓	✓	✓	✓	✓	✓
EP1207278-004	30-AUG-2012 11:00	WRMW4-002	✓	✓	✓	✓	✓	✓	✓	✓
EP1207278-005	30-AUG-2012 11:00	WRMW5-002	✓	✓	✓	✓	✓	✓	✓	✓
EP1207278-006	30-AUG-2012 11:00	WRMW6-002	✓	✓	✓	✓	✓	✓	✓	✓
EP1207278-007	30-AUG-2012 11:00	DUP-002	✓	✓	✓	✓	✓	✓	✓	✓
EP1207278-008	30-AUG-2012 11:00	RINSATE-002	✓	✓	✓	✓	✓	✓	✓	✓
EP1207278-009	30-AUG-2012 11:00	BLANK-002	✓	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	WATER - EG035T Total Mercury by FIMS	WATER - EG050G-F Hexavalent Chromium by Discrete Analyser - Filtered	WATER - EG051G Ferrous Iron by Discrete Analyser	WATER - EK085M Sulfide as S 2-	WATER - EP026ST COD- Sealed Tube	WATER - EP030 BOD	WATER - NT-02 Major Anions (Chloride, Sulphate, Alkalinity)	WATER - NT-08A Total Nitrogen + NO2 + NO3 + NH3 + Total P + Reactive P
EP1207278-001	30-AUG-2012 11:00	WRMW1-002	✓	✓	✓	✓	✓	✓	✓	✓
EP1207278-002	30-AUG-2012 11:00	WRMW2-002	✓	✓	✓	✓	✓	✓	✓	✓
EP1207278-003	30-AUG-2012 11:00	WRMW3-002	✓	✓	✓	✓	✓	✓	✓	✓
EP1207278-004	30-AUG-2012 11:00	WRMW4-002	✓	✓	✓	✓	✓	✓	✓	✓
EP1207278-005	30-AUG-2012 11:00	WRMW5-002	✓	✓	✓	✓	✓	✓	✓	✓
EP1207278-006	30-AUG-2012 11:00	WRMW6-002	✓	✓	✓	✓	✓	✓	✓	✓
EP1207278-007	30-AUG-2012 11:00	DUP-002	✓	✓	✓	✓	✓	✓	✓	✓
EP1207278-008	30-AUG-2012 11:00	RINSATE-002	✓	✓	✓	✓	✓	✓	✓	✓
EP1207278-009	30-AUG-2012 11:00	BLANK-002	✓	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	WATER - W-09 TPH/VOC	WATER - W-12 OC/OP Pesticides	WATER - W-14A PAH/Phenols (SIM)
EP1207278-001	30-AUG-2012 11:00	WRMW1-002	✓	✓	✓
EP1207278-002	30-AUG-2012 11:00	WRMW2-002	✓	✓	✓
EP1207278-003	30-AUG-2012 11:00	WRMW3-002	✓	✓	✓
EP1207278-004	30-AUG-2012 11:00	WRMW4-002	✓	✓	✓
EP1207278-005	30-AUG-2012 11:00	WRMW5-002	✓	✓	✓
EP1207278-006	30-AUG-2012 11:00	WRMW6-002	✓	✓	✓
EP1207278-007	30-AUG-2012 11:00	DUP-002	✓	✓	✓
EP1207278-008	30-AUG-2012 11:00	RINSATE-002	✓	✓	✓
EP1207278-009	30-AUG-2012 11:00	BLANK-002	✓	✓	✓

Proactive Holding Time Report

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

Matrix: **WATER**

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

Method		Due for extraction	Due for analysis	Samples Received		Instructions Received	
Client Sample ID(s)	Container			Date	Evaluation	Date	Evaluation
EA005-P: pH by PC Titrator							
BLANK-002	Clear Plastic Bottle - Natural	30-AUG-2012	----	31-AUG-2012	×	----	----
DUP-002	Clear Plastic Bottle - Natural	30-AUG-2012	----	31-AUG-2012	×	----	----
RINSATE-002	Clear Plastic Bottle - Natural	30-AUG-2012	----	31-AUG-2012	×	----	----
WRMW1-002	Clear Plastic Bottle - Natural	30-AUG-2012	----	31-AUG-2012	×	----	----
WRMW2-002	Clear Plastic Bottle - Natural	30-AUG-2012	----	31-AUG-2012	×	----	----
WRMW3-002	Clear Plastic Bottle - Natural	30-AUG-2012	----	31-AUG-2012	×	----	----
WRMW4-002	Clear Plastic Bottle - Natural	30-AUG-2012	----	31-AUG-2012	×	----	----
WRMW5-002	Clear Plastic Bottle - Natural	30-AUG-2012	----	31-AUG-2012	×	----	----
WRMW6-002	Clear Plastic Bottle - Natural	30-AUG-2012	----	31-AUG-2012	×	----	----

Requested Deliverables

ACCOUNTS PAYABLE (WA)

- A4 - AU Tax Invoice (INV)	Email	deb@mobiledewatering.com.au

INFO

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

Site: WASTE ROCK
Job #: E2012-031
Sampler: DALE A./NATHAN F.
CoC #: E2012-031-003
Quote #: EP1324/12
Laboratory: ALS ENVIRO.
Date and time delivered: 31/8/12 1050
Received by: M Westwell

MDW
ENVIRONMENTAL SERVICES
Mobile Dewatering Environmental Services
22 Elmsfield Road
Midvale WA 6056
P: 08 9250 6960
F: 08 9250 8269
E: info@environmentalservices.com.au

Comments:

Analysis Detection Limits

Sample ID	Lab ID	Type	Sampling Date	Sampling Time	ASS SUITE (2)
WRMW1-002		WATER	30.8.12	1100-1600	✓
WRMW2-002					✓
WRMW3-002					✓
WRMW4-002					✓
WRMW5-002					✓
WRMW6-002					✓
DUP-002					✓
RINSATE-002					✓
BLANK-002					✓

Environmental Division
Perth
Work Order
EP1207278
Telephone : +61-8-9209 7655

Condition of Sample: Cool / Ambient / Warm Relinquished by: .....

Environmental and Analytical Laboratory

LABORATORY REPORT

Job Number: 12-5954
Revision: 00
Date: 17 September 2012

ADDRESS: **Mobile Dewatering Environmental Services**
Unit 1, 22 Elmsfield Road
MIDVALE WA 6056

ATTENTION: Greg Watts

DATE RECEIVED: 31/08/2012

YOUR REFERENCE: E2012-031 Wasterock

PURCHASE ORDER: 0837

APPROVALS:

Paul Nottle
Chemist - Organics

Douglas Todd
Section Manager - Inorganics

REPORT COMMENTS:

Samples are analysed on an as received basis unless otherwise noted.

NATA
WORLD RECOGNISED
ACCREDITATION
This document is issued in accordance with NATA's accreditation requirements
Accreditation No: 2377

Analytical Reference Laboratory (WA) Pty. Ltd.
46-48 Banksia Road, Welshpool, Western Australia 6106 Telephone: 08 6253 4444 Facsimile: 08 6253 4440
www.arlwa.com.au ABN: 91 050 159 898

METHOD REFERENCES:

ARL No. 007	Benzene, Toluene, Ethylbenzene and Xylenes in Water
ARL No. 005	Polycyclic Aromatic Hydrocarbons in Water
ARL No. 009	Total Petroleum Hydrocarbons (TPH) in Water
ARL No. 002	OCOP and PCB in Water
ARL No. 044	Total Phenols in Water
ARL No. 402/403	Metals in Water by ICPOES/MS
ARL No. 040	Arsenic by Hydride Atomic Absorption
ARL No. 330	Persulphate Method for Simultaneous Determination of TN & TP
ARL No. 308	Total Phosphorus in Water by Discrete Analyser
ARL No. 305	Chloride in Water by Discrete Analyser
ARL No. 309	Filterable Reactive Phosphorus in Water by Discrete Analyser
ARL No. 303	Ammonia in Water by Discrete Analyser
ARL No. 313	NOx in Water by Discrete Analyser
ARL No. 311	Nitrite in Water by Discrete Analyser
ARL No. 021	Acidity in Water
ARL No. 037	Alkalinity in Water
ARL No. 014	pH in Water
ARL No. 019	Conductivity and Salinity in Water
ARL No. 017	Total Dissolved Solids (At 105^{o}C)
ARL No. 016	Total Suspended Solids
ARL No. 045	Turbidity
ARL No. 011	Biochemical Oxygen Demand
ARL No. 020	Chemical Oxygen Demand
ARL No. 023	Sulphide in Water

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BTEX in Water Sample No: Sample Description:	LOR	UNITS	12-5954-1 Trip-002
Benzene	0.001	mg/L	<0.001
Toluene	0.001	mg/L	<0.001
Ethyl Benzene	0.001	mg/L	<0.001
Xylenes (Total)	0.003	mg/L	<0.003
a,a,a-Trifluorotoluene(SS)		%	108

PAH in Water Sample No: Sample Description:	LOR	UNITS	12-5954-1 Trip-002
Naphthalene	0.1	µg/L	<0.1
2-Methylnaphthalene	0.1	µg/L	<0.1
Acenaphthylene	0.1	µg/L	<0.1
Acenaphthene	0.1	µg/L	<0.1
Fluorene	0.1	µg/L	<0.1
Phenanthrene	0.1	µg/L	<0.1
Anthracene	0.1	µg/L	<0.1
Fluoranthene	0.1	µg/L	<0.1
Pyrene	0.1	µg/L	<0.1
Benz(a)anthracene	0.1	µg/L	<0.1
Chrysene	0.1	µg/L	<0.1
Benzo(b)fluoranthene	0.1	µg/L	<0.1
Benzo(k)fluoranthene	0.1	µg/L	<0.1
Benzo(a)pyrene	0.1	µg/L	<0.1
Indeno(1,2,3-c,d)pyrene	0.1	µg/L	<0.1
Dibenz(a,h)anthracene	0.1	µg/L	<0.1
Benzo(ghi)perylene	0.1	µg/L	<0.1
2-Fluoro-1,1'-Biphenyl (SS)		%	[NT]
p-Terphenyl-d14 (SS)		%	[NT]

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TPH in Water Sample No: Sample Description:	LOR	UNITS	12-5954-1 Trip-002
C_{6-9}	0.02	mg/L	<0.02
C_{10-14}	0.02	mg/L	<0.02
C_{15-28}	0.04	mg/L	<0.04
C_{29-36}	0.04	mg/L	<0.04
$C_{>36}$	0.04	mg/L	<0.04

OCOP in Water Sample No: Sample Description:	LOR	UNITS	12-5954-1 Trip-002
Aldrin	0.001	µg/L	<0.001
alpha-BHC (HCH)	0.001	µg/L	<0.001
beta-BHC (HCH)	0.001	µg/L	<0.001
delta-BHC (HCH)	0.001	µg/L	<0.001
Bifenthrin	0.05	µg/L	<0.05
Bromophos Ethyl	0.005	µg/L	<0.005
Chlordane	0.002	µg/L	<0.002
Chlorothalonil	0.01	µg/L	<0.01
Chlorpyrifos	0.005	µg/L	<0.005
Diazinon	0.01	µg/L	<0.01
Dieldrin	0.001	µg/L	0.054
Endosulphan I	0.001	µg/L	<0.001
Endosulphan II	0.001	µg/L	<0.001
Endosulphan Sulphate	0.001	µg/L	<0.001
Endrin	0.01	µg/L	<0.01
Ethion	0.01	µg/L	<0.01
Fenitrothion	0.01	µg/L	<0.01
Fipronil	0.02	µg/L	<0.02
Hexachlorobenzene (HCB)	0.001	µg/L	<0.001
Heptachlor Epoxide	0.001	µg/L	<0.001
Heptachlor	0.001	µg/L	<0.001
Lindane	0.001	µg/L	<0.001
Malathion	0.01	µg/L	<0.01
Methoxychlor	0.02	µg/L	<0.02
o,p-DDT	0.001	µg/L	<0.001
Oxychlordane	0.001	µg/L	<0.001
p,p-DDD	0.001	µg/L	<0.001
p,p-DDE	0.001	µg/L	<0.001
p,p-DDT	0.001	µg/L	<0.001
Parathion Ethyl	0.02	µg/L	<0.02
Parathion Methyl	0.02	µg/L	<0.02
Trifluralin	0.01	µg/L	<0.01
Vinclozolin	0.02	µg/L	<0.02
Dibutyl chlorendate (SS)		%	[NT]
Tetrachloro-m-Xylene (SS)		%	[NT]

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Environmental and Analytical Laboratory

Misc. Organics in Water Sample No: Sample Description:	LOR	UNITS	12-5954-1 Trip-002
Total Phenols	0.05	mg/L	<0.05

Metals in Water Sample No: Sample Description:	LOR	UNITS	12-5954-1 Trip-002
Aluminium - Dissolved	0.1	mg/L	0.3
Aluminium - Total	0.1	mg/L	2.2
Arsenic - Dissolved	0.001	mg/L	<0.001
Arsenic - Total	0.001	mg/L	0.001
Cadmium - Dissolved	0.002	mg/L	<0.002
Cadmium - Total	0.002	mg/L	<0.002
Chromium - Dissolved	0.01	mg/L	<0.01
Chromium - Total	0.01	mg/L	<0.01
Iron - Dissolved	0.01	mg/L	0.10
Iron - Total	0.01	mg/L	0.62
Manganese - Dissolved	0.01	mg/L	<0.01
Manganese - Total	0.01	mg/L	<0.01
Nickel - Dissolved	0.01	mg/L	<0.01
Nickel - Total	0.01	mg/L	<0.01
Selenium - Dissolved	0.001	mg/L	<0.001
Selenium - Total	0.001	mg/L	<0.001
Zinc - Dissolved	0.01	mg/L	0.02
Zinc - Total	0.01	mg/L	0.02

Total Nitrogen in Water Sample No: Sample Description:	LOR	UNITS	12-5954-1 Trip-002
Total Nitrogen	0.2	mg/L	6.1
TKN	0.2	mg/L	<0.2

Total Phosporus in Water Sample No: Sample Description:	LOR	UNITS	12-5954-1 Trip-002
Total Phosphorus	0.01	mg/L	0.02

Ions by Discrete Analyser Sample No: Sample Description:	LOR	UNITS	12-5954-1 Trip-002
Chloride	5	mg/L	34
Filterable Reactive Phosphorus	0.01	mg/L	<0.01
Ammonia-N	0.2	mg/L	<0.2
NOx-N	0.01	mg/L	6.0
Nitrate-N	0.01	mg/L	6.0
Nitrite-N	0.01	mg/L	0.01

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LABORATORY REPORT

Mobile Dewatering Environmental Services

ARL Job No: 12-5954 *Revision: 00* *Date:* 17 September 2012

Environmental and Analytical Laboratory

Physical Parameters Sample No: Sample Description:	LOR	UNITS	12-5954-1 Trip-002
Acidity	5	mgCaCO3/L	13
Alkalinity	5	mgCaCO3/L	<5
pH	0.1	pH units	5.1
Conductivity	0.01	mS/cm	0.17
Total Dissolved Solids	5	mg/L	120
Total Suspended Solids	5	mg/L	48
Turbidity	0.1	NTU	40

Biochemical Oxygen Demand Sample No: Sample Description:	LOR	UNITS	12-5954-1 Trip-002
Biochemical Oxygen Demand	5	mg/L	<5

Misc. Inorganics in Water Sample No: Sample Description:	LOR	UNITS	12-5954-1 Trip-002
Chemical Oxygen Demand	10	mg/L	40
Sulphide	0.1	mg/L	<0.1

Result Definitions

LOR Limit of Reporting
[NT] Not Tested
[ND] Not Detected at indicated Limit of Reporting
[NR] Analysis Not Requested
(SS) Surrogate Standard Compound

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Quality Control Report

Job Number: 12-5954
Date: 17/09/2012

Environmental and Analytical Laboratory

This Quality Control Report is issued in accordance with Section 18 of the ARL Quality Management Manual. All QC parameters are contained within the relevant ARL Method as indicated by the method reference, either on this report or the Laboratory Report.

Acceptance of Holding Times, Duplicate RPD, Spike, LCS and CRM Recoveries are determined at the time of analysis by the Signatory indicated on the Laboratory Report.

DEFINITIONS

Duplicate Analysis
A sample, chosen randomly by the analyst at the time of sample preparation, analysed in duplicate.

RPD
Relative Percent Difference is the absolute difference between the sample and a duplicate analysis compared to the average of the two analytical results. Acceptance Limits can be exceeded by matrix interference or when the result is less than 5 times the LOR.

Matrix Spike
An additional portion of sample to which known amounts of the target analytes are added before sample preparation. Acceptance Limits can be exceeded by matrix interference or when the target analytes are present in the sample.

Certified Reference Material (CRM)
A commercially available certified solution/mixture of the target analyte of known concentration.

Laboratory Control Sample (LCS)
An in-house certified solution/mixture of the target analyte of known concentration.

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46-48 Banksia Road, Welshpool, Western Australia 6106 Telephone: 08 6253 4444 Facsmile 08 6253 4440
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Quality Control Report

Job Number: 12-5954

Date: 17/09/2012

Environmental and Analytical Laboratory

BTEX in Water

ARL007

Holding Time Criteria	Date	
Extracted	03/09/2012	
Analysed	04/09/2012	
Matrix Spike (12-5957-A-14)	**Recovery (%)**	**Limits (%)**
Benzene	102	60 - 120
Toluene	100	60 - 120
Ethyl Benzene	92	60 - 120
Xylenes (Total)	82	60 - 120

PAH in Water

ARL005

Holding Time Criteria	Date	
Extracted	07/09/2012	
Analysed	10/09/2012	
Matrix Spike (12-5988-1)	**Recovery (%)**	**Limits (%)**
Naphthalene	81	60 - 120
Acenaphthene	90	60 - 120
Phenanthrene	97	60 - 120
Pyrene	87	60 - 120
Chrysene	104	60 - 120
Benzo(a)pyrene	112	60 - 120

TPH in Water (Water Corp)

ARL009

Holding Time Criteria	Date	
Extracted	03/09/2012	
Analysed	06/09/2012	
Matrix Spike (12-5961-1)	**Recovery (%)**	**Limits (%)**
C_{15-28}	83	60 - 120

OCOP in Water

ARL002

Holding Time Criteria	Date	
Extracted	04/09/2012	
Analysed	05/09/2012	
Matrix Spike (12-5954-1)	**Recovery (%)**	**Limits (%)**
Aldrin	94	60 - 120
Dieldrin	87	60 - 120
Endrin	94	60 - 120

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Matrix Spike (12-5954-1)	Recovery (%)	Limits (%)
Heptachlor	103	60 - 120
Lindane	86	60 - 120
p,p-DDT	88	60 - 120

Misc. Organics in Water

ARL044

Holding Time Criteria	Date	
Extracted	03/09/2012	
Analysed	03/09/2012	
Duplicate Analysis (12-5954-1)	**RPD (%)**	**Limits (%)**
Total Phenols	0	25
Matrix Spike (12-5954-1)	**Recovery (%)**	**Limits (%)**
Total Phenols	91	60 - 120
Certified Reference Material	**Recovery (%)**	**Limits (%)**
Total Phenols	111	73 - 127

Metals in Water

Holding Time Criteria	Date	
Analysed	06/09/2012	
Certified Reference Material	**Recovery (%)**	**Limits (%)**
Aluminium - Dissolved	112	80 - 120
Aluminium - Total	112	80 - 120
Arsenic - Dissolved	108	80 - 120
Arsenic - Total	108	80 - 120
Cadmium - Dissolved	95	80 - 120
Cadmium - Total	95	80 - 120
Chromium - Dissolved	80	80 - 120
Chromium - Total	80	80 - 120
Iron - Dissolved	101	80 - 120
Iron - Total	101	80 - 120
Manganese - Dissolved	98	80 - 120
Manganese - Total	98	80 - 120
Nickel - Dissolved	112	80 - 120
Nickel - Total	112	80 - 120
Selenium - Dissolved	100	80 - 120
Selenium - Total	100	80 - 120
Zinc - Dissolved	119	80 - 120
Zinc - Total	119	80 - 120

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Quality Control Report

Job Number: 12-5954

Date: 17/09/2012

Environmental and Analytical Laboratory

Total Nitrogen in Water

Holding Time Criteria	Date	
Extracted	07/09/12	
Analysed	10/09/12	
Duplicate Analysis (12-5982-2)	**RPD (%)**	**Limits (%)**
Total Nitrogen	0	25
TKN	0	25
Certified Reference Material	**Recovery (%)**	**Limits (%)**
Total Nitrogen	108	80 - 120
TKN	108	80 - 120

Total Phosporus in Water

Holding Time Criteria	Date	
Extracted	07/09/12	
Analysed	10/09/12	
Duplicate Analysis (12-5982-2)	**RPD (%)**	**Limits (%)**
Total Phosphorus	0	25
Matrix Spike (12-5982-2)	**Recovery (%)**	**Limits (%)**
Total Phosphorus	111	60 - 120
Certified Reference Material	**Recovery (%)**	**Limits (%)**
Total Phosphorus	118	80 - 120

Ions by Discrete Analyser

Holding Time Criteria	Date	
Analysed	05/09/12	
Certified Reference Material	**Recovery (%)**	**Limits (%)**
Filterable Reactive Phosphorus	110	80 - 120
Ammonia-N	97	80 - 120
NOx-N	91	80 - 120
Nitrate-N	91	80 - 120
Nitrite-N	101	80 - 120
Chloride	93	80 - 120

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Quality Control Report

Job Number: 12-5954

Date: 17/09/2012

Environmental and Analytical Laboratory

Physical Parameters

Holding Time Criteria	Date	
Analysed	01/09/12	
Certified Reference Material	**Recovery (%)**	**Limits (%)**
Turbidity	92	80 - 120
Acidity	106	80 - 120
Alkalinity	93	80 - 120
Conductivity	103	80 - 120
pH	101	80 - 120
Total Dissolved Solids	106	80 - 120
Total Suspended Solids	106	80 - 120

Biochemical Oxygen Demand

Holding Time Criteria	Date	
Analysed	11/09/12	
Certified Reference Material	**Recovery (%)**	**Limits (%)**
Biochemical Oxygen Demand	100	80 - 120

Miscellaneous Inorganic in Water

Holding Time Criteria	Date	
Analysed	07/09/12	
Certified Reference Material	**Recovery (%)**	**Limits (%)**
Chemical Oxygen Demand	90	80 - 120

Analytical Reference Laboratory (WA) PTY. Ltd
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www.arlwa.com.au ABN: 91 050 159 898

Site: WASTEROCK

Job #: E2012 -031

Sampler: DALE A. / NATHAN F.

CoC #: E2012 - 031 - 004

Quote #:

Laboratory: ARL WA.

Date and time delivered:

Received by:

MDW
ENVIRONMENTAL SERVICES
Mobile Dewatering Environmental Services
22 Elmsfield Road
Midvale WA 6056
P: 08 9250 6960
F: 08 9250 8269
E: info@environmentalservices.com.au

12-5954-1

Comments:

PLEASE CONTACT DALE (0424133646) WITH ANY ISSUES.

Analysis Detection Limits

Sample ID	Lab ID	Type	Sampling Date	Sampling Time	pH, EC, TDS, TSS, TAA	Sulfide, chloride, TALK	BTEX, PHENOLS, TPH	PAH, oc/op	BOD, COD	Fe, Mn, Ni, Se, Zn	TURBIDITY	TKN, TN, NO_3, NO_x, NH_3, TP, SRP	Total Al, As, Cd, Cr, Fe, Mn, Ni, Se, Zn	Diss Al, As, Cd, Cr, Fe, Mn, Ni, Se, Zn
TRIP-002		WATER	30.8.12	1500	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

DATE: 31/8/12
CHECKED BY: Chris
No OF SAMPLES: 1
No OF GLASS: 8
No OF PLASTIC: 5

Chris 31/8/12.

Condition of Sample: Cool / Ambient / Warm

Relinquished by: DALE.