

# QUARTERLY GROUNDWATER MONITORING

# **SCONE WASTE FACILITY AREA**

Noblet Road Scone NSW 2337

Upper Hunter Shire Council 0450054

December 2018



**PROJECT NAME** Scone Waste Facility Groundwater

Monitoring

**PROJECT ID** DLH1186/0450054

**DOCUMENT CONTROL NUMBER** H001861

PREPARED FOR **Upper Hunter Shire Council** 

APPROVED FOR RELEASE BY Michael Gaggin

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# **ABBREVIATIONS**

ANZECC Australian and New Zealand Environment and Conservation Council

ARMCANZ Agriculture and Resource Management Council of Australia and New Zealand

**DEC** Department of Environment and Conservation (NSW)

**EC** Electrical Conductivity

**EPA** Environment Protection Authority (NSW)

**ERM** ERM Services Australia (formerly DLA Environmental Services)

NEPCNational Environment Protection CouncilNEPMNational Environment Protection MeasureNHMRCNational Health and Medical Research CouncilNRMMCNatural Resource Management Ministerial Council

**NSW** New South Wales

OCP Organochlorine Pesticides
TOC Total Organic Carbon



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Attachment 3 Data Log

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#### **INTRODUCTION**

#### 1.1 General

1.0 annual and quarterly groundwater monitoring as required by the New South Wales (NSW) Environmental Protection Authority (EPA) Environmental Protection Licence (EPL) 5863 for the following site:

#### **Scone Waste Facility Area**

Noblet Road Scone NSW 2337 (the Site).

Refer to **Figure 1**: Site Location Regional and **Figure 2**: Site Location Local.

The Groundwater Monitoring Report provides an overview of the current condition of groundwater at the Site in relation to the Site Criteria and satisfies the groundwater monitoring requirements of EPL 5863.

The report has been prepared utilising information obtained as part of the investigation process, from previous monitoring reports and from experience, knowledge, and current industry practice in the monitoring of similar sites.

Quarterly groundwater monitoring was undertaken on Thursday 6<sup>th</sup> December 2018 by staff of ERM.

#### 1.2 Scope of Works

The scope of work provided by Upper Hunter Shire Council indicates that annual and quarterly groundwater monitoring is required at the following groundwater sampling locations:

- MWA;
- MWB;
- MWC;
- MWD (landfill leachate monitoring well); and
- MWE.

Refer to Figure 3: Site Layout with Sample Locations.



#### **MONITORING PARAMETERS**

The following sample analysis parameters and monitoring frequency were provided by Upper Hunter Shire Council for the groundwater wells. Threshold Criteria are primarily sourced from *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC, 2000), *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)* ('NEPM', NEPC 2013), and the *Australian Drinking Water Guidelines* (NHMRC / NRMMC, 2011).

Table 2a: Analytes, Threshold Criteria and Monitoring Frequency for Groundwater Monitoring
Wells

Analytes	Units	Threshold Criteria NEPM 2013 / ANZECC	Monitoring Frequency
		2000 Fresh Water 95%	
Calcium	mg/L	NA	Quarterly
Alkalinity (total)	mg/L	NA	Quarterly
Chloride	mg/L	NA	Quarterly
Fluoride	mg/L	NA	Quarterly
Iron	mg/L	0.3 <sup>B</sup>	Quarterly
Magnesium	mg/L	NA	Quarterly
Manganese	mg/L	1.9 <sup>A</sup>	Quarterly
Organochlorine pesticides (OCP)	mg/L	0.00001 <sup>c</sup>	Quarterly
Potassium	mg/L	410 <sup>D</sup>	Quarterly
рН	рН	6.5 – 8	Quarterly
Sodium	mg/L	NA	Quarterly
Ammonia	mg/L	0.9 <sup>A</sup>	Quarterly
Nitrate	mg/L	0.7	Quarterly
Sulfate	mg/L	NA	Quarterly
Total organic carbon (TOC)	mg/L	4	Quarterly
Total phenolics	mg/L	0.32	Quarterly
Electrical conductivity (EC)	μS/cm	NA	Quarterly

A – Trigger value may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance

B - Interim working level, in absence of reliable trigger value

C - Trigger value for DDT used in absence of trigger value for total OCP

D – Poor (acceptable) drinking water criteria, World Health Organisation Guidelines for Drinking-water Quality 2009



#### **SAMPLING METHODOLOGY**

#### 3.1 Groundwater Sampling

Groundwater samples were collected from well locations MWA, MWB, MWC, MWD and MWE. 3.0 Purging and sampling of monitoring wells was conducted in accordance with the NEPM (NEPC, 2013) and the *Guidelines for the Assessment and Management of Groundwater Contamination* (NSW DEC, 2007).

Wells were purged using a disposable bailer whilst being measured for physiochemical stability to indicate the flow of formation water. Physiochemical properties were measured at regular intervals following the purging of each equipment volume using an In-Situ Smartroll Water Quality Meter. Stable conditions were indicated by monitoring the following parameters for three consecutive readings of:

- pH ± 0.1 unit;
- Electrical Conductivity ± 5%;
- Temperature ± 0.20;
- Redox Potential ± 10%; and
- Dissolved Oxygen ± 10%.

Groundwater field data sheets are supplied as Attachment 4.

Samples were obtained using a dedicated disposable bailer which was changed between each monitoring well to minimise the potential for cross contamination. Sampling equipment was cleaned prior to sampling and between sample locations to prevent cross contamination. The cleaning procedure included:

- Washing and brush scrub with phosphate free laboratory grade detergent;
- Rinsing with water of a potable quality; and
- Rinsing with deionised water.

Groundwater samples were collected into laboratory prepared and supplied sample containers for specific analytes (i.e. into a combination of plastic unpreserved, plastic preserved, glass amber unpreserved and preserved glass vials). Samples were collected and filled into the respective sample containers so no head space remained in the sample container, with no loss of any preservation agents, where present. Groundwater samples collected for metals analysis were filtered through 0.45um filter. Samples were placed immediately into a chilled cooler to minimise the likelihood for the loss of potential volatile components. It is opinion of ERM that decontamination procedures were appropriate during groundwater sampling and no cross contamination can be inferred.



#### **RESULTS**

All wells were sampled during the December 2018 sampling event, results are summarised in **Table 4a – Table 4e** below.

4.0 Sampling Locations are displayed in **Figure 3. Refer to Attachment 1** for Laboratory Certificates and **Attachment 2** for a tabulated summary of the laboratory results.

Table 4a - Groundwater Results Comparison December 2018

Sampling Parameter	Units	Threshold Criteria (mg/L)	MWA Jan 2018	MWA Apr 2018	MWA July 2018	MWA Dec 2018
Calcium	mg/L	NA	590	640	590	560
Alkalinity (total)	mg/L	NA	490	490	480	470
Chloride	mg/L	NA	7200	7100	7300	6600
Fluoride	mg/L	NA	0.13	0.13	0.14	0.14
Iron	mg/L	0.3 <sup>B</sup>	ND	ND	0.170	ND
Magnesium	mg/L	NA	1200	1200	1100	1100
Manganese	mg/L	1.9 <sup>A</sup>	0.010	0.02	0.010	0.01
ОСР	mg/L	0.00001 <sup>c</sup>	ND	ND	ND	ND
Potassium	mg/L	410 <sup>D</sup>	4.9	4.4	4.4	4.4
рН	рН	6.5 – 8	7.0	6.9	6.7	6.7
Sodium	mg/L	NA	2000	2100	1900	2000
Ammonia	mg/L	0.9 <sup>A</sup>	0.12	0.16	0.16	0.02
Nitrate	mg/L	0.7	ND	ND	ND	0.25
Sulfate	mg/L	NA	40	41	42	49
тос	mg/L	4.0	5.6	3.6	2.3	2.6
Total phenolics	mg/L	0.32	ND	0.02	ND	ND
EC	μS/cm	_		21000	19000	20000

Samples highlighted in **Bold** exceed threshold criteria

ND = No Detection above Laboratory LOR

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A – Trigger value may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance

B - Interim working level, in absence of reliable trigger value

C - Trigger value for DDT used in absence of trigger value for total OCP

D – Poor (acceptable) drinking water criteria, World Health Organisation Guidelines for Drinking-water Quality 2009 NA – Not Applicable



Table 4b - Groundwater Results Comparison December 2018

Sampling Parameter	Units	Threshold Criteria (mg/L)	MWB Jan 2018	MWB Apr 2018	MWB July 2018	MWB Dec 2018
Calcium	mg/L	NA	600	650	590	550
Alkalinity (total)	mg/L	NA	420	390	400	380
Chloride	mg/L	NA	5400	5700	5600	5500
Fluoride	mg/L	NA	0.24	0.28	0.26	0.27
Iron	mg/L	0.3 <sup>B</sup>	ND	ND	0.021	ND
Magnesium	mg/L	NA	810	810	720	670
Manganese	mg/L	1.9 <sup>A</sup>	0.005	0.01	0.007	0.006
ОСР	mg/L	0.00001 <sup>c</sup>	ND	ND	ND	ND
Potassium	mg/L	410 <sup>D</sup>	3.6	3.6	3.6	3.6
рН	рН	6.5 – 8	7.0	7.2	6.9	6.9
Sodium	mg/L	NA	1700	1700	1500	1600
Ammonia	mg/L	0.9 <sup>A</sup>	0.09	0.09	0.08	0.05
Nitrate	mg/L	0.7	ND	0.46	ND	0.51
Sulfate	mg/L	NA	66	70	74	76
тос	mg/L	4.0	6.2	4.8	3.5	4.2
Total phenolics	mg/L	0.32	ND	ND	ND	ND
EC	μS/cm	NA	16000	16000	15000	15000

ND = No Detection above Laboratory LOR

A – Trigger value may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance

B - Interim working level, in absence of reliable trigger value

C - Trigger value for DDT used in absence of trigger value for total OCP

D – Poor (acceptable) drinking water criteria, World Health Organisation Guidelines for Drinking-water Quality 2009 NA – Not Applicable



Table 4c – Groundwater Results Comparison December 2018

Sampling Parameter	Units	Threshold Criteria (mg/L)	MWC Jan 2018	MWC Apr 2018	MWC July 2018	MWC Dec 2018
Calcium	mg/L	NA	200	270	350	350
Alkalinity (total)	mg/L	NA	580	550	590	580
Chloride	mg/L	NA	2400	3200	4200	4200
Fluoride	mg/L	NA	0.26	0.31	0.23	0.22
Iron	mg/L	0.3 <sup>B</sup>	ND	ND	0.019	ND
Magnesium	mg/L	NA	330 440		490	500
Manganese	mg/L	1.9 <sup>A</sup>	12	15	9.1	6.5
ОСР	mg/L	0.00001 <sup>c</sup>	ND	ND	ND	ND
Potassium	mg/L	410 <sup>D</sup>	1.8	1.8	2.6	2.4
рН	рН	6.5 – 8	6.9	6.9	6.7	6.7
Sodium	mg/L	NA	1100	1400	1400	1500
Ammonia	mg/L	0.9 <sup>A</sup>	0.16	0.22	0.09	0.07
Nitrate	mg/L	0.7	1.7	2.5	0.95	2.2
Sulfate	mg/L	NA	110	130	140	160
тос	mg/L	4.0	12	9.0	6.5	8.8
Total phenolics	mg/L	0.32	ND	ND	ND	ND
EC	μS/cm	NA	8700	11000	12000	13000

ND = No Detection above Laboratory LOR

A – Trigger value may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance

B - Interim working level, in absence of reliable trigger value

C - Trigger value for DDT used in absence of trigger value for total OCP

D – Poor (acceptable) drinking water criteria, World Health Organisation Guidelines for Drinking-water Quality 2009

NA – Not Applicable



Table 4d – Groundwater Results Comparison December 2018

Sampling Parameter	Units	Threshold Criteria (mg/L)	MWD (leachate) Jan 2018	MWD (leachate) Apr 2018	MWD (leachate) July 2018	MWD (leachate) Dec 2018
Calcium	mg/L	NA	160	120	96	120
Alkalinity (total)	mg/L	NA	2400	2500	2500	2700
Chloride	mg/L	NA	3100	3600	3300	3400
Fluoride	mg/L	NA	0.30	0.34	0.28	0.28
Iron	mg/L	0.3 <sup>B</sup>	1.1	1.1	2.0	1.5
Magnesium	mg/L	NA	270	290	220	240
Manganese	mg/L	1.9 <sup>A</sup>	0.29	0.18	0.180	0.19
ОСР	mg/L	0.00001 <sup>c</sup>	ND	ND	ND	ND
Potassium	mg/L	410 <sup>D</sup>	220	200	210	220
рН	рН	6.5 – 8	7.7	7.7	7.6	7.5
Sodium	mg/L	NA	1900	1900	1700	1900
Ammonia	mg/L	0.9 <sup>A</sup>	330	320	330	340
Nitrate	mg/L	0.7	ND	ND	ND	ND
Sulfate	mg/L	NA	93	110	81	59
тос	mg/L	4.0	340	340	320	340
Total phenolics	mg/L	0.32	0.03	0.05	0.05	0.09
EC	μS/cm	NA	13000	14000	13000	14000

ND = No Detection above Laboratory LOR

As MWD is a landfill leachate monitoring well, the Threshold Criteria are only applicable as indicators of general water quality for comparison to the wells surrounding the landfill. Exceedances of the Threshold Criteria for MWD are expected and do not indicate contamination is leaving the Site.

A – Trigger value may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance

B - Interim working level, in absence of reliable trigger value

C - Trigger value for DDT used in absence of trigger value for total OCP

D – Poor (acceptable) drinking water criteria, World Health Organisation Guidelines for Drinking-water Quality 2009

NA – Not Applicable



Table 4e - Groundwater Results Comparison December 2018

Sampling Parameter	Units	Threshold MWE Criteria Jan (mg/L) 2018		MWE Apr 2018	MWE July 2018	MWE Dec 2018
Calcium	mg/L	NA	56	59	56	55
Alkalinity (total)	mg/L	NA	1200	1200	1200	1200
Chloride	mg/L	NA	280	280	270	300
Fluoride	mg/L	NA	0.47	0.56	0.51	0.52
Iron	mg/L	0.3 <sup>B</sup>	0.01	ND	0.015	0.008
Magnesium	mg/L	NA	55	53	53	55
Manganese	mg/L	1.9 <sup>A</sup>	0.24	0.14	0.160	ND
ОСР	mg/L	0.00001 <sup>c</sup>	ND	ND	ND	ND
Potassium	mg/L	410 <sup>D</sup>	1.6	1.2	1.3	0.7
рН	рН	6.5 – 8	7.4	7.4	7.4	7.3
Sodium	mg/L	NA	520	550	530	550
Ammonia	mg/L	0.9 <sup>A</sup>	0.04	0.07	0.09	0.22
Nitrate	mg/L	0.7	ND	ND	ND	ND
Sulfate	mg/L	NA	91	85	92	120
тос	mg/L	4.0	15	7.9	6	6.5
Total phenolics	mg/L	0.32	ND	ND	ND	ND
EC	μS/cm	NA	3000	3200	2900	3000

ND = No Detection above Laboratory LOR

A – Trigger value may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance

B - Interim working level, in absence of reliable trigger value

C - Trigger value for DDT used in absence of trigger value for total OCP

D – Poor (acceptable) drinking water criteria, World Health Organisation Guidelines for Drinking-water Quality 2009 NA – Not Applicable



#### **DISCUSSION**

The sites' topography is a downslope to the west and the inferred hydraulic gradient is generally to the west. Wells MWA, MWB and MWC are located down-hydraulic gradient of the landfill. Well MWE is considered to be up-hydraulic gradient of the landfill. Well MWD is located within the landfill, and targets the leachate within the landfill.

The water sampled from well MWD is landfill leachate and as such the Threshold Criteria is not applied in the context of receptor exposure, but as an indicator of current conditions of the leachate. MWD is to be used as a general indicator of water quality within the landfill for comparison to the external monitoring wells.

The following is a summary of the results of the December 2018 sampling event in relation to the Threshold Criteria. The following exceedances of the Threshold Criteria occurred:

- Nitrate in MWC exceeded the Threshold Criteria (0.7 mg/L) with a concentration of 2.2 mg/L.
   Nitrate concentrations have been fluctuating within this well with concentrations between 1mg/L in July 2018 and 3.0 mg/L in April 2018. There was no nitrate detected in leachate well MWD in this event.
- Manganese in MWC exceeded the Threshold Criteria (1.9 mg/L) with a concentration of 6.5 mg/L. Manganese concentrations have been fluctuating within this well with the highest concentration of 12 mg/L in January 2018. Manganese concentrations in leachate well MWD have been consistently below the Threshold Criteria.
- Total Organic Carbon (TOC) exceeds the Threshold Criteria (4 mg/L) in monitoring wells MWB,
   MWC and MWE, as follows:
  - TOC in MWB reported a concentration of 4.2 mg/L (December 2018). TOC in MWB has
    fluctuated throughout the year, with all concentrations exceeding the Threshold
    Criteria;
  - TOC in MWC reported a concentration of 8.8 mg/L (December 2018). TOC in MWC has
    fluctuated throughout the year, with all concentrations exceeding the Threshold
    Criteria; and,
  - TOC in MWE also reported a concentration of 6.5 mg/L (December 2018). TOC in MWE
    has fluctuated throughout the year, with all concentrations exceeding the Threshold
    Criteria.

The Threshold Criteria used for TOC is intended for drinking water. The TOC concentrations in MWE indicates that TOC is likely to be elevated in the local groundwater.

All other analytes in all other wells reported detections which were within the Threshold Criteria.

ERM

The following notable changes or concentrations occurred within the groundwater analytes in landfill leachate well MWD:

- Ammonia in MWD exceeded the Threshold Criteria (0.9mg/L) with a concentration of 340 mg/L. The concentration of ammonia in MWD have remained elevated and consistent, with 330 mg/L in July 2018, 320 mg/L in April 2018 and 330 mg/L in January 2018. Concentrations of Ammonia in MWD have consistently been substantially higher than in the surrounding wells.
- Iron in MWD exceeded the Threshold Criteria (0.3mg/L) with a concentration of 1.5 mg/L. Iron concentrations in MWD have fluctuated over its recent history, but displayed a similar elevated result of 2.0mg/L in July 2018 and 1.1mg/L in April and January 2018.
- TOC in MWD reported a concentration of 340 mg/L, increasing slightly from 320mg/L reported in July 2018, however concentrations remain consistent.

Refer to **Attachment 3** – Data Log.

The data can be viewed on a trending basis as more results become available.



### **CONCLUSIONS**

The results of laboratory analysis of the samples collected from the Scone Waste Facility Area during the December 2018 quarterly sampling event confirmed several exceedances of the Threshold Criteria in the wells external to the landfill area itself. The Threshold Criteria are sourced from the ANZECC 2000 Guidelines for Fresh Water 95% level of protection, NEPM 2013 and Australian Drinking Water Guidelines 2011.

The following analytes exceeded the Threshold Criteria during the December 2018 sampling event: nitrate and manganese in MWC, and TOC in MWB, MWC and MWE. There were no other exceedances of the Threshold Criteria in the wells surrounding the landfill.

Some exceedances have been explained by local conditions. Trending of analytes over time may indicate a seasonal fluctuation of regional groundwater conditions. All remaining exceedances are in MWD which is the leachate monitoring well. Concentrations in MWD are elevated with respect to remaining well network, which indicates minimal releases of landfill leachate into the local groundwater is likely to be occurring.

The elevated concentrations of nitrate, manganese and TOC in the monitoring wells external to the landfill do not necessarily indicate the concentrations are due to the landfill leachate, future testing and trending of data will allow for appropriate comparisons.

The next water sampling event will be the quarterly monitoring event undertaken in January 2019.



#### **REFERENCES**

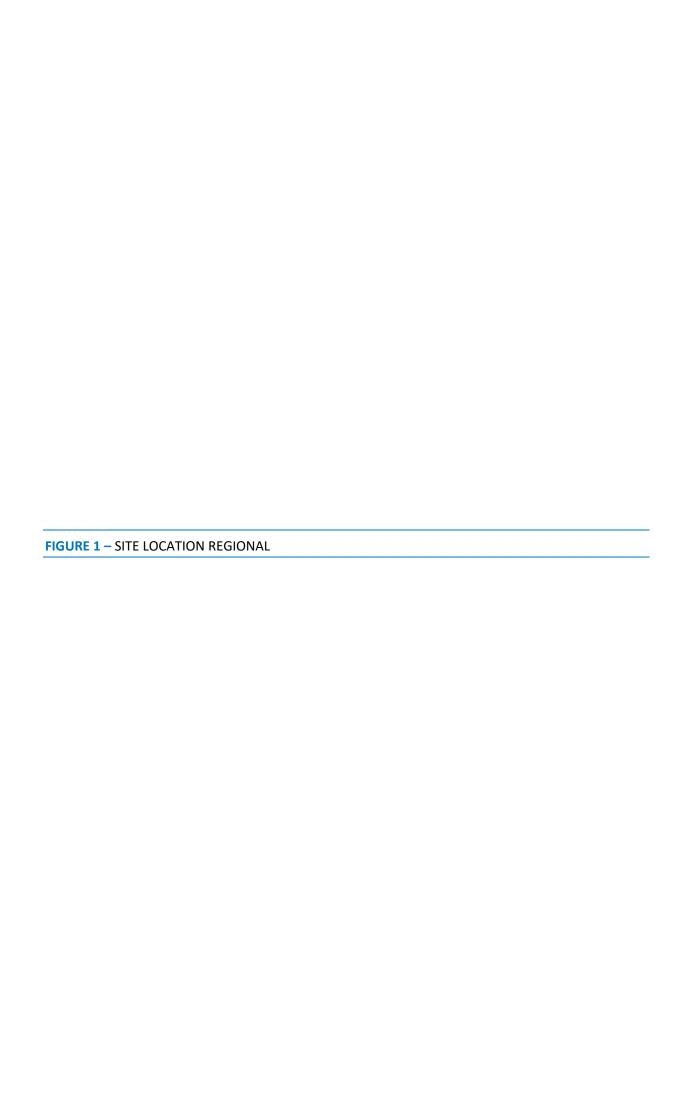
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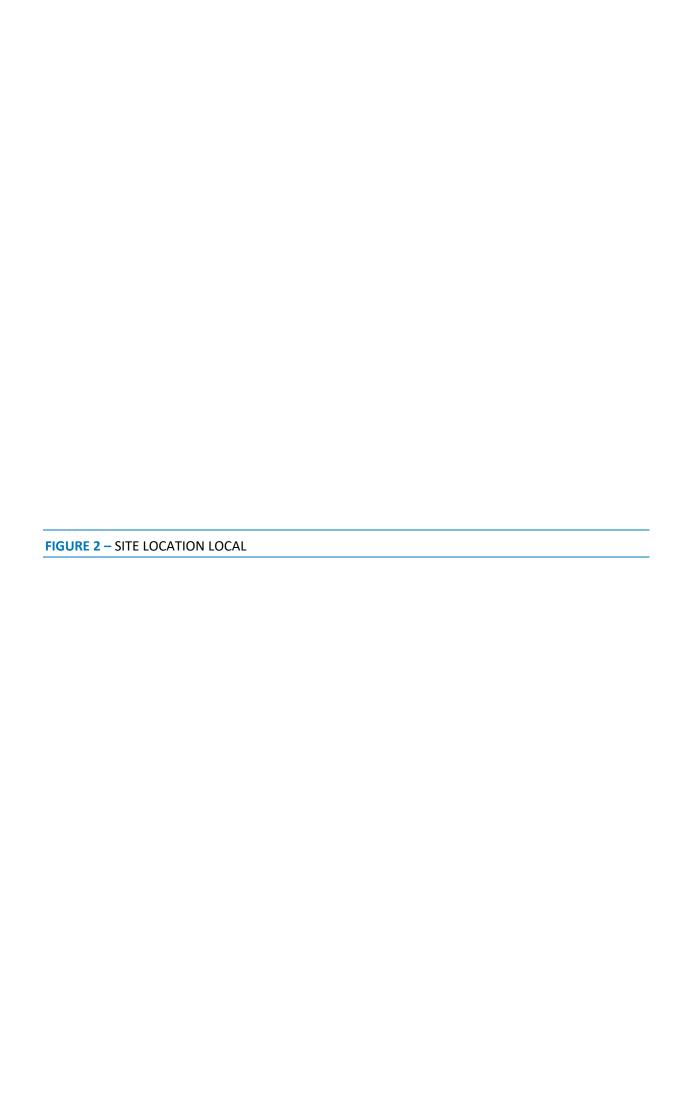
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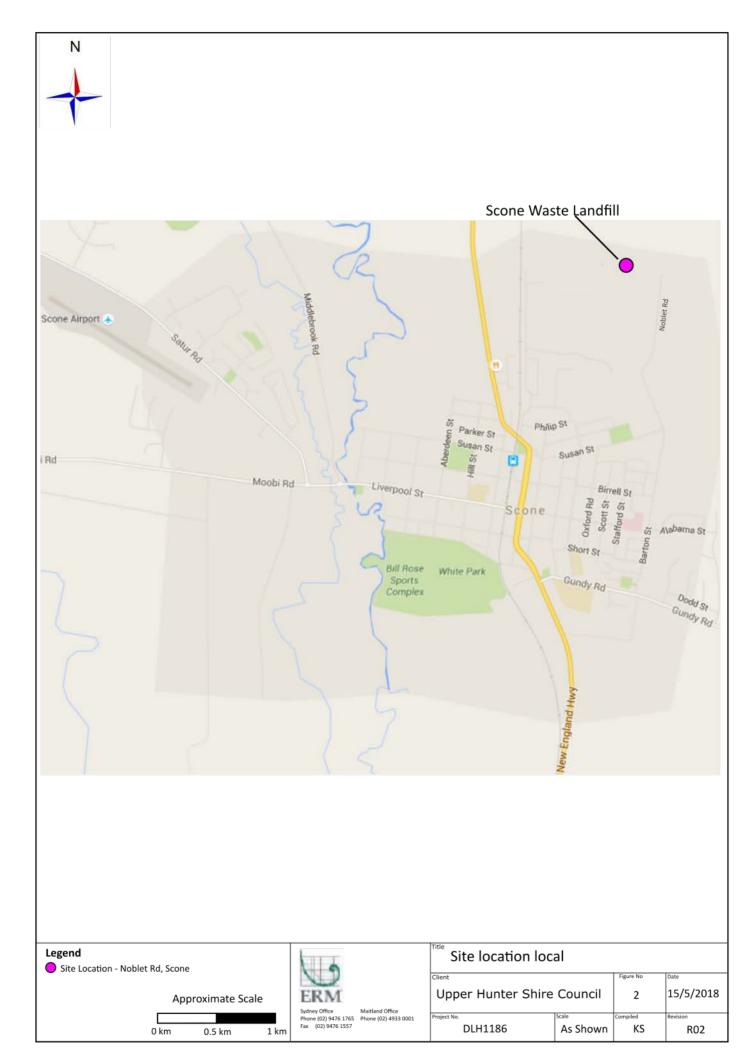
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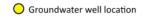














Approximate Scale
Om 50m 100m



Maitland Office Phone (02) 4933 0001

Site layout with sample locations							
Upper Hunter Shire Council	Project No. DLH1186	Figure No	15/5/2018				
	As Shown	Compiled KS	Revision RO2				





# **ANALYTICAL REPORT**



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SGS Alexandria Environmental



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LABORATORY DETAILS

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0450057 - UNSC Project SGS Reference SE187247 R0 Order Number (Not specified) Date Received 11/12/2018 5 18/12/2018 Samples Date Reported

COMMENTS

Telephone

Facsimile

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Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

Ion Chromatography - The Limit of Reporting (LOR) has been raised for NO3-N due to high conductivity of the sample requiring dilution.

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#### OC Pesticides in Water [AN420] Tested: 12/12/2018

						1	
			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
			6/12/2018	6/12/2018	6/12/2018	6/12/2018	6/12/2018
PARAMETER	UOM	LOR	SE187247.001	SE187247.002	SE187247.003	SE187247.004	SE187247.005
Hexachlorobenzene (HCB)	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane (gamma BHC)	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Gamma Chlordane	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDD	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDD	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin aldehyde	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin ketone	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	μg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
				1	1	1	

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Total Phenolics in Water [AN289] Tested: 12/12/2018

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
			6/12/2018	6/12/2018	6/12/2018	6/12/2018	6/12/2018
PARAMETER	UOM	LOR	SE187247.001	SE187247.002	SE187247.003	SE187247.004	SE187247.005
Total Phenols	mg/L	0.05	<0.05	<0.05	<0.05	0.09	<0.05

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SE187247 R0

Forms of Carbon [AN190] Tested: 13/12/2018

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
							-
			6/12/2018	6/12/2018	6/12/2018	6/12/2018	6/12/2018
PARAMETER	UOM	LOR	SE187247.001	SE187247.002	SE187247.003	SE187247.004	SE187247.005
Total Organic Carbon as NPOC	mg/L	0.2	2.6	4.2	8.8	340	6.5

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SE187247 R0

# Anions by Ion Chromatography in Water [AN245] Tested: 12/12/2018

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
				WAILK	WAILK	WAILK	WAILK
			6/12/2018	6/12/2018	6/12/2018	6/12/2018	6/12/2018
PARAMETER	UOM	LOR	SE187247.001	SE187247.002	SE187247.003	SE187247.004	SE187247.005
Fluoride	mg/L	0.1	0.14	0.27	0.22	0.28	0.52
Chloride	mg/L	1	6600	5500	4200	3400	300
Nitrate Nitrogen, NO3-N	mg/L	0.005	0.25	0.51	2.2	<0.050↑	<0.005
Sulfate, SO4	mg/L	1	49	76	160	59	120

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SE187247 R0

pH in water [AN101] Tested: 11/12/2018

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
							-
			6/12/2018	6/12/2018	6/12/2018	6/12/2018	6/12/2018
PARAMETER	UOM	LOR	SE187247.001	SE187247.002	SE187247.003	SE187247.004	SE187247.005
pH**	No unit	-	6.7	6.9	6.7	7.5	7.3

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SE187247 R0

# Conductivity and TDS by Calculation - Water [AN106] Tested: 11/12/2018

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
			6/12/2018	6/12/2018	6/12/2018	6/12/2018	6/12/2018
PARAMETER	UOM	LOR	SE187247.001	SE187247.002	SE187247.003	SE187247.004	SE187247.005
Conductivity @ 25 C	μS/cm	2	20000	15000	13000	14000	3000
Total Dissolved Solids (by calculation)	mg/L	2	12000	9100	7600	8500	1800

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SE187247 R0

# Alkalinity [AN135] Tested: 13/12/2018

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
			6/12/2018	6/12/2018	6/12/2018	6/12/2018	6/12/2018
PARAMETER	UOM	LOR	SE187247.001	SE187247.002	SE187247.003	SE187247.004	SE187247.005
Bicarbonate Alkalinity as CaCO3	mg/L	5	470	000	F00	2000	
Broad Bornato / Intaliantly ab Gabes	mg/L		4/0	380	580	2300	1200
Carbonate Alkalinity as CaCO3	mg/L	1	<1	<1	<1	370	1200 <1
· · · · · · · · · · · · · · · · · · ·		1 5					
Carbonate Alkalinity as CaCO3	mg/L	1	<1	<1	<1	370	<1

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SE187247 R0

Acidity and Free CO2 [AN140] Tested: 13/12/2018

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
							-
			6/12/2018	6/12/2018	6/12/2018	6/12/2018	6/12/2018
PARAMETER	UOM	LOR	SE187247.001	SE187247.002	SE187247.003	SE187247.004	SE187247.005
Acidity to pH 8.3	mg CaCO3/L	5	90	41	81	190	38

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# Ammonia Nitrogen by Discrete Analyser (Aquakem) [AN291] Tested: 11/12/2018

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
							-
			6/12/2018	6/12/2018	6/12/2018	6/12/2018	6/12/2018
PARAMETER	UOM	LOR	SE187247.001	SE187247.002	SE187247.003	SE187247.004	SE187247.005
Ammonia Nitrogen, NH₃ as N	mg/L	0.01	0.02	0.05	0.07	340	0.22

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SE187247 R0

# Metals in Water (Dissolved) by ICPOES [AN320] Tested: 11/12/2018

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	   WATER	WATER	WATER
				-	-	-	-
			6/12/2018	6/12/2018	6/12/2018	6/12/2018	6/12/2018
PARAMETER	UOM	LOR	SE187247.001	SE187247.002	SE187247.003	SE187247.004	SE187247.005
Calcium, Ca	mg/L	0.1	560	550	350	120	55
Magnesium, Mg	mg/L	0.1	1100	670	500	240	55
Sodium, Na	mg/L	0.1	2000	1600	1500	1900	550
Potassium, K	mg/L	0.2	4.4	3.6	2.4	220	0.7

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SE187247 R0

# Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 11/12/2018

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
			6/12/2018	6/12/2018	6/12/2018	6/12/2018	6/12/2018
PARAMETER	UOM	LOR	SE187247.001	SE187247.002	SE187247.003	SE187247.004	SE187247.005
Iron, Fe	μg/L	5	<5	<5	<5	1500	8
Manganese, Mn	μg/L	1	10	6	6500	190	<1

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Calculation

### **METHOD SUMMARY**

SE187247 R0

METHOD \_ METHODOLOGY SUMMARY \_ ΔN020 Unpreserved water sample is filtered through a 0.45um membrane filter and acidified with nitric acid similar to APHA3030B **AN101** pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode (glass plus reference electrode) and is calibrated against 3 buffers purchased commercially. For soils, an extract with water is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+. Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is AN106 calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos/cm or μS/cm @ 25°C. For soils, an extract with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Total Dissolved Salts can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. SGS use 0.6. Reference APHA 2510 B. **AN106** Salinity may be calculated in terms of NaCl from the sample conductivity. This assumes all soluble salts present, measured by the conductivity, are present as NaCl. **AN135** Alkalinity (and forms of) by Titration: The sample is titrated with standard acid to pH 8.3 (P titre) and pH 4.5 (T titre) and permanent and/or total alkalinity calculated. The results are expressed as equivalents of calcium carbonate or recalculated as bicarbonate, carbonate and hydroxide. Reference APHA 2320. Internal Reference AN135 AN140 Acidity by Titration: The water sample is titrated with sodium hydroxide to designated pH end point. In a sample pH 8.3 at 25°C corresponds to containing only carbon dioxide, bicarbonates and carbonates, titration to stoichiometric neutralisation of carbonic acid to bicarbonate. Method reference APHA 2310 B. AN190 TOC and DOC in Water: A homogenised micro portion of sample is injected into a heated reaction chamber packed with an oxidative catalyst that converts organic carbon to carbon dioxide. The CO2 is measured using non-dispersive infrared detector. The process is fully automated in a commercially available analyser. If required a sugar value can be calculated from the TOC result. Reference APHA 5310 B. AN190 Chemical oxygen demand can be calculated/estimated based on the O2/C relation as 2.67\*NPOC (TOC). This is an estimate only and the factor will vary with sample matrix so results should be interpreted with caution. AN245 Anions by Ion Chromatography: A water sample is injected into an eluent stream that passes through the ion chromatographic system where the anions of interest ie Br, Cl, NO2, NO3 and SO4 are separated on their relative affinities for the active sites on the column packing material. Changes to the conductivity and the UV-visible absorbance of the eluent enable identification and quantitation of the anions based on their retention time and peak height or area. APHA 4110 B **AN289** Analysis of Total Phenols in Soil Sediment and Water: Steam distillable phenols react with 4-aminoantipyrine at pH 7.9±0.1 in the presence of potassium ferricyanide to form a coloured antipyrine dye analysed by Discrete Analyser. Reference APHA 5530 B/D. **AN291** Ammonia in solution reacts with hypochlorite ions from Sodium Dichloroisocyanuate, and salicylate in the presence of Sodium Nitroprusside to form indophenol blue and measured at 670 nm by Discrete Analyser. **AN318** Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A. **AN320** Metals by ICP-OES: Samples are preserved with 10% nitric acid for a wide range of metals and some non-metals. This solution is measured by Inductively Coupled Plasma. Solutions are aspirated into an argon plasma at 8000-10000K and emit characteristic energy or light as a result of electron transitions through unique energy levels. The emitted light is focused onto a diffraction grating where it is separated into components. AN320 Photomultipliers or CCDs are used to measure the light intensity at specific wavelengths. This intensity is directly proportional to concentration. Corrections are required to compensate for spectral overlap between elements. Reference APHA 3120 B. AN420 SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).

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If TDS is >500mg/L free or total carbon dioxide cannot be reported . APHA4500CO2 D.

Free and Total Carbon Dioxide may be calculated using alkalinity forms only when the samples TDS is <500mg/L.



**FOOTNOTES** SE187247 R0

FOOTNOTES

NATA accreditation does not cover the performance of this service.

Indicative data, theoretical holding

time exceeded

Not analysed. NVL Not validated.

Insufficient sample for analysis. IS INR Sample listed, but not received. UOM Unit of Measure. Limit of Reporting. LOR Raised/lowered Limit of  $\uparrow \downarrow$ 

Reporting.

Samples analysed as received. Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the "Totals" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.

Note that in terms of units of radioactivity:

- a. 1 Bq is equivalent to 27 pCi
- 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here:

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# STATEMENT OF QA/QC **PERFORMANCE**

CLIENT DETAILS LABORATORY DETAILS

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0450057 - UNSC SE187247 R0 SGS Reference Project (Not specified) 11 Dec 2018 Order Number Date Received 18 Dec 2018 Samples Date Reported

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.

This QA/QC Statement must be read in conjunction with the referenced Analytical Report.

The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Extraction Date Acidity and Free CO2 5 items

pH in water 5 items Analysis Date Acidity and Free CO2

Forms of Carbon 5 items

> pH in water 5 items

SAMPLE SUMMARY

Samples clearly labelled Sample container provider Samples received in correct containers Date documentation received Samples received in good order Sample temperature upon receipt Turnaround time requested

Yes Other Lab Yes 11/12/2018 Yes 7.4°C Standard

Complete documentation received Sample cooling method Sample counts by matrix Type of documentation received Samples received without headspace Sufficient sample for analysis

Yes Ice Bricks 5 Water COC Yes Yes

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Member of the SGS Group



MWC

MWD

MWE

pH in water

Sample Name

SE187247.003

SE187247.004

SE187247.005

Sample No.

LB163334

LB163334

LB163334

QC Ref

06 Dec 2018

06 Dec 2018

06 Dec 2018

# **HOLDING TIME SUMMARY**

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in Green when within suggested criteria or Red with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default

Acidity and Free CO2							Method:	ME-(AU)-[ENV]AN14
Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MWA	SE187247.001	LB163497	06 Dec 2018	11 Dec 2018	07 Dec 2018	13 Dec 2018†	07 Dec 2018	13 Dec 2018†
MWB	SE187247.002	LB163497	06 Dec 2018	11 Dec 2018	07 Dec 2018	13 Dec 2018†	07 Dec 2018	13 Dec 2018†
MWC	SE187247.003	LB163497	06 Dec 2018	11 Dec 2018	07 Dec 2018	13 Dec 2018†	07 Dec 2018	13 Dec 2018†
MWD	SE187247.004	LB163497	06 Dec 2018	11 Dec 2018	07 Dec 2018	13 Dec 2018†	07 Dec 2018	
MWE	SE187247.004 SE187247.005	LB163497	06 Dec 2018	11 Dec 2018	07 Dec 2018	13 Dec 2018†	07 Dec 2018	13 Dec 2018†
	3E167247.003	LB 103497	00 Dec 2016	11 Dec 2016	07 Dec 2016	13 Dec 2016]		13 Dec 2018†
Alkalinity								ME-(AU)-[ENV]AN1
Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MWA	SE187247.001	LB163537	06 Dec 2018	11 Dec 2018	20 Dec 2018	13 Dec 2018	20 Dec 2018	17 Dec 2018
MWB	SE187247.002	LB163537	06 Dec 2018	11 Dec 2018	20 Dec 2018	13 Dec 2018	20 Dec 2018	17 Dec 2018
MWC	SE187247.003	LB163537	06 Dec 2018	11 Dec 2018	20 Dec 2018	13 Dec 2018	20 Dec 2018	17 Dec 2018
MWD	SE187247.004	LB163537	06 Dec 2018	11 Dec 2018	20 Dec 2018	13 Dec 2018	20 Dec 2018	17 Dec 2018
MWE	SE187247.005	LB163537	06 Dec 2018	11 Dec 2018	20 Dec 2018	13 Dec 2018	20 Dec 2018	17 Dec 2018
Ammonia Nitrogen by Discre	ete Analyser (Aquakem)						Method:	ME-(AU)-[ENV]AN2
Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MWA	SE187247.001	LB163276	06 Dec 2018	11 Dec 2018	03 Jan 2019	11 Dec 2018	03 Jan 2019	11 Dec 2018
MWB	SE187247.002	LB163276	06 Dec 2018	11 Dec 2018	03 Jan 2019	11 Dec 2018	03 Jan 2019	11 Dec 2018
MWC	SE187247.003	LB163276	06 Dec 2018	11 Dec 2018	03 Jan 2019	11 Dec 2018	03 Jan 2019	11 Dec 2018
MWD	SE187247.004	LB163276	06 Dec 2018	11 Dec 2018	03 Jan 2019	11 Dec 2018	03 Jan 2019	12 Dec 2018
MWE	SE187247.005	LB163276	06 Dec 2018	11 Dec 2018	03 Jan 2019	11 Dec 2018	03 Jan 2019	11 Dec 2018
Anions by Ion Chromatograp								ME-(AU)-[ENV]AN2
Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted		
·			•				Analysis Due	Analysed
MWA	SE187247.001	LB163332	06 Dec 2018	11 Dec 2018	03 Jan 2019	12 Dec 2018	03 Jan 2019	17 Dec 2018
MWB	SE187247.002	LB163332	06 Dec 2018	11 Dec 2018	03 Jan 2019	12 Dec 2018	03 Jan 2019	17 Dec 2018
MWC	SE187247.003	LB163332	06 Dec 2018	11 Dec 2018	03 Jan 2019	12 Dec 2018	03 Jan 2019	17 Dec 2018
MWD	SE187247.004	LB163332	06 Dec 2018	11 Dec 2018	03 Jan 2019	12 Dec 2018	03 Jan 2019	17 Dec 2018
MWE	SE187247.005	LB163332	06 Dec 2018	11 Dec 2018	03 Jan 2019	12 Dec 2018	03 Jan 2019	17 Dec 2018
Conductivity and TDS by Ca	lculation - Water							ME-(AU)-[ENV]AN1
Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MWA	SE187247.001	LB163287	06 Dec 2018	11 Dec 2018	03 Jan 2019	11 Dec 2018	03 Jan 2019	11 Dec 2018
MWB	SE187247.002	LB163287	06 Dec 2018	11 Dec 2018	03 Jan 2019	11 Dec 2018	03 Jan 2019	11 Dec 2018
MWC	SE187247.003	LB163287	06 Dec 2018	11 Dec 2018	03 Jan 2019	11 Dec 2018	03 Jan 2019	11 Dec 2018
MWD	SE187247.004	LB163287	06 Dec 2018	11 Dec 2018	03 Jan 2019	11 Dec 2018	03 Jan 2019	11 Dec 2018
MWE	SE187247.005	LB163287	06 Dec 2018	11 Dec 2018	03 Jan 2019	11 Dec 2018	03 Jan 2019	11 Dec 2018
Forms of Carbon							Method:	ME-(AU)-[ENV]AN1
Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MWA	SE187247.001	LB163424	06 Dec 2018	11 Dec 2018	13 Dec 2018	13 Dec 2018	13 Dec 2018	14 Dec 2018†
MWB	SE187247.002	LB163424	06 Dec 2018	11 Dec 2018	13 Dec 2018	13 Dec 2018	13 Dec 2018	14 Dec 2018†
MWC	SE187247.003	LB163424	06 Dec 2018	11 Dec 2018	13 Dec 2018	13 Dec 2018	13 Dec 2018	14 Dec 2018†
MWD	SE187247.004	LB163424	06 Dec 2018	11 Dec 2018	13 Dec 2018	13 Dec 2018	13 Dec 2018	14 Dec 2018†
MWE	SE187247.005	LB163424	06 Dec 2018	11 Dec 2018	13 Dec 2018	13 Dec 2018	13 Dec 2018	14 Dec 2018†
Metals in Water (Dissolved)	by ICPOES						Method:	ME-(AU)-[ENV]AN3
Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MWA	SE187247.001	LB163267	06 Dec 2018	11 Dec 2018	04 Jun 2019	11 Dec 2018	04 Jun 2019	11 Dec 2018
MWB	SE187247.002	LB163267	06 Dec 2018	11 Dec 2018	04 Jun 2019	11 Dec 2018	04 Jun 2019	11 Dec 2018
MWC	SE187247.003	LB163267	06 Dec 2018	11 Dec 2018	04 Jun 2019	11 Dec 2018	04 Jun 2019	11 Dec 2018
MWD	SE187247.004	LB163267	06 Dec 2018	11 Dec 2018	04 Jun 2019	11 Dec 2018	04 Jun 2019	11 Dec 2018
MWE	SE187247.005	LB163267	06 Dec 2018	11 Dec 2018	04 Jun 2019	11 Dec 2018	04 Jun 2019	11 Dec 2018
	52.57247.000	22.00207	30 200 2010	230 2010	5 . 53.1 £010	555 2010		
OC Pesticides in Water								ME-(AU)-[ENV]AN4
Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MWA	SE187247.001	LB163334	06 Dec 2018	11 Dec 2018	13 Dec 2018	12 Dec 2018	21 Jan 2019	14 Dec 2018
MWB	SE187247.002	LB163334	06 Dec 2018	11 Dec 2018	13 Dec 2018	12 Dec 2018	21 Jan 2019	14 Dec 2018
							04.1.0040	

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11 Dec 2018

11 Dec 2018

11 Dec 2018

13 Dec 2018

13 Dec 2018

13 Dec 2018

12 Dec 2018

12 Dec 2018

12 Dec 2018

21 Jan 2019

21 Jan 2019

21 Jan 2019

14 Dec 2018

17 Dec 2018

17 Dec 2018

Method: ME-(AU)-[ENV]AN101





# **HOLDING TIME SUMMARY**

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in Green when within suggested criteria or Red with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

#### pH in water (continued) Method: ME-(AU)-[ENV]AN101

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MWA	SE187247.001	LB163287	06 Dec 2018	11 Dec 2018	07 Dec 2018	11 Dec 2018†	07 Dec 2018	11 Dec 2018†
MWB	SE187247.002	LB163287	06 Dec 2018	11 Dec 2018	07 Dec 2018	11 Dec 2018†	07 Dec 2018	11 Dec 2018†
MWC	SE187247.003	LB163287	06 Dec 2018	11 Dec 2018	07 Dec 2018	11 Dec 2018†	07 Dec 2018	11 Dec 2018†
MWD	SE187247.004	LB163287	06 Dec 2018	11 Dec 2018	07 Dec 2018	11 Dec 2018†	07 Dec 2018	11 Dec 2018†
MWE	SE187247.005	LB163287	06 Dec 2018	11 Dec 2018	07 Dec 2018	11 Dec 2018†	07 Dec 2018	11 Dec 2018†

#### Total Phenolics in Water Method: ME-(AU)-[ENV]AN289

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MWA	SE187247.001	LB163323	06 Dec 2018	11 Dec 2018	03 Jan 2019	12 Dec 2018	03 Jan 2019	12 Dec 2018
MWB	SE187247.002	LB163323	06 Dec 2018	11 Dec 2018	03 Jan 2019	12 Dec 2018	03 Jan 2019	12 Dec 2018
MWC	SE187247.003	LB163323	06 Dec 2018	11 Dec 2018	03 Jan 2019	12 Dec 2018	03 Jan 2019	12 Dec 2018
MWD	SE187247.004	LB163323	06 Dec 2018	11 Dec 2018	03 Jan 2019	12 Dec 2018	03 Jan 2019	12 Dec 2018
MWE	SE187247.005	LB163323	06 Dec 2018	11 Dec 2018	03 Jan 2019	12 Dec 2018	03 Jan 2019	12 Dec 2018

Trace Metals (Dissolved)	in Water by ICPMS						Method:	ME-(AU)-[ENV]AN318
Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MWA	SE187247.001	LB163266	06 Dec 2018	11 Dec 2018	04 Jun 2019	11 Dec 2018	04 Jun 2019	11 Dec 2018
MWB	SE187247.002	LB163266	06 Dec 2018	11 Dec 2018	04 Jun 2019	11 Dec 2018	04 Jun 2019	11 Dec 2018
MWC	SE187247.003	LB163266	06 Dec 2018	11 Dec 2018	04 Jun 2019	11 Dec 2018	04 Jun 2019	11 Dec 2018
MWD	SE187247.004	LB163266	06 Dec 2018	11 Dec 2018	04 Jun 2019	11 Dec 2018	04 Jun 2019	11 Dec 2018
MWE	SE187247.005	LB163266	06 Dec 2018	11 Dec 2018	04 Jun 2019	11 Dec 2018	04 Jun 2019	11 Dec 2018

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# **SURROGATES**

SE187247 R0

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in Green when within suggested criteria or Red with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Water Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	MWA	SE187247.001	%	40 - 130%	68
	MWB	SE187247.002	%	40 - 130%	61
	MWC	SE187247.003	%	40 - 130%	67
	MWD	SE187247.004	%	40 - 130%	52
	MWE	SE187247.005	%	40 - 130%	50

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# **METHOD BLANKS**

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in Green when within suggested criteria or Red with an appended dagger symbol (†) when outside suggested criteria.

Acidity and Free CO2	Method: ME-(AU)-[ENV]AN140
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Sample Number	Parameter	Units	LOR	Result
LB163497.001	Acidity to pH 8.3	mg CaCO3/L	5	<5

#### Alkalinity Method: ME-(AU)-[ENV]AN135

Sample Number	Parameter	Units	LOR	Result
LB163537.001	Bicarbonate Alkalinity as CaCO3	mg/L	5	<5
	Carbonate Alkalinity as CaCO3	mg/L	1	<1
	Total Alkalinity as CaCO3	mg/L	5	<b>&lt;</b> 5
Ammonia Nitrogen by Discrete Analyser (Aquak	em)		Metho	od: ME-(AU)-[ENV]AN291
Sample Number	Parameter	Units	LOR	Result
LB163276 001	Ammonia Nitrogen, NH₂ as N	ma/l	0.01	<0.01

### Anions by Ion Chromatography in Water

# Method: ME-(AU)-[ENV]AN245

Sample Number	Parameter	Units	LOR	Result
LB163332.001	Fluoride	mg/L	0.1	<0.10
	Chloride	mg/L	1	<0.05
	Nitrate Nitrogen, NO3-N	mg/L	0.005	<0.005
	Sulfate, SO4	mg/L	1	<1.0
Conductivity and TDS by Calculation - War	ter		Metho	od: ME-(AU)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result
LB163287.001	Conductivity @ 25 C	μS/cm	2	<2
	Total Dissolved Solids (by calculation)	mg/L	2	<2

#### Forms of Carbon

### Method: ME-(AU)-[ENV]AN190

Sample Number	Parameter	Units	LOR	Result
LB163424.001	Total Organic Carbon as NPOC	mg/L	0.2	<0.2
LB163424.025	Total Organic Carbon as NPOC	mg/L	0.2	<0.2

#### Metals in Water (Dissolved) by ICPOES

### Method: ME-(AU)-[ENV]AN320

Sample Number	Parameter	Units	LOR	Result
LB163267.001	Calcium, Ca	mg/L	0.1	<0.1
	Magnesium, Mg	mg/L	0.1	<0.1
	Potassium, K	mg/L	0.2	<0.2
	Sodium, Na	mg/L	0.1	<0.1

# OC Pesticides in Water

# Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB163334.001	Hexachlorobenzene (HCB)	μg/L	0.1	<0.1
	Alpha BHC	μg/L	0.1	<0.1
	Lindane (gamma BHC)	μg/L	0.1	<0.1
	Heptachlor	μg/L	0.1	<0.1
	Aldrin	μg/L	0.1	<0.1
	Beta BHC	μg/L	0.1	<0.1
	Delta BHC	μg/L	0.1	<0.1
	Heptachlor epoxide	μg/L	0.1	<0.1
	Alpha Endosulfan	μg/L	0.1	<0.1
	Gamma Chlordane	μg/L	0.1	<0.1
	Alpha Chlordane	μg/L	0.1	<0.1
	p,p'-DDE	μg/L	0.1	<0.1
	Dieldrin	μg/L	0.1	<0.1
	Endrin	μg/L	0.1	<0.1
	Beta Endosulfan	μg/L	0.1	<0.1
	p,p'-DDD	μg/L	0.1	<0.1
	p,p'-DDT	μg/L	0.1	<0.1
	Endosulfan sulphate	μg/L	0.1	<0.1
	Endrin aldehyde	μg/L	0.1	<0.1
	Methoxychlor	μg/L	0.1	<0.1

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# **METHOD BLANKS**

SE187247 R0

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in Green when within suggested criteria or Red with an appended dagger symbol (†) when outside suggested criteria.

# OC Pesticides in Water (continued)

# Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB163334.001		Endrin ketone	μg/L	0.1	<0.1
		Isodrin	μg/L	0.1	<0.1
		Mirex	μg/L	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	92

#### **Total Phenolics in Water**

#### Method: ME-(AU)-[ENV]AN289

Sample Number	Parameter	Units	LOR	Result
LB163323.001	Total Phenols	mg/L	0.05	<0.05

#### Trace Metals (Dissolved) in Water by ICPMS

# Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB163266.001	Iron, Fe	μg/L	5	<5
	Manganese, Mn	μg/L	1	<1

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Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in Green when within suggested criteria or Red with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Acidity and Free CO2 Method: ME-(AU)-[ENV]AN140

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE187247.005	LB163497.008	Acidity to pH 8.3	mg CaCO3/L	5	38	38	28	0

#### Alkalinity Method: ME-(AU)-[ENV]AN135

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE187347.004	LB163537.013	Bicarbonate Alkalinity as CaCO3	mg/L	5	608.68448	602.16216	16	1
		Carbonate Alkalinity as CaCO3	mg/L	1	0	0	200	0
		Total Alkalinity as CaCO3	mg/L	5	608.68448	602.16216	16	1
SE187385.006	LB163537.015	Bicarbonate Alkalinity as CaCO3	mg/L	5	128.9752	120.6384	19	7
		Carbonate Alkalinity as CaCO3	mg/L	1	0	0	200	0
		Total Alkalinity as CaCO3	mg/L	5	128.9752	120.6384	19	7

#### Ammonia Nitrogen by Discrete Analyser (Aquakem) Method: ME-(AU)-[ENV]AN291

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE187246.003	LB163276.014	Ammonia Nitrogen, NH₃ as N	mg/L	0.01	0.18	0.19	20	2

#### Anions by Ion Chromatography in Water

### Method: ME-(AU)-[ENV]AN245

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE187249.005	LB163332.013	Sulfate, SO4	mg/L	1	1800	1800	15	1
SE187249.012	LB163332.021	Sulfate, SO4	mg/L	1	50	50	17	1

# Conductivity and TDS by Calculation - Water

# Method: ME-(AU)-[ENV]AN106

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE187247.001	LB163287.023	Conductivity @ 25 C	μS/cm	2	20000	19631.32	15	1
		Total Dissolved Solids (by calculation)	mg/L	2	12000	11778.792	15	1
SE187247.002	LB163287.024	Conductivity @ 25 C	μS/cm	2	15000	15418.03	15	1
		Total Dissolved Solids (by calculation)	mg/L	2	9100	9250.818	15	1
Forms of Carbon						Meth	od: ME-(AU)-	ENVJAN19

# Forms of Carbon

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE187239.008	LB163424.014	Total Organic Carbon as NPOC	mg/L	0.2	8.2	8.3	17	2

#### Metals in Water (Dissolved) by ICPOES

#### Method: ME-(AU)-[ENV]AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE187247.005	LB163267.010	Sodium, Na	mg/L	0.1	550	540	15	1

#### **Total Phenolics in Water**

#### Method: ME-(AU)-[ENV]AN289

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE187201.001	LB163323.004	Total Phenols	mg/L	0.05	0.25	0.23	36	10

# Trace Metals (Dissolved) in Water by ICPMS

# Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE187222.003	LB163266.014	Manganese, Mn	μg/L	1	36.024	35.798	18	1
SE187247.005	LB163266.020	Iron, Fe	μg/L	5	8	8	75	1
		Manganese, Mn	μg/L	1	<1	<1	158	0

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103

61

59.5

76 - 124



LB163537.002

# LABORATORY CONTROL SAMPLES

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in Green when within suggested criteria or Red with an appended dagger symbol (†) when outside suggested criteria.

Total Alkalinity as CaCO3

Alkalinity					N	lethod: ME-(AL	J)-[ENV]AN135
Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %

mg/L

# Ammonia Nitrogen by Discrete Analyser (Aquakem) Method: ME-(AU)-[ENV]AN291 Sample Number Parameter Units LOR Result Expected Criteria % Recovery % LB163276.002 Ammonia Nitrogen, NH₃ as N mg/L 0.01 2.4 2.5 80 - 120 97

# Anions by Ion Chromatography in Water Sample Number Parameter Units LOR Result Expected Criteria Recovery 8 LB163332.002 Fluoride mg/L 0.1 1.9 2 80 -120 97

Chl	loride	mg/L	1	20	20	80 - 120	98
Nitr	rate Nitrogen, NO3-N	mg/L	0.005	2.0	2	80 - 120	100
Sul	lfate, SO4	mg/L	1	19	20	80 - 120	96
Conductivity and TDS by Calculation - Water						Method: ME-(AU)	)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB163287.002	Conductivity @ 25 C	μS/cm	2	310	303	90 - 110	101
	Total Dissolved Solids (by calculation)	mg/L	2	180	181	85 - 115	101

#### Forms of Carbon Method: ME-(AU)-[ENV]AN190 Sample Number Expected Criteria % Recovery % Parameter Units LOR Result LB163424.002 Total Organic Carbon as NPOC 0.2 19 20 80 - 120 mg/L 95 LB163424.026 0.2 20 20 98

# LB163424.026 Total Organic Carbon as NPOC mg/L 0.2 20 20 80 - 120 98 Metale in Weter (Dissolved) by ICPOES

Wetals III Water (Dissolved) by	101 020					vioutou. IVIL-()	(O)-[L144]/-(14020
Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB163267.002	Calcium, Ca	mg/L	0.1	2.0	2	80 - 120	99
	Magnesium, Mg	mg/L	0.1	2.0	2	80 - 120	100
	Potassium, K	mg/L	0.2	19	20	80 - 120	95
	Sodium, Na	mg/L	0.1	1.9	2	80 - 120	97

OC Pesticides in Water						N	/lethod: ME-(Al	J)-[ENV]AN42
Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
		Heptachlor	μg/L	0.1	0.2	0.2	60 - 140	89
		Aldrin	μg/L	0.1	0.2	0.2	60 - 140	89
		Delta BHC	μg/L	0.1	0.2	0.2	60 - 140	89
		Dieldrin	μg/L	0.1	0.2	0.2	60 - 140	93
		Endrin	μg/L	0.1	0.2	0.2	60 - 140	93
		p,p'-DDT	μg/L	0.1	0.2	0.2	60 - 140	88
Surrog	gates	Tetrachloro-m-xylene (TCMX) (Surrogate)	μg/L	-	0.10	0.15	40 - 130	69

pH in water						Method: ME-(A	U)-[ENV]AN101
Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB163287.003	pH**	No unit	-	7.4	7.415	98 - 102	100

Total Phenolics in Water					N	Method: ME-(A	U)-[ENV]AN289	
Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %	
LB163323 002	Total Phenole	ma/l	0.05	0.26	0.25	80 - 120	103	

Trace Metals (Dissolved) in Water by ICPMS         Method: ME-(AU)-[ENV]AN318           Sample Number         Parameter         Units         LOR         Result         Expected         Criteria %         Recovery %           LB163266.002         Iron, Fe         µg/L         5         21         20         80 - 120         105						U)-[ENV]AN318	
Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB163266.002	Iron, Fe	µg/L	5	21	20	80 - 120	105
	Manganese, Mn	μg/L	1	20	20	80 - 120	99

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# **MATRIX SPIKES**

SE187247 R0

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in Green when within suggested criteria or Red with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

### Ammonia Nitrogen by Discrete Analyser (Aquakem)

Method: ME-(AU)-[ENV]AN291

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE187213A.00	LB163276.004	Ammonia Nitrogen, NH₃ as N	mg/L	0.01	5.1	2.9	2.5	89

#### Forms of Carbon

Method: ME-(AU)-[ENV]AN190

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE187109A.00	LB163424.004	Total Organic Carbon as NPOC	mg/L	0.2	70	17	50	105

### Total Phenolics in Water

Method: ME-(AU)-[ENV]AN289

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE187261.001	LB163323.013	Total Phenois	mg/L	0.05	0.25	0.00586	0.25	96

#### Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE187133.001	LB163266.004	Iron, Fe	μg/L	5	35	16	20	93

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# **MATRIX SPIKE DUPLICATES**

SE187247 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than  $\,200$  it is displayed as  $\,200$ .

RPD is shown in Green when within suggested criteria or Red with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

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# FOOTNOTES

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: <a href="https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf">https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf</a>

- \* NATA accreditation does not cover the performance of this service.
- \*\* Indicative data, theoretical holding time exceeded.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
  QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- 2 RPD failed acceptance criteria due to sample heterogeneity.
- 3 Results less than 5 times LOR preclude acceptance criteria for RPD.
- Recovery failed acceptance criteria due to matrix interference.
- ® Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- © LOR was raised due to sample matrix interference.
- ① LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ® Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- Recovery failed acceptance criteria due to sample heterogeneity.
- © LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to Analytical Report comments for further information.

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# Calibration Report

#### Instrument Details:

Instrument Model:

Full Scale Pressure Range:

Serial Number:

Manufacture Date:

SMARTROLL™ MP

0 - 250 ft (0 - 76 m)

588881

2018-05-17

# **Calibration Details:**

Calibration Result:

Calibration Date:

Nominal Range of Applied Temperature:

Temperature Accuracy Specification:

Nominal Range of Applied Pressure:

Pressure Accuracy Specification:

Conductivity Calibration:

Rugged Dissolved Oxygen Calibration:

pH/ORP Check:

**PASS** 

2018-05-03

0 C to +50 C

+/-0.1 C from 0 C to +50 C

0 - 250 feet

+/-0.3% FS

Pass with a cell constant of 1.00.

Pass with an optical phase difference of +/- 2 degrees.

Pass with mV readings of +/- 5 mV.

#### Post-Calibration Check:

Parameter	Applied (PSI)	Reported (PSI)	Deviation (PSI)
Pressure	7	7.002	-0.002
Pressure	65	65.025	-0.025
Pressure	123	123.029	-0.029
Pressure	84.334	84.369	-0.035
Pressure	45.667	45.695	-0.028
Pressure	7	7.025	-0.025

# Calibration Procedures and Equipment Used:

Automated calibration procedures used.

Calibrated in 900, 9000, & 90000 µS/cm conductivity standards.

Manu MENSOR Model 8100 Serial No 570135

Manu HART Model 1504 Serial No B42917

Manu Fluke Model 5665 Serial No B431401

# Notes:

- 1. Standards used in the calibration are traceable to the National Institute of Standards and Technology.
- 2. This calibration report shall not be reproduced, except in full, without the written approval of In-Situ, Inc.
- 3. A calibration interval of 12 to 18 months is recommended.
- 4. The post-calibration data is collected at nominal +15C.
- 5. 1.0 PSI = 6.894757 kPa.

**ATTACHMENT 3** – DATA LOG

																	0.024 (III)	0.055 (pH>															
å	Threshold Crite	ria NA	NA	NA NA	0.3		0.00001	NA 6.5	5–8 NA	0.9	0.7 NA	4	0.32			0.015	0.013 (V)	6.5)	NA 0.	.0002 0.09	0.0014	0.001	NA 0.003	4 0.0006	0.008 0.26	0.95	0.18	.08 NA	NA .	6500 0.0	0.03	0.0003 0.000	03 0.016 0.00002
	Units	mg/L	mg/L n	ng/L mg,	L mg/L	mg/L mg/		mg/L p	iH mg/L	mg/L	mg/L mg/L	mg/L S		μS/cm mg/	S.		mg/L	mg/L	mg/L n	ng/L mg/L	mg/L	mg/L	mg/L mg/l ≘	L mg/L	mg/L mg/	L mg/L	mg/L n	ng/L mg/l	L mg/L	mg/L mg	g/L mg/L 음	mg/L mg	L mg/L mg/L
		Ę	niky	de ide	-	Magnesium	nlorin s (OCP	E .	_ §	onia	e e e	ic cart	enolic	ical ity (EC solvec	al oxy	hate	% ≡	ië B	Ę	<u> </u>	ja Ja	N E	, (tota	λ	· -	sue	aue	nzene	rether E)	1- ethan A) oe the	E)	loride	÷ %
	Analytes	Calci	٩lkali	Chlor	2 €	lagne	a noch ticides	otass	Sodit	Ammo	Nitra	organ	al phe	Electric ductive all dissertings	solic emica dema	hospl	senic I	j <u>i</u>	Barit	Cobi	Сорр	romit	mium Lea	Mero	Zin	Benze	Tolue	hylber tota	achlo.	hloro (TC/	(PCE	yl Ch	PAH
						Σ ≥	Org	-				otal (	Tot	T of	Bioch	•	Ars	4				5	Chro					盘	Tetra	Tric	1,2-D	₹	
FRM		.≱	.≱	<b>≥</b> ≥	.≱	<b>≱</b> ≱	≱	.≱ .	<b>≱</b> ≱	.≱	<b>≱ ≱</b>		.≱	<u>≯</u>																			
	Monitoring frequency	arter	iarter	iarter iarter	iarter	iarter	iarter	arter	arter arter	arter	iarter	iarter	iarter	ıarter rearly	rearly	rearly	/early	rearly	rearly	rearly	rearly	rearly	rearly	rearly	Yearly	rearly	rearly	rearly	rearly	rearly	(early	rearly	/early
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ring II ical ort	ent																																
Vel Wel Chemi	Somm																													CVCs/VOCCs			
MWA 135493 6/10/2	015	620	440 7	7700 0.1	. ND	1200 0.02	8 ND	3.2 6	8 2400	0.006	<b>0.76</b> 66	4	ND	19000 N/A	A N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A	N/A	N/A N/A	N/A	N/A N/A	. N/A	N/A	N/A N/A	N/A	N/A N/	/A N/A	N/A N/	N/A N/A
MWB 135493 6/10/2	015	650	370 6	5300 0.3	ND	840 0.00	8 ND	2.6 6	.9 1900	ND	1.3 100	5	ND	16000 N/A		N/A	N/A	N/A	N/A	N/A N/A	N/A	N/A	N/A N/A	N/A	N/A N/A		N/A	N/A N/A	N/A	N/A N/	/A N/A	N/A N/	N/A N/A
MWC 135493 6/10/2 MWD 135493 6/10/2		62 150		690 0.4 2800 0.3		130 <b>2.2</b> 220 0.46			.1 670 .6 1700	ND 310	0.17 350 ND 66	18 330	ND ND	3900 N/A			N/A N/A	N/A N/A		N/A N/A N/A N/A	N/A N/A		N/A N/A		N/A N/A			N/A N/A		N/A N/	,	N/A N/	,
MWE 135493 6/10/2		75	700	860 0.5	0.015	89 0.44	l ND	1.7 7	.4 730	0.006	ND 140	8	ND	4000 N/A	A N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A	N/A	N/A N/A	N/A	N/A N/A	N/A	N/A	N/A N/A	N/A	N/A N/	/A N/A	N/A N/	,
MWA SE148082 14/01/ MWB SE148082 14/01/		630 650		7800 NE		1100 0.01 810 0.01			7 2200 7 1700		<b>1.3</b> 69		0.00	23000 1600 18000 1500			0.001	ND ND		ND ND	ND ND		ND ND 0.001 ND		0.009 ND 0.012 ND			ND ND		ND N		ND NI	ND ND
MWC SE148082 14/01/	1016	56	750	630 0.3	4 ND	110 4.9	ND	0.9 7	.2 590	0.12	ND 300	21	ND	4300 240	0 ND	0.19	0.003	ND	0.047	ND 0.011	0.001	ND	ND ND	ND	ND ND	ND	ND	ND ND	ND	ND N	D ND	ND NE	ND ND
MWD SE148082 14/01/ MWE SE148082 14/01/		170 80		1000 0.3 850 0.3		110 0.87 79 0.23			.4 690		ND 18 ND 200	140 10	0.47	5800 250 4600 220			0.017	ND ND		ND 0.004 ND 0.002			0.031 ND ND ND		0.026 34 ND ND			.023 0.035 ND ND		ND N		0.0059 NI ND NI	
MWA 144481 7/04/2	016	700	460 7	7300 0.1	. ND	1300 0.00	9 ND	3.1	7 2800	0.006	0.62 43	3	ND	18000 N/A	A N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A	N/A	N/A N/A	N/A	N/A N/A	N/A	N/A	N/A N/A	N/A	N/A N/	/A N/A	N/A N/	N/A N/A
MWB 144481 7/04/2 MWC 144481 7/04/2		720 290		5300 0.3 3700 0.3		880 0.00 420 <b>3.1</b>			.1 2300		1.3 61 4.9 220	9	ND ND	15000 N/A 9600 N/A			N/A N/A	N/A N/A		N/A N/A N/A N/A	N/A N/A		N/A N/A		N/A N/A			N/A N/A		N/A N/		N/A N/	N/A N/A
MWD 144481 7/04/2		160		2600 0.3		230 0.45			.7 1900		ND 35		ND	9600 N/A			N/A	N/A	-	N/A N/A		-	N/A N/A	,	N/A N/A			N/A N/A		N/A N/		N/A N/	,
MWE 144481 7/04/2 MWA SE154534 6/07/2		67 620		640 0.5 7900 0.1		72 0.24 1200 0.02			.6 840 .1 2200		0.01 160 0.36 35		ND 0.03	3200 N/A 21000 N/A			N/A N/A	N/A N/A	-	N/A N/A N/A N/A	N/A N/A		N/A N/A		N/A N/A			N/A N/A N/A N/A		N/A N/		N/A N/	
MWB SE154534 6/07/2		650		5100 0.2	4 0.008	820 0.00		3.1 7.	.1 1700	0.10	<b>0.95</b> 69	7.6	ND	16000 N/A	A N/A		N/A	N/A	N/A	N/A N/A	N/A		N/A N/A	N/A	N/A N/A	N/A		N/A N/A	. N/A	N/A N/		N/A N/	
MWC SE154534 6/07/2 MWD SE154534 6/07/2		55 250		610 0.2 1000 0.1		93 <b>5.40</b> 120 0.96			.4 580	0.05 80	0.15 220 ND 140		ND 0.01	3300 N/A 5200 N/A			N/A N/A	N/A N/A	-	N/A N/A N/A N/A	N/A N/A		N/A N/A		N/A N/A			N/A N/A N/A N/A		N/A N/		N/A N/	N/A N/A
MWE SE154534 6/07/2	016	57	970	470 0.3	0.021	66 0.43	0 ND	1.6 7	.6 610	0.04	ND 110	16	ND	3100 N/A	A N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A	N/A	N/A N/A	N/A	N/A N/A	N/A	N/A	N/A N/A	N/A	N/A N/	/A N/A	N/A N/	N/A N/A
MWA SE157863 6/10/2 MWB SE157863 6/10/2	010	580 600		7400 0.1 5000 0.2		1100 0.020 830 0.000			.8 2100 .9 1800		0.50 37 1.1 69			21000 1200 17000 1000		1471	NA NA	NA NA		NA NA	NA NA		NA NA		NA NA			NA NA		NA N		NA NA	NA NA
MWC SE157863 6/10/2		67		770 0.3		120 5.60			.1 620	0.04	ND 180		ND	3900 240	0 NA		NA	NA	NA	NA NA	NA		NA NA		NA NA			NA NA		NA N		NA NA	NA NA
MWD SE157863 6/10/2 MWE SE157863 6/10/2		210 61		1600 0.2 560 0.4		150 0.600 67 0.110			.3 1000 .3 650		ND 110 ND 120		0.07	7800 470 3600 210			NA NA	NA NA		NA NA	NA NA		NA NA		NA NA			NA NA		NA N		NA NA	
MWA SE160904 12/1/2 MWB SE160904 12/1/2		600 590		3200 NE		1200 0.004 850 ND			.3 2100		0.13 38 0.59 70			19000 1400 16000 1300			NA NA	ND ND		ND ND	ND ND		0.001 ND 0.001 ND		0.008 ND 0.007 ND			ND ND		ND N	D ND	ND NI	
MWC SE160904 12/1/2		44		880 0.1		89 7.80			.6 510		ND 200		ND	4200 240			NA NA	0.006		ND 0.013			ND ND		ND ND			ND ND		ND N		ND NE	ND ND
MWD SE160904 12/1/2 MWE SE160904 12/1/2		260 70		2800 NE 580 0.1		230 0.850 76 0.27			.5 1400 .8 610		ND 330 ND 130			11000 620 3500 210			NA NA	0.014 ND		ND 0.017			0.03 ND ND ND		0.035 3 0.013 ND	0.002 ND		0034 0.04 ND ND		ND N		0.0004 NE	
MWA SE164082 6/4/2	-	570		7700 0.1							0.24 39			21000 N/A			N/A	N/A		N/A N/A	N/A		N/A N/A		N/A N/A			N/A N/A		N/A N/		N/A N/	N/A N/A
MWB SE164082 6/4/2 MWC SE164082 6/4/2		580		5000 0.2 520 0.4		760 0.009 68 <b>7.30</b>		2.8 6	.6 1700 .1 540		0.71 77 ND 120	6.8 23		17000 N/A 2900 N/A			N/A N/A	N/A N/A		N/A N/A N/A N/A	N/A N/A		N/A N/A		N/A N/A			N/A N/A		N/A N/		N/A N/	
MWD SE164082 6/4/2					3 0.920				.3 1200	210	ND 310	150	0.19	9400 N/A			N/A	N/A		N/A N/A			N/A N/A	- '	N/A N/A			N/A N/A	- '	N/A N/		N/A N/	
MWE SE164082 6/4/2 MWA SE167897 6/7/2		34 640		360 0.5 7900 0.1	2 0.006 2 ND	67 <b>7.30</b> 1200 0.00			.3 530 7 2200		ND 110 0.24 42			3200 N/A 21000 N/A			N/A N/A	N/A N/A	,	N/A N/A N/A N/A	N/A N/A		N/A N/A		N/A N/A			N/A N/A		N/A N/	/A N/A	N/A N/	N/A N/A N/A N/A
MWB SE167897 6/7/2			390 6						7 2200		0.24 42 0.83 75			16000 N/A			N/A	N/A		N/A N/A			N/A N/A		N/A N/A			N/A N/A			/A N/A	N/A N/	
MWC SE167897 6/7/2 MWD SE167897 6/7/2		26 150	640 : 2500 :								0.005 90 ND 100			2400 N/A 12000 N/A			N/A N/A	N/A N/A	-	N/A N/A N/A N/A	N/A N/A		N/A N/A		N/A N/A			N/A N/A		N/A N/		N/A N/	N/A N/A N/A N/A
MWE SE167897 6/7/2		60		340 0.5		65 0.14			.5 570		ND 99			3100 N/A			N/A	N/A	-	N/A N/A	N/A		N/A N/A		N/A N/A		N/A	N/A N/A	N/A	N/A N/		N/A N/	N/A N/A
MWA SE171359 6/10/2 MWB SE171359 6/10/2	-	600		7600 0.1 5000 0.2		790 0.01			.6 2000 .7 1600		0.41 43 0.75 70	5	ND ND	20000 N/A		N/A N/A	N/A N/A	N/A N/A		N/A N/A N/A N/A	N/A N/A		N/A N/A		N/A N/A		-	N/A N/A		N/A N/		N/A N/	N/A N/A
MWC SE171359 6/10/2	017	35	720	500 0.4	1 ND	73 4.60	) ND	0.9 7	.1 490	0.41	ND 110		ND	3000 N/A	A N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A	N/A	N/A N/A	N/A	N/A N/A	N/A	N/A	N/A N/A	N/A	N/A N/	/A N/A	N/A N/	,
MWD SE171359 6/10/2 MWE SE171359 6/10/2		190 56		3700 0.3 310 0.5		260 0.28 55 0.55			.2 1800		ND 240 ND 110		0.03 ND	13000 N/A 3000 N/A		-	N/A N/A	N/A N/A		N/A N/A N/A N/A			N/A N/A		N/A N/A		-	N/A N/A		N/A N/		N/A N/	
MWA SE174394 12/1/2	018	590	490 7	7200 0.1	3 ND	1200 0.01	0 ND	4.9 7	.0 2000	0.12	ND 40	5.6	<0.01	20000 1800	00 ND	0.06	0.001	ND	0.62 0.	.0002 ND	ND	0.006	0.002 ND	ND	0.009 ND	ND	ND ND	ND ND	ND	ND N	D ND	ND NI	ND ND
MWB SE174394 12/1/2 MWC SE174394 12/1/2		600 200		5400 0.2 2400 0.2	4 ND 5 ND				.0 1700		ND 66 1.7 110			16000 1400 8700 530		ND ND	0.001 ND	ND 0.01		ND ND ND 0.024			0.002 ND ND ND		ND ND		ND ND	ND ND			D ND	ND NI	ND ND ND ND
MWD SE174394 12/1/2	018 leachate	160	2400 3	3100 0.3	1.100	270 0.29	ND ND	220 7	.7 1900	330	ND 93	340	0.03	13000 710	0 29	0.06	0.01	ND	1.10	ND 0.032	ND	0.006	0.050 ND	ND	0.012 0.00		0.0012 0	.027 0.09	7 ND	ND N	D ND	ND NI	
MWE SE174394 12/1/2 MWA SE177839 10/4/2		56 640		280 0.4 7100 0.1		55 0.24 1200 0.02			.4 520 .9 2100	0.04	ND 91 ND 41		ND 0.02	3000 170 21000 1200			0.006 N/A	ND N/A		.0002 0.008 N/A N/A			ND ND N/A N/A		ND ND N/A N/A			ND ND		ND N N/A N/	D ND /A N/A	ND NI N/A N/	
MWB SE177839 10/4/2	018	650	390 5	5700 0.2	B ND	810 0.01	. ND	3.6 7.	.2 1700	0.09	0.46 70	4.8	<0.01	16000 990	0 N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A	N/A	N/A N/A	N/A	N/A N/A	N/A	N/A	N/A N/A	N/A	N/A N/	/A N/A	N/A N/	N/A N/A
MWC SE177839 10/4/2 MWD SE177839 10/4/2		270 120		3200 0.3 3600 0.3	1 ND 4 <b>1.100</b>	440 <b>15.0</b> 0 290 0.18		1.8 6 200.0 7	.9 1400 .7 1900		2.5 130 ND 110			11000 650 14000 850		-	N/A N/A			N/A N/A N/A N/A			N/A N/A		N/A N/A			N/A N/A N/A N/A		N/A N/		N/A N/	
MWE SE177839 10/4/2	018	59	1200	280 0.5	5 ND	53 0.14	ND ND	1.2 7	.4 550	0.07	ND 85	7.9	<0.01	3200 N/A	A N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A	N/A	N/A N/A	N/A	N/A N/A	N/A	N/A	N/A N/A	N/A	N/A N/	/A N/A	N/A N/	N/A N/A
MWA SE181445 12/7/2 MWB SE181445 12/7/2		590 590		7300 0.1 5600 0.2		1100 0.01 720 0.00			.7 1900 .9 1500		ND 42 ND 74			19000 N/A 15000 N/A		-	N/A N/A	N/A N/A		N/A N/A N/A N/A	_	-	N/A N/A N/A N/A		N/A N/A		-	N/A N/A N/A N/A		N/A N/		N/A N/	,
MWC SE181445 12/7/2	018	350			0.019	490 <b>9.1</b>	ND	2.6 6.	.7 1400	0.09	0.95 140	6.5		12000 N/A		N/A	N/A	N/A	N/A	N/A N/A	N/A	N/A	N/A N/A	N/A	N/A N/A	N/A	N/A	N/A N/A	N/A	N/A N/		N/A N/	
MWD SE181445 12/7/2 MWE SE181445 12/7/2		96 56		3300 0.2 270 0.5					.6 1700 .4 530			320 6		13000 N/A 2900 N/A			N/A N/A		N/A				N/A N/A N/A N/A		N/A N/A			N/A N/A N/A N/A			/A N/A /A N/A	N/A N/	
MWA SE187247 6/12/2	018	560			4 ND	1100 0.01	. ND	4.4 6	.7 2000	0.02	0.25 49	2.6		20000 N/A	A N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A	N/A	N/A N/A	N/A	N/A N/A	N/A	N/A	N/A N/A	N/A	N/A N/		N/A N/	
MWB SE187247 6/12/2 MWC SE187247 6/12/2		550 350			7 ND 2 ND	670 0.000 500 <b>6.5</b>					0.51 76 2.2 160	4.2 8.8		15000 N/A 13000 N/A						N/A N/A N/A N/A				N/A N/A	N/A N/A		N/A N/A				/A N/A /A N/A	N/A N/	
MWD SE187247 6/12/2 MWE SE187247 6/12/2		120				240 0.19 55 ND		220 7			ND 59			14000 N/A				N/A	N/A	N/A N/A	N/A			N/A					N/A		/A N/A		N/A N/A
NIWE SE18/24/ 6/12/2	NT0	55	1200	o∪ 0.5	0.008																						N/A	N/A N/A	N/A	N/A N/	M N/A	N/A N/	N/A N/A
						*As MW	/D is within the p	erched landfill le	eachate water tak	ole, the Thresho	ld Criteria are on	y applicable a	indicators of	general water qu	uality for con	nparison to the	wells surround	ing the landfill.	. Exceedances	of the Threshold	d Criteria for M	WD are expect	ed and do not in	dicate contamir	ation is leaving the	site.							

4			Threshold Criteria				0.3	-	1.9	0.00001	L - 6	5.5 <b>–</b> 8	-	0.9	0.7 -	4	0.32	-			0.015	0.024 (III) 0.013 (V)	0.055 (pH> 6.5)		0.0002	0.09 0	0.0014	0.001	-	0.0034	0.0006	0.008	0.26	0.95 0.1	8 0.08		650	0 0.0	5 0.03	0.0003	0.00003	0.016	0.00002
			Units	mg/L mg/	L mg/L	. mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	pH m	ng/L r	mg/L	mg/L mg/	L mg/L	mg/L	μS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L ı	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L mg	/L mg/L	mg/L mg	/L mg	/L mg/	L mg/L	mg/L	mg/L	mg/L	mg/L
	DN	<b>1</b>	Analytes	Calcium Alkalinity	Chloride	Fluoride	Iron	Magnesium	Manganese	Organochlorine pesticides (OCP)	Potassium	표	Sodium	Ammonia	Nitrate Sulfate	Total organic carbon	Total phenolics	Electrical conductivity (EC)	Total dissolved solids	Biochemical oxygen demand	Phosphate	Arsenic III & V	Aluminium	Barium	Cadmium	Cobalt	Copper	Chromium VI	Chromium (total)	Lead	Mercury	Zinc	HAT	Benzene	Ethylbenzene	total Tetrachlorethen	e (TCE) 1,1,1- Trichloroethane	(TCA) Tetrachloroethe	ne (PCE) 1,2- Dichloroethene	Vinyl Chloride	PCBs	PAHs	OPPs
1		1	Monitoring frequency	Quarterly Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly Quarterly	Quarterly	Quarterly	Quarterly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly
Monitoring Well	Chemical Report	Date Sampled	Comment																																		CVCs/\	/OCCs					
MWA	135493	6/10/2015		620 440	7700	0.1	ND	1200	0.028	ND	3.2	6.8 2	2400 0	0.006	<b>0.76</b> 66	4	ND	19000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/	A N/A	N/A N/	A N/	A N//	A N/A	N/A	N/A	N/A	N/A
MWA	SE148082	14/01/2016		630 430	7800	ND	ND	1100	0.01	ND	4	7 2	2200	0.2	<b>0.24</b> 34	4.2	0.25	23000	16000	ND	0.22	0.001	ND	0.77	ND	ND	ND	ND	ND	ND	ND	0.009	ND	ND NI	O ND	ND NI	D NE	O ND	O ND	ND	ND	ND	ND
MWA	144481	7/04/2016		700 460	7300	0.1	ND	1300	0.009	ND	3.1	7 2	2800 0	0.006	<b>0.62</b> 43	3	ND	18000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/	A N/A	N/A N/	A N/	A N//	A N/A	N/A	N/A	N/A	N/A
MWA	SE154534	6/07/2016		620 460	7900	0.12	0.021	1200	0.021	ND	3.7	7.1 2	2200	0.14	0.36 35	6.1	0.03	21000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/	A N/A	N/A N/	'A N/	A N/A	A N/A	N/A	N/A	N/A	N/A
MWA	SE157863	6/10/2016		580 430	7400	0.15	ND	1100	0.020	ND	4.4	6.8 2	2100	0.14	0.50 37	6.2	0.22	21000	12000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/	A N/A	N/A N/	A N/	A N/A	A N/A	N/A	N/A	N/A	N/A
MWA	SE160904	12/01/2017		600 460	8200	ND ND	ND	1200	0.004	ND	5.6	7.3 2	2100	0.13	0.13 38	3.9	0.02	19000	14000	ND	0.059	NA	ND	0.59	ND	ND	ND	0.005	0.001	ND	ND	0.008	ND	ND NI	O ND	ND NI	ли с	) NE	O ND	ND	ND	ND	ND
MWA	SE164082	6/4/2017		570 450	7700	0.14	ND	1100	0.006	ND	3.1	6.8 2	2200	0.14	0.24 39	6.4	0.16	21000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/	A N/A	N/A N/	A N/	A N/A	A N/A	N/A	N/A	N/A	N/A
MWA	SE167897	6/7/2017		640 470	7900	0.12	ND	1200	0.007	ND	4.3	7 2	2200	0.07	0.24 42	8	ND	21000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/	A N/A	N/A N/	'A N/A	A N/A	A N/A	N/A	N/A	N/A	N/A
MWA	SE171359	6/10/2017		600 470	_	_				ND	4.9			0.42	0.41 43	5	ND	20000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/	A N/A	N/A N/	A N/	A N/A	A N/A	N/A	N/A	N/A	N/A
MWA	SE174394	12/1/2018		590 490	_	0.13		1200		ND	4.9		2000	0.12	ND 40	5.6	ND	20000	18000	_	0.06	NR	ND	0.62	0.0002	ND	ND	0.006	0.002	ND	ND	0.009		ND NI	_	ND NE	D NE		_	ND	ND	ND	ND
MWA	SE177839	10/4/2018		640 490	7100	0.13	ND	1200	0.02	ND	4.4	6.9 2	2100	0.16	ND 41	3.6	0.02	21000	12000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/	A N/A	N/A N/A	'A N/	A N/A	A N/A	N/A	N/A	N/A	N/A
MWA	SE181445	12/7/2018		590 480	_	0.14		1100		ND	4.4	6.7 1		0.16	ND 42	_	ND	19000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/	A N/A	N/A N/	'A N/			-	N/A	N/A	N/A
MWA	SE187247	6/12/2018		560 470	6600	0.14	ND	1100	0.01	ND	4.4	6.7 2	2000	0.02	0.25 49	2.6	ND	20000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/	A N/A	N/A N/	A N/	A N/A	A N/A	N/A	N/A	N/A	N/A

		$\Box$	Threshold Criteria		-		-	0.3		1.9	0.00001	- 6	5-8 -	0.9	0.7			0.32			- (	.015	0.024 ( (III) 013 (V)	pH>		.0002 (	0.09 0.0	0014	0.001		0.0034 (	0.0006	0.008	0.26 (	.95 0	18 0.0	8 -		6500	0.0	5 0.03	0.0003	0.00003	0.016	0.0000
			Units	mg/L	mg/L	mg/L i	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	oH mg	/L mg/	mg/L	mg/L	mg/L	mg/L	μS/cm	mg/L	mg/L r	ng/L i	mg/L	ng/L n	ng/L n	mg/L n	mg/L m	ng/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L n	ng/L m	g/L mg	/L mg/	L mg/L	mg/l	L mg/	L mg/L	mg/L	mg/L	mg/L	mg/L
E	RN	<b>∄</b> ∕1	Analytes	Calcium	Alkalinity	Chloride	Fluoride	Iron	Magnesium	Manganese	Organochlorine pesticides (OCP)	Potassium	Hd Sodium	Ammonia	Nitrate	Sulfate	Total organic carbon	Total phenolics	conductivity (EC)	Total dissolved solids	Biochemical oxygen demand	Phosphate	Arsenic III & V	Aluminium	Barium	Cadmium	Cobalt	Copper	Chromium VI	Chromium (total)	Lead	Mercury	Zinc	ТРН	Benzene	Toluene Ethylbenzene	total	Tetrachlorethen e (TCE)	1,1,1- Trichloroethane	(TCA) Tetrachloroethe	ne (PCE) 1,2- Dichloroethene	Vinyl Chloride	PCBs	PAHS	OPPs
			Monitoring frequency	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly
Monitoring Well	Chemical Re port	Date Sampled	Comment																																				CVCs/VO	)CCs					
MWB	135493	6/10/2015		650	370	6300	0.3	ND	840	0.008	ND	2.6	5.9 190	00 ND	1.3	100	5	ND	16000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A I	N/A N	/A N/.	A N/A	A N/A	N/A	N/A	A N/A	N/A	N/A	N/A	N/A
MWB	SE148082	14/01/2016		650	370	6000	ND	ND	810	0.012	ND	3.5	7 170	0 0.15	1.3	69	7	0.31	18000	15000	ND	0.13 (	0.002	ND (	0.62	ND	ND I	ND	ND	0.001	ND	ND	0.012	ND	ND I	ID NE	O NE	ND.	ND	ND	ND.	ND	ND	ND	ND
MWB	144481	7/04/2016		720	380	6300	0.3	0.02	880	0.007	ND	2.6	7.1 230	00 ND	1.3	61	4	ND	15000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A I	N/A N	/A N/	A N/A	A N/A	N/A	N/A	A N/A	N/A	N/A	N/A	N/A
MWB	SE154534	6/07/2016		650	390	6100	0.24	0.008	820	0.008	ND	3.1	7.1 170	0.10	0.95	69	7.6	ND	16000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A I	N/A N	/A N/.	A N/A	A N/A	N/A	N/A	A N/A	N/A	N/A	N/A	N/A
MWB	SE157864	6/10/2016		600			0.22	0.006	830	0.008	ND	3.6	5.9 180	0.09	1.1			0.14	17000	10000	N/A	N/A	N/A	N/A	N/A	N/A	N/A 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A I	V/A N	/A N/	A N/A	A N/A	N/A	N/A	A N/A	N/A	N/A	N/A	N/A
MWB	SE160904	12/01/2017		590	380	6300	ND	ND	850	ND	ND	5	7.2 170	0.10	0.59	70	5	0.04	16000	13000	ND (	0.017	NA	ND (	0.55	ND	ND I	ND	ND	0.001	ND	ND	0.007	ND	ND N	ID NE	O NE	ND.	ND	ND	) ND	ND	ND	ND	ND
MWB		6/4/2017		580		6000	0.27	ND	760	0.009	ND	2.8	5.6 170	0.09	0.71	77	6.8	0.02	17000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N	/A N/.	A N/A	N/A	N/A	N/A	A N/A	N/A	N/A	N/A	N/A
	SE167897	6/7/2017		640	390	6000			820	0.01	ND	4	7 180	0.21	0.83	75	8.2	ND	16000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N	/A N/.	A N/A	N/A	N/A	N/A	A N/A	N/A	N/A	N/A	N/A
MWB	SE171359	6/10/2017		610	380	6000	0.26	0.005	790	0.01	ND	4.1	5.7 160	0.09	0.75	70	6	ND	16000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N	/A N/.	A N/A	A N/A	N/A	N/A	A N/A	N/A	N/A	N/A	N/A
MWB	SE174394	12/1/2018		600	420	5400	0.24	<5	810	0.005	<0.1	3.6	7.0 170	0.09	<0.1	66	6.2	<0.01	16000	14000	ND	ND	NR	ND (	0.54	ND	ND I	ND I	0.004	0.002	ND	ND	ND	ND	ND N	ID NE	) NE	ND.	ND	ND	ND.	ND	ND	ND	ND
MWB	SE177839	10/4/2018		650	390	5700	0.28	ND	810	0.01	ND	3.6	7.2 170	0.09	0.46	70	4.8	<0.01	16000	9900	N/A	N/A	N/A	N/A	N/A	N/A	N/A 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N	/A N/	A N/A	N/A	N/A	N/A	A N/A	N/A	N/A	N/A	N/A
MWB	SE181445	12/7/2018		590	400	5600	0.26	0.021	720	0.007	ND	3.6	5.9 150	0.08	ND	74	3.5	ND	15000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A I	N/A N	/A N/	A N/A	A N/A	N/A	N/A	A N/A	N/A	N/A	N/A	N/A
MWB	SE187247	6/12/2018		550		5500	0.27	ND	670	0.006	ND		5.9 160	0.05	0.51	76	4.2	ND	15000										N/A	N/A	N/A	N/A	N/A	N/A I			A N/A		N/A		A N/A	N/A	N/A	N/A	

			$\mp$	Threshold Criteria				0.3		1.9	0.00001	- 6.5	-8 -	0.9	0.7		4	0.32			- 0	0.024 ( 0.013 (	III) 0.055 V) (pH> 6.5	-	0.0002	0.09	0.0014	0.001	- 0.0	034 0.000	0.00	3 0.26	0.95	0.18 0	.08		6500	0 0.	.05 0.0	3 0.0003	0.0000	3 0.016	0.00002
				Units	mg/L mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L pl	l mg/	L mg/l	/L mg/L	mg/L r	mg/L	mg/L	μS/cm	mg/L	mg/L r	ıg/L mg/l	. mg/L	mg/L	mg/L	mg/L	mg/L	mg/L m	ıg/L m	g/L mg/	L mg/	. mg/l	mg/L	ng/L m	ıg/L mi	g/L mg/l	mg/	L mą	g/L mg/	L mg/L	mg/L	mg/L	mg/L
	E	RN	1	Analytes	Calcium	Chloride	Fluoride	Iron	Magnesium	Manganese	Organochlorine pesticides (OCP)	Potassium	Sodium	Ammonia	Nitrate	Sulfate	Total organic carbon	Total phenolics	Electrical conductivity (EC)	Total dissolved solids	Biochemical oxygen demand	Phosphate Arsenic III & V	Aluminium	Barium	Cadmium	Cobalt	Copper	Chromium VI	(total)	Lead	Zinc	ТРН	Benzene	Toluene	Ethylbenzene	total Tetrachlorethen e (TCE)	1,1,1- Trichloroethane	(TCA) Tetrachloroethe	ne (PCE) 1,2-	Vinyl Chloride	PCBs	PAHs	OPPs
				Monitoring frequency	Quarterly Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly Yearly	Yearly	<del>-</del>	Yearly Yearly	Yearly	Yearly	Yearly	Yearly
	ng Well	Chemical Report	Date Sampled	Comment																																	CVCs/V	OCCs					
	ANAC																																										
	VIVVC	135493	6/10/2015		62 730	690	0.4	ND	130	2.2	ND	0.6 7.	1 670	ND	0.17	350	18	ND	3900	N/A	N/A	I/A N/A	N/A	N/A	N/A	N/A	N/A	N/A I	I/A N	/A N/A	N/A	N/A	N/A	N/A N	I/A N	I/A N/A	N/A	A N	I/A N/A	N/A	N/A	N/A	N/A
N	MWC	135493 SE148082	6/10/2015 14/01/2016		62 730 56 750	690 630	0.4	ND ND	130 110	2.2 4.9	ND ND	0.6 7. 0.9 7.	1 670 2 590	ND 0.12	0.17 2 ND	350 300	18 21	ND ND	3900 4300	N/A 2400	N/A ND (	I/A N/A	N/A ND	N/A 0.047	N/A ND	N/A 0.011	N/A 0.001	N/A I	A A/A	/A N/A	N/A	N/A ND	N/A ND	N/A N	I/A N	I/A N/A ND ND	N/A ND	A N	I/A N/A	N/A ND	N/A ND	N/A ND	N/A ND
	MWC MWC				62 730 56 750 290 660	690 630 3700	0.4 0.34 0.3	ND ND 0.038	130 110 420	2.2 4.9 3.1	ND ND ND	0.6 7. 0.9 7. 1.4 7.	1 670 2 590 2 1900	0.12 0 ND	0.17 2 ND 0 4.9	350 300 220	18 21 9	ND ND ND	3900 4300 9600	N/A 2400 N/A	N/A ND (	I/A N/A I.19 0.00:	N/A ND N/A	N/A 0.047 N/A	N/A ND N/A	N/A 0.011 N/A	N/A 0.001 N/A	N/A I	1 A/N	/A N/A ID ND /A N/A	N/A	N/A ND N/A	N/A ND N/A	N/A N ND M	ND N	I/A N/A ND ND I/A N/A	N/A ND N/A	A N	I/A N/A ND NE I/A N/A	N/A ND N/A	N/A ND N/A	_	N/A ND N/A
١		SE148082	14/01/2016		56 750	690 630 3700 610	0.4 0.34 0.3 0.24	ND ND 0.038 0.006	130 110 420 93	2.2 4.9 3.1 5.4	ND ND ND	0.6 7. 0.9 7. 1.4 7. 1.0 7.	1 670 2 590 2 1900 4 580	0.12 0 ND 0 0.05		350 300 220 220	18 21 9 24	ND ND ND	3900 4300 9600 3300	N/A 2400 N/A N/A	N/A ND 0 N/A N/A			N/A 0.047 N/A N/A	N/A ND N/A N/A	N/A 0.011 N/A N/A	N/A 0.001 N/A N/A	N/A 1 ND 1 N/A 1	A AND I	/A N/A ID ND /A N/A /A N/A	N/A ND N/A	N/A ND N/A N/A	N/A ND N/A N/A	N/A N ND M N/A N	I/A N ND N I/A N	I/A N/A ND ND I/A N/A I/A N/A	N/A ND N/A N/A	N N	I/A N// ND NE I/A N// I/A N//	N/A N/A N/A N/A N/A	N/A ND N/A N/A	ND	N/A ND N/A N/A
N	MWC	SE148082 144481	14/01/2016 7/04/2016		56 750 290 660	690 630 3700 610 770	0.4 0.34 0.3 0.24 0.34	ND ND 0.038 0.006 ND	130 110 420 93 120	2.2 4.9 3.1 5.4 5.6	ND ND ND ND	0.6 7 0.9 7 1.4 7 1.0 7 1.1 7	1 670 2 590 2 1900 4 580 1 620	0.05		350 300 220 220 180	18 21 9 24 24	ND ND ND ND	3900 4300 9600 3300 3900	N/A 2400 N/A N/A 2400	N/A ND 0 N/A N/A N/A		N/A	N/A 0.047 N/A N/A N/A	N/A ND N/A N/A	N/A 0.011 N/A N/A N/A	N/A 0.001 N/A N/A N/A	N/A II N/A II N/A II N/A II	NA N ND I NA N NA N NA N	/A N/A ID ND /A N/A /A N/A /A N/A	N/A ND N/A N/A N/A	N/A ND N/A N/A	N/A ND N/A N/A N/A	N/A N ND N N/A N N/A N	I/A N ND N I/A N I/A N	I/A N/A ND ND I/A N/A I/A N/A	N/A ND N/A N/A	A N	I/A N/A ND NE I/A N/A I/A N/A	N/A N/A N/A N/A N/A N/A	N/A ND N/A N/A N/A	ND N/A	N/A ND N/A N/A
n n	MWC	SE148082 144481 SE154534	14/01/2016 7/04/2016 6/07/2016		56 750 290 660 55 730	690 630 3700 610 770 880	0.4 0.34 0.3 0.24 0.34 0.13	ND ND 0.038 0.006 ND ND	130 110 420 93 120 89	2.2 4.9 3.1 5.4 5.6 7.8	ND ND ND ND ND	0.6 7.3 0.9 7.3 1.4 7.3 1.0 7.4 1.1 7.3 2 7.0	2 1900 4 580	0 ND 0.05 0.04	<b>4.9</b> 5 0.15	350 300 220 220 180 200	18 21 9 24 24 21	ND ND	3900 4300 9600 3300 3900 4200	N/A 2400 N/A N/A 2400 2400	N/A   ND   O		N/A N/A	N/A 0.047 N/A N/A N/A 0.05	N/A ND N/A N/A N/A ND	N/A 0.011 N/A N/A N/A 0.013	N/A 0.001 N/A N/A N/A N/A	N/A 1	N/A N/N N/O N/O N/O N/O N/O N/O N/O N/O N/O	/A N/A ID ND /A N/A /A N/A /A N/A ID ND	N/F ND N/F N/F N/F N/F N/F	N/A ND N/A N/A N/A ND	N/A ND N/A N/A N/A ND	N/A N ND M N/A N N/A N N/A N	I/A N ND N I/A N I/A N I/A N	I/A N/A ND ND I/A N/A I/A N/A I/A N/A ND ND	N/A ND N/A N/A N/A	A N	I/A N/A ND NE I/A N/A I/A N/A I/A N/A I/A N/A ND NE	N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A ND N/A N/A N/A ND	ND N/A N/A	N/A ND N/A N/A N/A ND
P P	MWC MWC	SE148082 144481 SE154534 SE157865	14/01/2016 7/04/2016 6/07/2016 6/10/2016		56 750 290 660 55 730 67 630	690 630 3700 610 770 880 520	0.4 0.34 0.3 0.24 0.34 0.13	ND ND 0.038 0.006 ND ND ND	130 110 420 93 120 89 68	2.2 4.9 3.1 5.4 5.6 7.8 7.3	ND ND ND ND ND ND	0.6 7. 0.9 7. 1.4 7. 1.0 7. 1.1 7. 2 7. 0.9 7.	2 1900 4 580 1 620	0 ND 0.05 0.04 0.01	9 4.9 5 0.15 4 ND	350 300 220 220 180 200 120	18 21 9 24 24 21 23	ND ND ND	3900 4300 9600 3300 3900 4200 2900	N/A 2400 N/A N/A 2400 2400 N/A		I/A N/A I/A N/A I/A N/A	N/A N/A N/A	N/A 0.047 N/A N/A N/A 0.05 N/A	N/A N/A N/A	N/A 0.011 N/A N/A N/A 0.013 N/A	N/A 0.001 N/A N/A N/A N/A ND	N/A 1 N/A	I/A N ND I I/A N I/A N I/A N ND I	/A N/A ID ND /A N/A	N/A ND N/A N/A N/A N/A ND	N/A ND N/A N/A N/A ND	N/A ND N/A N/A N/A ND N/A	N/A N	I/A N	I/A N/A ND ND I/A N/A I/A N/A I/A N/A I/A N/A ND ND I/A N/A	,	A NA	I/A N/A ND NE I/A N/A I/A N/A I/A N/A I/A N/A ND NE I/A N/A	N/A	-	ND N/A N/A N/A	N/A ND N/A N/A N/A N/A N/A ND
1 1 1	MWC MWC MWC	SE148082 144481 SE154534 SE157865 SE160904 SE164082 SE167897	14/01/2016 7/04/2016 6/07/2016 6/10/2016 12/01/2017 6/4/2017 6/7/2017		56 750 290 660 55 730 67 630 44 830 34 670 26 640	690 630 3700 610 770 880 520 370	0.4 0.34 0.3 0.24 0.34 0.13 0.44	ND ND 0.038 0.006 ND ND ND ND	130 110 420 93 120 89 68 52	2.2 4.9 3.1 5.4 5.6 7.8 7.3 4.6	ND	0.6 7.0 0.9 7.1 1.4 7.1 1.0 7.4 1.1 7.1 2 7.1 0.9 7.1 0.8 7.1	2 1900 4 580 1 620 6 510	0 ND 0 0.05 0 0.04 0 0.12	0 <b>4.9</b> 5 0.15 4 ND 2 ND	120	18 21 9 24 24 21 23 23	ND ND ND ND	3900 4300 9600 3300 3900 4200 2900 2400	N/A 2400 N/A N/A 2400 2400 N/A N/A	N/A	I/A N/A I/A N/A I/A N/A <b>017</b> NA	N/A N/A N/A	N/A 0.047 N/A N/A N/A 0.05 N/A N/A	N/A N/A N/A	N/A 0.011 N/A N/A N/A 0.013 N/A N/A	N/A 0.001 N/A N/A N/A ND N/A N/A	N/A 1 N/A	N/A N ND 1 N/A N N/A N N/A N N/A N N/A N	/A N/A ID ND /A N/A /A N/A /A N/A ID ND /A N/A /A N/A /A N/A /A N/A	N/A ND N/A N/A N/A ND N/A N/A	N/A ND N/A N/A N/A ND N/A	N/A ND N/A N/A N/A ND N/A N/A	N/A N ND M N/A N N/A N N/A N ND M N/A N N/A N	N/A N N/A N N/A N N/A N N/A N N/A N N/A N	I/A N/A ND ND I/A N/A I/A N/A I/A N/A I/A N/A ND ND I/A N/A I/A N/A	,	A NA	I/A N// ND NE I/A N// I/A N// I/A N// I/A N// ND NE I/A N// I/A N// I/A N//	A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/	-	ND N/A N/A N/A ND	N/A ND N/A N/A N/A ND N/A
10 10 10 10 10	MWC MWC MWC MWC	SE148082 144481 SE154534 SE157865 SE160904 SE164082	14/01/2016 7/04/2016 6/07/2016 6/10/2016 12/01/2017 6/4/2017		56 750 290 660 55 730 67 630 44 830 34 670	690 630 3700 610 770 880 520 370 500	0.4 0.34 0.3 0.24 0.34 0.13 0.44 0.46	ND	130 110 420 93 120 89 68 52 73	2.2 4.9 3.1 5.4 5.6 7.8 7.3 4.6 4.60	ND	0.6 7.0 0.9 7.1 1.4 7.1 1.0 7.1 1.1 7.1 2 7.1 0.9 7.1 0.8 7.1	2 1900 4 580 1 620 6 510 1 540	0 ND 0 0.05 0 0.04 0 0.12	9 4.9 5 0.15 4 ND 2 ND 6 ND	120	23	ND ND ND ND ND		N/A 2400 N/A N/A 2400 2400 N/A N/A N/A	N/A N/A	I/A N/A I/A N/A I/A N/A 017 NA I/A N/A	N/A N/A N/A 0.006 N/A	N/A 0.047 N/A N/A N/A 0.05 N/A N/A N/A	N/A N/A N/A	N/A 0.011 N/A N/A N/A 0.013 N/A N/A N/A	N/A 0.001 N/A N/A N/A ND N/A N/A N/A	N/A   1 N/A   1 N/A   1 N/A   1 N/A   1 N/A   1 N/A   1 N/A   1	N/A	/A N/A ID ND /A N/A /A N/A /A N/A ID ND /A N/A /A N/A /A N/A /A N/A	N/F ND N/F N/F ND N/F ND N/F ND N/F ND N/F N/F N/F	N/A ND N/A N/A N/A N/A N/A N/A N/A N/A	N/A ND N/A N/A N/A ND N/A N/A	N/A N ND N N/A N	I/A N ND N I/A N	I/A N/A ND ND I/A N/A I/A N/A I/A N/A I/A N/A ND ND I/A N/A I/A N/A I/A N/A	,	A N.	I/A N// ND NE I/A N//	A N/A ND A N/A	-	ND N/A N/A N/A ND N/A	N/A ND N/A N/A N/A ND N/A N/A
7 7 7 7	MWC MWC MWC MWC MWC	SE148082 144481 SE154534 SE157865 SE160904 SE164082 SE167897	14/01/2016 7/04/2016 6/07/2016 6/10/2016 12/01/2017 6/4/2017 6/7/2017		56 750 290 660 55 730 67 630 44 830 34 670 26 640	690 630 3700 610 770 880 520 370 500	0.4 0.34 0.3 0.24 0.34 0.13 0.44 0.46 0.41 0.26	ND	130 110 420 93 120 89 68 52 73	2.2 4.9 3.1 5.4 5.6 7.8 7.3 4.6 4.60	ND	0.6 7.1 0.9 7.1 1.4 7.1 1.0 7.4 1.1 7.1 2 7.1 0.9 7.1 0.8 7.1 0.9 7.1	2 1900 4 580 1 620 6 510 1 540	0 ND 0 0.05 0 0.04 0 0.12	0 4.9 5 0.15 4 ND 2 ND 6 ND 3 0.005	120	23	ND ND ND ND ND	2400	N/A 2400 N/A N/A 2400 2400 N/A N/A N/A 5300	N/A N/A N/A	I/A N/A I/A N/A I/A N/A I/A N/A 017 NA I/A N/A I/A N/A	N/A N/A N/A 0.006 N/A	N/A 0.047 N/A N/A N/A 0.05 N/A N/A N/A N/A	N/A N/A N/A	N/A 0.011 N/A N/A N/A 0.013 N/A N/A N/A 0.024	N/A 0.001 N/A N/A N/A ND N/A N/A N/A N/A	N/A 1 N/A 1 N/A 1 N/A 1 N/A 1 N/A 1	N/A N N N N N N N N N N N N N N N N N N	/A N/A ID ND /A N/A /A N/A /A N/A ID ND /A N/A ID ND /A N/A /A N/A /A N/A ID ND	N/A	N/A ND N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A ND N/A N/A N/A ND N/A N/A N/A N/A	N/A N ND N N/A N	I/A N ND N I/A N	I/A N/A ND ND I/A N/A I/A N/A I/A N/A I/A N/A ND ND I/A N/A I/A N/A I/A N/A I/A N/A	,	N A N A N	I/A N//	A N/A ND A N/A	-	ND N/A N/A N/A ND N/A N/A N/A	N/A ND N/A N/A N/A ND N/A N/A N/A
10 10 10 10 10 10 10 10 10 10 10 10 10 1	MWC MWC MWC MWC MWC MWC MWC	SE148082 144481 SE154534 SE157865 SE160904 SE164082 SE167897 SE171359	14/01/2016 7/04/2016 6/07/2016 6/10/2016 12/01/2017 6/4/2017 6/7/2017 6/10/2017		56 750 290 660 55 730 67 630 44 830 34 670 26 640 35 720	690 630 3700 610 770 880 520 370 500 2400 3200	0.4 0.34 0.3 0.24 0.34 0.13 0.44 0.46 0.41 0.26	ND 0.008 ND ND	130 110 420 93 120 89 68 52 73 330 440	2.2 4.9 3.1 5.4 5.6 7.8 7.3 4.6 4.60 12	ND ND ND	0.6 7. 0.9 7. 1.4 7. 1.0 7. 1.1 7. 2 7. 0.9 7. 0.8 7. 0.9 7. 1.8 6. 1.8 6.	2 1900 4 580 1 620 6 510 1 540	0 ND 0 0.05 0 0.04 0 0.12 0 0.06 0 0.33 0 0.41	0 4.9 5 0.15 4 ND 2 ND 6 ND 3 0.005	90 110 110	23	ND ND ND ND ND ND	2400 3000	N/A N/A N/A	N/A N/A N/A ND	I/A N/A I/A N/A I/A N/A I/A N/A 017 NA I/A N/A I/A N/A I/A N/A	N/A N/A N/A 0.006 N/A N/A	N/A N/A N/A	N/A N/A N/A ND N/A N/A	N/A 0.011 N/A N/A N/A 0.013 N/A N/A N/A 0.024	N/A 0.001 N/A N/A N/A ND N/A N/A N/A N/A N/A	N/A 1	N/A N N N N N N N N N N N N N N N N N N	/A N/A ID ND /A N/A /A N/A /A N/A ID ND /A N/A ID ND /A N/A	N/A	N/A ND N/A N/A N/A N/A N/A N/A N/A	N/A ND N/A N/A N/A N/A N/A N/A N/A N/A	N/A N ND N N/A N	I/A N ND N I/A N	I/A N/A ND ND I/A N/A	N/A N/A N/A	N A N A N	I/A N// ND NE I/A N//	A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/	-	ND N/A N/A N/A ND N/A N/A N/A	N/A N/A N/A
10 10 10 10 10 10 10 10 10 10 10 10 10 1	MWC MWC MWC MWC MWC MWC MWC MWC	SE148082 144481 SE154534 SE157865 SE160904 SE164082 SE167897 SE171359 SE174394	14/01/2016 7/04/2016 6/07/2016 6/10/2016 12/01/2017 6/4/2017 6/7/2017 6/10/2017 12/1/2018		56 750 290 660 55 730 67 630 44 830 34 670 26 640 35 720 200 580	690 630 3700 610 770 880 520 370 500 2400 3200 4200	0.4 0.34 0.3 0.24 0.34 0.13 0.44 0.46 0.41 0.26 0.31	ND 0.008 ND ND		2.2 4.9 3.1 5.4 5.6 7.8 7.3 4.6 4.60 12 15.00 9.1	ND ND ND	0.6 7. 0.9 7. 1.4 7. 1.0 7. 1.1 7. 2 7. 0.9 7. 0.8 7. 0.9 7. 1.8 6. 1.8 6. 2.6 6.	2 1900 4 580 1 620 6 510 1 540 2 430 1 490 9 1100	00 ND 0.050 0.040 0.041 0.060 0.333 0.041 0.060 0.041 0.060 0.041	0 4.9 5 0.15 4 ND 2 ND 6 ND 3 0.005 1 ND 6 1.7	90 110 110	23 23 19	ND ND ND ND ND ND ND	2400 3000 8700	N/A N/A N/A 5300	N/A N/A N/A ND	I/A N/A I/A N/A I/A N/A 017 NA I/A N/A I/A N/A I/A N/A I/A N/A I/A N/A	N/A N/A N/A 0.006 N/A N/A N/A 0.01	N/A N/A N/A 0.27	N/A N/A N/A ND N/A N/A	N/A 0.011 N/A N/A N/A 0.013 N/A N/A N/A 0.024 N/A	N/A 0.001 N/A N/A N/A N/A ND N/A	N/A 1	I/A N	/A N/A ID ND /A N/A /A N/A /A N/A ID ND /A N/A	N/A	N/A ND N/A	N/A ND N/A N/A N/A ND N/A N/A N/A ND N/A	N/A N ND M N/A N	i/A N ND N i/A N	I/A N/A ND ND I/A N/A I/A N/A I/A N/A I/A N/A I/A N/A ND ND I/A N/A I/A N/A I/A N/A ND ND I/A N/A I/A N/A ND ND I/A N/A ND ND I/A N/A	N/A N/A N/A	N A N A N	I/A N/// ND NE I/A N//	A N/A	-	ND N/A N/A N/A ND N/A N/A N/A	N/A N/A N/A
10 10 10 10 10 10 10 10 10 10 10 10 10 1	MWC MWC MWC MWC MWC MWC MWC MWC MWC	SE148082 144481 SE154534 SE157865 SE160904 SE164082 SE167897 SE171359 SE174394 SE177839	14/01/2016 7/04/2016 6/07/2016 6/10/2016 12/01/2017 6/4/2017 6/7/2017 6/10/2017 12/1/2018 10/4/2018		56 750 290 660 55 730 67 630 44 830 34 670 26 640 35 720 200 580 270 550	690 630 3700 610 770 880 520 370 500 2400 3200 4200	0.4 0.34 0.3 0.24 0.34 0.13 0.44 0.46 0.41 0.26 0.31 0.23	ND 0.008 ND ND ND		2.2 4.9 3.1 5.4 5.6 7.8 7.3 4.6 4.60 12 15.00 9.1 6.5	ND ND ND	0.6 7. 0.9 7. 1.4 7. 1.0 7. 1.1 7. 2 7. 0.9 7. 0.8 7. 0.9 7. 1.8 6. 1.8 6. 2.6 6. 2.4 6.	2 1900 4 580 1 620 6 510 1 540 2 430 1 490 9 1100 9 1400	00 ND 0.050 0.040 0.041 0.060 0.333 0.041 0.060 0.041 0.060 0.041	0 4.9 5 0.15 4 ND 2 ND 6 ND 3 0.005 1 ND 6 1.7	90 110 110	23 23 19	ND ND ND ND ND ND ND	2400 3000 8700 11000	N/A N/A N/A 5300	N/A N/A N/A ND	I/A N/A I/A N/A I/A N/A 017 NA I/A N/A I/A N/A I/A N/A I/A N/A I/A N/A	N/A N/A N/A 0.006 N/A N/A N/A 0.01	N/A N/A N/A 0.27	N/A N/A N/A ND N/A N/A	N/A 0.011 N/A N/A N/A 0.013 N/A	N/A 0.001 N/A N/A N/A N/A ND N/A	N/A 1	I/A N ND 1 N/A N	/A N///	N/A	N/A ND N/A	N/A ND N/A N/A N/A ND N/A N/A N/A N/A N/A N/A	N/A N ND N N/A N	i/A N ND N i/A N	I/A N/A ND ND I/A N/A	N/A N/A N/A	A NA	I/A N//	A N/A	-	ND N/A	N/A N/A N/A ND N/A N/A

ł		H	Threshold Criteria	-				0.3		1.9	0.00001	-	6.5-8		0.9	0.7	- 4	<b>4</b> 0.	32 -	-		0.015	0.024 (III) 0.013 (V)	0.055 (pH> 6.5)		0.0002	0.09	0.0014	0.001	- 0.0	1034 0.0	006 0.	008 0.2	26 0.95	0.18	0.08	-	-	6500	0.05	0.03 (	0.0003 (	0.00003	0.016	.00002
1			Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	pН	mg/L	mg/L	mg/L i	mg/L mg	g/L m	/L μS/c	m mg	/L mg	L mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L m	g/L m	g/L m	g/L mg	/L mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		9							-		CP)						.9		<u> </u>	g (			>						5	g g						e		ene	e e	je.	2	유			
			Analytes	Calcium	Alkalinity	Chloride	Fluoride	Iron	Magnesiur	Manganes	Organochlor pesticides (O	Potassium	됩	Sodium	Ammonia	Nitrate	Sulfate Total organ	carbon	Electrical	Total dissolv	solids	DAYBen denis	Arsenic III 8	Aluminium	Barium	Cadmium	Cobalt	Copper	Chromium	Chromium (tc	read	Mercury	Z Zuc	Benzene	Toluene	Ethylbenzer	total	Tetrachloreth (TCE)	1,1,1- Trichloroeth (TCA)	Tetrachloroet e (PCE)	1,2- Dichloroethe	Vinyl Chlori	PCBs	PAHS	OPPs
Į	EKI	VI.	Monitoring frequency	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quartery	Quarterly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly
Aonitorin	g weil hemical Report	Date	mment																																			CV	Cs/VOCCs						
		Š	రి																																										
MW	D 135493	6/10/2015	leachate	150	2400	2800	0.3	1.8	220	0.46	ND	170	7.6	1700	310	ND	66 33	30 N	D 1100	0 N/	/A N/	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N	I/A N	/A N	I/A N/	A N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MW		6/10/2015 14/01/2016	leachate leachate	150 170	2400 1200	2800 1000	0.3	1.8	220 110	0.46	ND ND	170 110	7.6 7.3	1700 690	310 110	ND ND	66 <b>3</b> 3	30 N	D 1100	0 N/	/A N/.	N/A 0.13	N/A 0.017	N/A ND	N/A 0.49	N/A ND	N/A 0.004	N/A ND	N/A ND	N/A M	I/A N	/A N	I/A N/ 026 3	A N/A 0.0028	N/A 0.0034	N/A 0.023	N/A 0.0351	N/A ND	N/A ND	N/A ND	N/A ND (	N/A 0.0059	N/A ND	N/A 0.004	N/A ND
	D SE148082			150 170 160	2400 1200 2200	2800 1000 2600	0.3 0.32 0.3	1.8 0.33 2.2	220 110 230	0.46 0.87 0.45	ND ND ND	170 110 180	7.6 7.3 7.7	1700 690 1900	310 110 210	ND ND ND	66 <b>3</b> 3 18 14 35 <b>2</b> 5	30 N 40 O.	D 1100 47 580 D 960	0 N/2 0 250 0 N/2	/A N/. 00 48	0.13 N/A	N/A 0.017 N/A	N/A ND N/A	N/A 0.49 N/A	N/A ND N/A	N/A 0.004 N/A	N/A ND N/A	N/A ND N/A	N/A 1 0.031 N/A	A AND 1	/A N ID 0.	I/A N/ 026 3 I/A N/	A N/A 0.0028	N/A 0.0034 N/A	N/A 0.023 N/A	N/A 0.0351 N/A	N/A ND N/A	N/A ND N/A	N/A ND N/A	N/A ND (	N/A 0.0059 N/A	N/A ND N/A	N/A 0.004 N/A	N/A ND N/A
MW	D SE148082 D 144481	14/01/2016	leachate	150 170 160 250	2400 1200 2200 1200	2800 1000 2600 1000	0.3 0.32 0.3 0.14	1.8 0.33 2.2 5.2	220 110 230 120	0.46 0.87 0.45 0.96	ND ND ND	170 110 180 120	7.6 7.3 7.7 7.3	1700 690 1900 630	310 110 210 80	ND ND ND	66 33 18 14 35 29 140 14	30 N 40 O. 90 N	D 1100 47 580 D 960 D1 520	0 N/. 0 250 0 N/.	/A N/. 00 48 /A N/. /A N/.	0.13 N/A N/A N/A	N/A 0.017 N/A N/A	N/A ND N/A N/A	N/A 0.49 N/A N/A	N/A ND N/A N/A	N/A 0.004 N/A N/A	N/A ND N/A N/A	N/A ND N/A	N/A N 0.031 N/A N/A N/A	I/A N ND II I/A N	/A N ID 0. /A N /A N	I/A N/ 026 3 I/A N/	A N/A 0.0028 A N/A	N/A 0.0034 N/A N/A	N/A 0.023 N/A N/A	N/A 0.0351 N/A N/A	N/A ND N/A N/A	N/A ND N/A N/A	N/A ND N/A N/A	N/A ND ( N/A N/A	N/A 0.0059 N/A N/A	N/A ND N/A N/A	N/A 0.004 N/A N/A	N/A ND N/A N/A
MW	D SE148082 D 144481 D SE154534	14/01/2016 7/04/2016	leachate leachate	150 170 160 250 210	2400 1200 2200 1200 1600	2800 1000 2600 1000 1600	0.3 0.32 0.3 0.14 0.27	1.8 0.33 2.2 5.2 0.001	220 110 230 120 150	0.46 0.87 0.45 0.96 0.600	ND ND ND ND	170 110 180 120 140	7.6 7.3 7.7 7.3 7.3	1700 690 1900 630 1000	310 110 210 80 150	ND ND ND ND	66 33 18 14 35 29 140 14 110 20	30 N 40 0. 90 N 40 0.	D 1100 47 580 D 960 D1 520 D7 780	0 N/2 0 250 0 N/2 0 N/2 0 A/7	/A N/. 00 48 /A N/. /A N/. /A N/.	N/A 0.13 N/A N/A N/A	N/A 0.017 N/A N/A N/A	N/A ND N/A N/A N/A	N/A 0.49 N/A N/A N/A	N/A ND N/A N/A	N/A 0.004 N/A N/A N/A	N/A ND N/A N/A	N/A ND N/A N/A	N/A P 0.031 I N/A P N/A P	I/A N ND 1 I/A N I/A N	/A N ID 0. /A N /A N /A N	I/A N/ 026 3- I/A N/ I/A N/	A N/A 0.0028 A N/A A N/A A N/A	N/A 0.0034 N/A N/A N/A	N/A 0.023 N/A N/A N/A	N/A 0.0351 N/A N/A N/A	N/A ND N/A N/A	N/A ND N/A N/A	N/A ND N/A N/A N/A	N/A ND 0 N/A N/A N/A	N/A 0.0059 N/A N/A N/A	N/A ND N/A N/A N/A	N/A 0.004 N/A N/A N/A	N/A ND N/A N/A N/A
MW MW	D SE148082 D 144481 D SE154534 D SE157866	14/01/2016 7/04/2016 6/07/2016	leachate leachate	150 170 160 250 210 260	2400 1200 2200 1200 1600 2300	2800 1000 2600 1000 1600 2800	0.3 0.32 0.3 0.14 0.27 ND	1.8 0.33 2.2 5.2 0.001 1.100	220 110 230 120 150 ( 230 (	0.46 0.87 0.45 0.96 0.600 0.850	ND ND ND ND ND	170 110 180 120 140 210	7.6 7.3 7.7 7.3 7.3 7.5	1700 690 1900 630 1000 1400	310 110 210 80 150 250	ND ND ND ND ND ND	66 33 18 14 35 29 140 14 110 20 330 23	30 N 40 0. 90 N 40 0. 00 0.	D 1100 47 580 D 960 D1 520 D7 780 D4 1100	00 N/- 00 250 00 N/- 00 N/- 00 470 00 620	/A N/. 00 48 /A N/. /A N/. 00 N/. 00 N/.	0.13 N/A N/A N/A N/A N/A	N/A 0.017 N/A N/A N/A NA	N/A ND N/A N/A N/A 0.014	N/A 0.49 N/A N/A N/A 0.91	N/A ND N/A N/A N/A N/A	N/A 0.004 N/A N/A N/A 0.017	N/A ND N/A N/A N/A N/A	N/A ND N/A N/A N/A ND	N/A P 0.031 N/A P N/A P N/A P N/A P 0.03	A   A   A   A   A   A   A   A   A   A	/A N ID 0. /A N /A N /A N /A N /A N	I/A N, 026 3- I/A N, I/A N, I/A N, I/A N, I/A N,	A N/A 0.0028 A N/A A N/A A N/A C 0.002	N/A 0.0034 N/A N/A N/A 0.0009	N/A 0.023 N/A N/A N/A 0.0034	N/A 0.0351 N/A N/A N/A 0.042	N/A ND N/A N/A N/A ND	N/A ND N/A N/A N/A ND	N/A ND N/A N/A N/A N/A	N/A   N/A   N/A   N/A   N/A   N/A   N/A   N/A   N/A   N/B   M/B	N/A 0.0059 N/A N/A N/A 0.0004	N/A N/A N/A	N/A 0.004 N/A N/A N/A 0.017	N/A ND N/A N/A N/A ND
MW MW MW	D SE148082 D 144481 D SE154534 D SE157866 D SE160904	14/01/2016 7/04/2016 6/07/2016 6/10/2016	leachate leachate leachate leachate	170 160 250 210	2400 1200 2200 1200 1600 2300 1500	2800 1000 2600 1000 1600 2800	0.3 0.32 0.3 0.14 0.27 ND 0.28	1.8 0.33 2.2 5.2 0.001 1.100 0.920	220 110 230 120 150 ( 230 (	0.46 0.87 0.45 0.96 0.600 0.850 0.780	ND ND ND ND ND ND	170 110 180 120 140 210	7.6 7.3 7.7 7.3 7.3 7.5 7.3	1700 690 1900 630 1000 1400	310 110 210 80 150 250	ND ND ND ND ND ND ND	66 33 18 14 35 29 140 14 110 20 330 27	30 N 40 O. 90 N 40 O. 00 O. 70 O.	D 1100 47 580 D 960 D1 520 D7 780 D4 1100	00 N/. 0 250 0 N/. 0 N/. 0 N/. 0 470 0 620 0 N/.	'A N/. 00 48 'A N/. 'A N/. 'A N/. 00 N/. 00 17 'A N/.	N/A 0.13 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A 0.017 N/A N/A N/A NA N/A	N/A ND N/A N/A N/A 0.014	N/A 0.49 N/A N/A N/A 0.91 N/A	N/A ND N/A N/A N/A ND	N/A 0.004 N/A N/A N/A 0.017 N/A	N/A ND N/A N/A N/A ND	N/A ND N/A N/A N/A ND	N/A M 0.031 M N/A M N/A M N/A M 0.03 M	I/A N	/A N ID 0. /A N /A N /A N /A N ID 0. /A N	I/A N/ 026 3 I/A N/ I/A N/ I/A N/ 035 3 I/A N/	A N/A 0.0028 A N/A N/A A N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A 0.0034 N/A N/A N/A 0.0009 N/A	N/A 0.023 N/A N/A N/A 0.0034 N/A	N/A 0.0351 N/A N/A N/A 0.042 N/A	N/A ND N/A N/A N/A ND	N/A ND N/A N/A N/A ND	N/A ND N/A N/A N/A ND	N/A	N/A 0.0059 N/A N/A N/A 0.0004 N/A	N/A N/A N/A	N/A 0.004 N/A N/A N/A 0.017 N/A	N/A ND N/A N/A N/A ND N/A
MW MW MW MW	D SE148082 D 144481 D SE154534 D SE157866 D SE160904 D SE164082	14/01/2016 7/04/2016 6/07/2016 6/10/2016 12/01/2017	leachate leachate leachate leachate leachate	170 160 250 210	2400 1200 2200 1200 1600 2300 1500 2500	2800 1000 2600 1000 1600 2800 2200 2800	0.3 0.32 0.3 0.14 0.27 ND 0.28 0.35	1.8 0.33 2.2 5.2 0.001 1.100 0.920 1.6	220 110 230 120 150 ( 230 ( 190 (	0.46 0.87 0.45 0.96 0.600 0.850 0.780 0.42	ND	170 110 180 120 140 210 130	7.6 7.3 7.7 7.3 7.3 7.5 7.3 7.5	1700 690 1900 630 1000 1400 1200	310 110 210 80 150 250 210 310	ND ND ND ND ND ND ND	66 33 18 14 35 29 140 14 110 20 330 23 310 19 100 32	30 N 40 O. 90 N 40 O. 00 O. 70 O. 50 O.	D 1100 47 580 D 960 D1 520 D7 780 D4 1100 119 940 D5 1200	0 N/. 0 250 0 N/. 0 N/. 0 N/. 0 470 0 620 0 N/.	/A N/. 00 48 //A N/. //A N/. 00 N/. 00 N/. 00 17 //A N/. //A N/. //A N/.	N/A 0.13 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A 0.017 N/A N/A N/A NA N/A	N/A ND N/A N/A N/A 0.014 N/A N/A	N/A 0.49 N/A N/A N/A 0.91 N/A N/A	N/A ND N/A N/A N/A N/A N/A ND N/A N/A	N/A 0.004 N/A N/A N/A 0.017 N/A N/A	N/A ND N/A N/A N/A ND N/A	N/A ND N/A N/A N/A ND N/A	N/A P 0.031 I N/A P N/A P N/A P 0.03 I N/A P	I/A N ND I I/A N I/A N I/A N I/A N ND I I/A N ND I I/A N I/A N	/A N ID 0. /A N /A N /A N /A N ID 0. /A N ID 0.	I/A N, 026 3- I/A N,	A N/A 1 0.0028 A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/	N/A 0.0034 N/A N/A N/A 0.0009 N/A N/A	N/A 0.023 N/A N/A N/A 0.0034 N/A N/A	N/A 0.0351 N/A N/A N/A 0.042 N/A N/A	N/A ND N/A N/A N/A ND N/A	N/A ND N/A N/A N/A ND N/A	N/A ND N/A N/A N/A ND N/A	N/A	N/A 0.0059 N/A N/A N/A 0.0004 N/A N/A	N/A N/A N/A		N/A ND N/A N/A N/A N/A N/A N/A ND N/A N/A
MW MW MW MW	D SE148082 D 144481 D SE154534 D SE157866 D SE160904 D SE167897	14/01/2016 7/04/2016 6/07/2016 6/10/2016 12/01/2017 6/4/2017	leachate leachate leachate leachate leachate	170 160 250 210 260 260 150	2400   1200   2200   1200   1200   1200   1500   1500   2500   2500   2500	2800 1000 2600 1000 1600 2800 2200 2800 3700	0.3 0.32 0.3 0.14 0.27 ND 0.28 0.35 0.32	1.8 0.33 2.2 5.2 0.001 1.100 0.920 1.6 0.300	220 110 230 120 150 150 230 190 230 260	0.46 0.87 0.45 0.96 0.600 0.850 0.780 0.42	ND N	170 110 180 120 140 210 130 180 210.0	7.6 7.3 7.7 7.3 7.3 7.5 7.3 7.5 7.2	1700 690 1900 630 1000 1400 1200 1700 1800	310 110 210 80 150 250 210 310	ND N	66 33 18 14 35 29 140 14 110 20 330 27 310 19 100 32 240 32	30 N 40 O. 90 N 40 O. 00 O. 70 O. 50 O. 20 O.	D 1100 47 580 D 960 D1 520 D7 780 D4 1100 19 940 D5 1200 D3 1300	0 N/. 0 250 0 N/. 0 N/. 0 N/. 0 470 0 620 0 N/. 0 N/. 0 N/.	/A N/. 00 48 /A N/. /A N/. 00 N/. 00 N/. 00 17 /A N/. /A N/. /A N/. /A N/.	N/A 0.13 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A 0.017 N/A N/A N/A NA N/A N/A	N/A ND N/A N/A N/A 0.014 N/A N/A N/A	N/A 0.49 N/A N/A N/A 0.91 N/A N/A N/A	N/A ND N/A N/A N/A N/A N/A ND N/A N/A N/A N/A	N/A 0.004 N/A N/A N/A 0.017 N/A N/A N/A	N/A ND N/A N/A N/A ND N/A N/A	N/A ND N/A N/A N/A ND N/A N/A	N/A P 0.031   N/A P N/A P N/A P 0.03   N/A P N/A P N/A P	I/A N ND 1 I/A N	/A N ID 0. /A N /A N /A N ID 0. /A N /A N ID 0. /A N /A N /A N /A N	I/A N/ 026 3- I/A N/	A N/A 0.0028 A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/	N/A 0.0034 N/A N/A N/A 0.0009 N/A N/A N/A	N/A 0.023 N/A N/A N/A 0.0034 N/A N/A N/A	N/A 0.0351 N/A N/A N/A 0.042 N/A N/A N/A	N/A ND N/A N/A N/A ND N/A N/A	N/A ND N/A N/A N/A ND N/A N/A	N/A ND N/A N/A N/A N/A N/A ND N/A N/A N/A N/A	N/A	N/A 0.0059 N/A N/A N/A 0.0004 N/A N/A N/A	N/A N/A N/A		N/A ND N/A N/A N/A ND N/A N/A N/A
MW MW MW MW MW	D SE148082 D 144481 D SE154534 D SE157866 D SE160904 D SE164082 D SE167897 D SE171359	14/01/2016 7/04/2016 6/07/2016 6/10/2016 12/01/2017 6/4/2017 6/7/2017	leachate leachate leachate leachate leachate leachate leachate	170 160 250 210 260 260 150	1500 2500	2800 1000 2600 1000 1600 2800 2200 2800 3700 3100	0.3 0.32 0.3 0.14 0.27 ND 0.28 0.35 0.32	1.8 0.33 2.2 5.2 0.001 1.100 0.920 1.6 0.300 1.100	220 110 230 120 150 (1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.46 0.87 0.45 0.96 0.600 0.850 0.780 0.42 0.28	ND N	170 110 180 120 140 210 130 180 210.0	7.6 7.3 7.7 7.3 7.3 7.5 7.3 7.5 7.2	1700 690 1900 630 1000 1400 1200 1700 1800	310 110 210 80 150 250 210 310 350	ND N	66 33 18 14 35 29 140 14 110 20 330 27 310 19 100 32 240 32	30 N 40 0. 90 N 440 0. 640	D 1100 47 580 D 960 D1 520 D7 780 D4 1100 D9 940 D5 1200 D3 1300 D.03 1300	00 N/. 00 250 0 N/. 00 N/. 00 N/. 00 470 00 620 00 N/. 10 N/. 10 N/.	/A N/. 000 48 /A N/. /A N/. /A N/. 000 N/. 000 17 /A N/. /A N/. /A N/. /A N/. /A N/. 000 25	N/A 0.13 N/A	N/A 0.017 N/A N/A N/A N/A N/A N/A N/A	N/A ND N/A N/A N/A 0.014 N/A N/A N/A N/A	N/A 0.49 N/A N/A N/A 0.91 N/A N/A N/A 1.10	N/A ND N/A N/A N/A N/A N/A ND N/A N/A N/A N/A N/A N/A ND	N/A 0.004 N/A N/A N/A 0.017 N/A N/A N/A 0.032	N/A ND N/A N/A N/A ND N/A N/A N/A N/A	N/A ND N/A N/A N/A ND N/A N/A N/A N/A	N/A P 0.031 N/A P N/A P N/A P 0.03 N/A P N/A P N/A P N/A P	N/A N N N N N N N N N N N N N N N N N N	/A N ID 0. //A N //A N ID 0. //A N ID 0. //A N ID 0. //A N I/A N I	I/A N/ 026 3 I/A N/	A N/A 0.0028 A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/	N/A 0.0034 N/A N/A N/A 0.0009 N/A N/A N/A 0.0012	N/A 0.023 N/A N/A N/A 0.0034 N/A N/A N/A 0.027	N/A 0.0351 N/A N/A N/A 0.042 N/A N/A N/A 0.097	N/A ND N/A N/A N/A ND N/A N/A N/A N/A	N/A ND N/A N/A N/A ND N/A N/A N/A	N/A ND N/A N/A N/A ND N/A N/A N/A N/A	N/A ND (0 N/A N/A N/A ND (0 N/A ND (0 N/A N/A N/A N/A N/A N/A N/A	N/A 0.0059 N/A N/A N/A 0.0004 N/A N/A N/A N/A	N/A N/A N/A		N/A
MW MW MW MW MW MW	D SE148082 D 144481 D SE154534 D SE157866 D SE160904 D SE167897 D SE171359 D SE174394	14/01/2016 7/04/2016 6/07/2016 6/10/2016 12/01/2017 6/4/2017 6/7/2017 6/10/2017	leachate leachate leachate leachate leachate leachate leachate leachate	170 160 250 210 260 260 150	1500 2500	2800 1000 2600 1000 1600 2800 2200 2800 3700 3100 3600	0.3 0.32 0.3 0.14 0.27 ND 0.28 0.35 0.32 0.30	1.8 0.33 2.2 5.2 0.001 1.100 0.920 1.6 0.300 1.100	220 110 230 120 150 190 190 230 260 270 290	0.46 0.87 0.45 0.96 0.600 0.850 0.780 0.42 0.28 0.290	ND N	170 110 180 120 140 210 130 180 210.0 220	7.6 7.3 7.7 7.3 7.3 7.5 7.3 7.5 7.2 7.7	1700 690 1900 630 1000 1400 1200 1700 1800 1900	310 110 210 80 150 250 210 310 350 330 320.00	ND N	66 33 18 14 35 25 140 14 110 26 330 27 310 15 100 32 240 32 93 110 346	30 N 40 0.40 0.40 0.40 0.50 0.50 0.340 0.340	D 1100 47 580 D 960 D1 520 D7 780 D4 1100 19 940 D5 1200 D3 1300 D.03 1300 D.03 1400	00 N/A 00 N/A 00 250 00 N/A 00 N/A 00 A 00 A 00 A 00 A 00 A 00 A 00 N/A	/A N// 000 48 000 48 /A N// /A N// /A N// 000 17 /A N// /A	N/A 0.13 N/A	N/A 0.017 N/A N/A N/A N/A N/A N/A N/A N/A	N/A ND N/A N/A N/A 0.014 N/A N/A N/A ND	N/A 0.49 N/A N/A N/A 0.91 N/A N/A N/A N/A N/A	N/A ND N/A N/A N/A N/A ND N/A ND N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A 0.004 N/A N/A N/A 0.017 N/A N/A N/A 0.032 N/A	N/A ND N/A N/A N/A ND N/A N/A N/A N/A	N/A ND N/A N/A N/A ND N/A N/A N/A N/A N/A	N/A	I/A N ND 11 I/A N I/A N I/A N I/A N ND 11 I/A N	/A N ID 0. /A N //A N //A N ID 0. //A N ID 0. //A N ID 0. //A N	1/A N/O26 3-0 3-1/A N/O26 3-0 1/A N/O26 3-0 1/A N/O26	A N/A 0.0028 A N/A N/A A N/A	N/A 0.0034 N/A N/A N/A 0.0009 N/A N/A N/A 0.0012 N/A	N/A 0.023 N/A N/A N/A 0.0034 N/A N/A N/A N/A N/A	N/A 0.0351 N/A N/A N/A 0.042 N/A N/A N/A N/A N/A	N/A ND N/A N/A N/A N/A ND N/A ND N/A N/A N/A N/A N/A ND N/A	N/A ND N/A N/A N/A ND N/A N/A N/A N/A	N/A ND N/A N/A N/A ND N/A N/A N/A N/A N/A	N/A   ND   (0   N/A   N/	N/A 0.0059 N/A N/A N/A 0.0004 N/A N/A N/A N/A N/A	N/A N/A N/A ND N/A N/A		N/A N/A
MW MW MW MW MW MW	D SE148082 D 144481 D SE154534 D SE157866 D SE160904 D SE164082 D SE167897 D SE171359 D SE174394 D SE177839	14/01/2016 7/04/2016 6/07/2016 6/10/2016 12/01/2017 6/4/2017 6/7/2017 6/10/2017 12/1/2018	leachate leachate leachate leachate leachate leachate leachate leachate	170 160 250 210 260 260 150	1500 2500	2800 1000 2600 1000 1600 2800 2200 2800 3700 3100 3600 3300	0.3 0.32 0.3 0.14 0.27 ND 0.28 0.35 0.32 0.30 0.34	1.8 0.33 2.2 5.2 0.001 1.100 0.920 1.6 0.300 1.100 1.100 2	220 110 230 120 150 1 150 1 230 230 260 270 290 220	0.46 0.87 0.45 0.96 0.600 0.850 0.780 0.42 0.28 0.290 0.18 0.18	ND N	170 110 180 120 140 210 130 180 210.0 220 200.0	7.6 7.3 7.7 7.3 7.3 7.5 7.3 7.5 7.2 7.7 7.7	1700 690 1900 630 1000 1400 1200 1700 1800 1900 1700	310 110 210 80 150 250 210 310 350 330 320.00	ND N	66 33 18 14 35 25 140 14 110 20 330 27 310 15 100 32 240 32 93 110 340 81 33	30 N 40 0. 90 N 40 0. 0. 000 0. 0. 50 0. 20 0. 340 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	D 1100 477 580 D 960 D1 520 D7 780 D4 1100 D1 940 D3 1300 D3 1300 D3 1300 D5 1400 D65 1300	00 N//00 2500 N//00 N//0	/A N//A 000 488 /A N//A N//A N//A N//A N//A 000 17 /A N//A N//A N//A N//A N//A N//A N//A N	N/A 0.13 N/A	N/A 0.017 N/A N/A N/A NA N/A N/A N/A N/A N/A N/A		N/A 0.49 N/A N/A N/A 0.91 N/A N/A N/A N/A N/A	N/A ND N/A N/A N/A N/A ND N/A	N/A 0.004 N/A N/A N/A 0.017 N/A N/A N/A 0.032 N/A N/A	N/A ND N/A N/A N/A ND N/A N/A N/A N/A N/A	N/A ND N/A N/A N/A ND N/A N/A N/A 0.006 N/A N/A	N/A	I/A N ND 11 I/A N I/A N I/A N I/A N ND 11 I/A N ND 11 I/A N	/A N ID 0. /A N //A N //A N //A N ID 0. //A N //A N ID 0. //A N //A N //A N //A N ID 0. //A N ID 0. //A N	1/A N/ 026 3- 1/A N/ 1/A N/ 1/A N/ 1/A N/ 1/A N/ 035 3- 1/A N/	A N/A 0.0028 A N/A N/A A N/A	N/A 0.0034 N/A N/A N/A 0.0009 N/A N/A N/A 0.0012 N/A	N/A 0.023 N/A N/A N/A 0.0034 N/A N/A N/A 0.027 N/A	N/A 0.0351 N/A N/A N/A 0.042 N/A N/A N/A 0.097 N/A	N/A ND N/A N/A N/A N/A ND N/A N/A N/A N/A N/A N/A ND N/A N/A N/A	N/A ND N/A N/A N/A ND N/A N/A N/A N/A N/A	N/A ND N/A N/A N/A ND N/A N/A N/A N/A N/A	N/A	N/A 0.0059 N/A N/A N/A 0.0004 N/A	N/A N/A N/A ND N/A N/A	N/A N/A N/A 0.006 N/A	N/A N/A
MW MW MW MW MW MW MW	D SE148082 D 144481 D SE154534 D SE157866 D SE160904 D SE164082 D SE167897 D SE174394 D SE177839 D SE181445	14/01/2016 7/04/2016 6/07/2016 6/10/2016 12/01/2017 6/4/2017 6/7/2017 6/10/2017 12/1/2018 10/4/2018	leachate	170 160 250 210 260 260 150	1500 2500 2500 2400 2500 2500	2800 1000 2600 1000 1600 2800 2200 2800 3700 3100 3600 3300 3400	0.3 0.32 0.3 0.14 0.27 ND 0.28 0.35 0.32 0.30 0.34 0.28	1.8 0.33 2.2 5.2 0.001 1.100 0.920 1.6 0.300 1.100 1.100 2	220 110 230 120 150 190 190 230 260 270 290 220 240	0.46 0.87 0.45 0.96 0.600 0.850 0.780 0.42 0.28 0.290 0.18 0.18	ND N	170 110 180 120 140 210 130 180 210.0 220 200.0 220	7.6 7.3 7.7 7.3 7.3 7.5 7.3 7.5 7.2 7.7 7.7	1700 690 1900 630 1000 1400 1200 1700 1800 1900 1700 1900	310 110 210 80 150 250 210 310 350 320.00 330	ND N	66 33 18 14 35 29 140 14 110 20 330 27 310 19 100 33 240 33 93 110 346 81 33 599 34	30 N 40 0. 90 N 40 0. 60 0	D 1100 47 580 D 960 D1 520 D7 780 D4 1100 D9 940 D9 1300 D3 1300 D5 1400 D05 1400 D05 1400 D09 1400	00 N//00 2500 N//00 N//0	/A N//A 00 48 //A N//A N//A N//A 00 N//A 00 N//A 00 17 //A N//A N//A N//A N//A N//A N//A N//A	N/A 0.13 N/A	N/A 0.017 N/A	N/A	N/A 0.49 N/A N/A N/A N/A 0.91 N/A	N/A ND N/A N/A N/A N/A ND N/A	N/A 0.004 N/A N/A N/A 0.017 N/A N/A N/A 0.032 N/A N/A N/A	N/A ND N/A N/A N/A ND N/A N/A N/A N/A N/A N/A	N/A ND N/A N/A N/A N/A N/A ND N/A	N/A P 0.031   1 N/A P	I/A N ND 1 I/A N	/A N ID 0. /A N //A N //A N //A N ID 0. //A N ID 0. //A N	1/A N/O26 3-1/A N/O26 0-1/A N/O26 0-1/A N/O26 0-1/A N/O26 N/		N/A 0.0034 N/A N/A 0.0009 N/A N/A 0.0012 N/A N/A	N/A 0.023 N/A N/A N/A 0.0034 N/A N/A 0.027 N/A N/A N/A	N/A 0.0351 N/A N/A N/A 0.042 N/A N/A N/A N/A N/A	N/A ND N/A N/A N/A N/A N/A ND N/A N/A N/A N/A N/A ND N/A N/A N/A N/A N/A N/A	N/A ND N/A N/A N/A N/A ND N/A ND N/A N/A N/A N/A ND N/A N/A ND N/A N/A ND N/A N/A	N/A ND N/A	N/A	N/A 0.0059 N/A N/A N/A 0.0004 N/A	N/A N/A N/A ND N/A N/A	N/A N/A N/A 0.006 N/A	N/A N/A NE

<sup>\*</sup>As MWD is within the perched landfill leachate water table, the Threshold Criteria are only applicable as indicators of general water quality for comparison to the wells surrounding the landfill. Exceedances of the Threshold Criteria for MWD are expected and do not indicate contamination is leaving the site.

1				Threshold Criteria	-		-		0.3	-	1.9	0.00001	-	6.5–8	- 0.	9 1	0.7 -	4	0.3	2 -	-		0.015	0.024 (III) 0.013 (V)	0.055 (pH> 6.5)		0.0002	0.09	0.0014	0.001	- 0.00	34 0.0006	0.008	0.26	0.95 0.1	3 0.08		6500	0.05	0.03	0.0003	0.00003	0.016	0.00002
				Units	mg/L	mg/L	mg/L r	mg/L	mg/L r	mg/L	mg/L	mg/L	mg/L	pH m	g/L mg	/L n	ng/L mg/	L mg/L	. mg/	L μS/cr	n mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L mg	/L mg/L	mg/L	mg/L n	ng/L mg/	L mg/L r	ng/L mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	FF	2 N	1	Analytes	Caldium	Alkalinity	Chloride	Fluoride	Iron	Magnesium	Manganese	Organochlorine pesticides (OCP)	Potassium	H.	Sodium		Nitrate Sulfate	Total organic carbon	Total phenolics	Electrical conductivity	(EC) Total dissolved solids	Biochemical oxygen demand	Phosphate	Arsenic III & V	Aluminium	Barium	Cadmium	Cobalt	Copper	Chromium VI	Chromium (total) Lead	Mercury	Zinc	ТРН	Benzene Toluene	Ethylbenzene	total Tetrachlorethen e (TCE)	1,1,1- Trichloro ethane	Tetrachloroethe ne (PCE)	1,2- Dichloroethene	Vinyl Chloride	PCBs	PAHs	OPPs
ľ		#I A	Î	Monitoring frequency	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly		Quarterly Quarterly	Quarterly	Quarterly	Quarterly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly
Monitoring	well	Chemical Report	Date Sampled	Comment																																		CVCs/VC	CCs					
M	WE 13	35493	6/10/2015		75	700	860	0.5	0.015	89	0.44	ND	1.7	7.4 7	30 0.0	06	ND 14	8 0	ND	4000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/	A N/A	N/A	N/A	N/A N/A	N/A	N/A N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M	NE SE1	148082	14/01/2016		80	750	850	0.35	0.019	79	0.23	ND	1.1	7.4 6	90 0.1	12	ND 200	10	0.0	2 4600	2200	ND	0.25	0.005	ND	0.048	ND	0.002	ND	ND	ND N	) ND	ND	ND	ND NE	ND	ND ND	ND	ND	ND	ND	ND	ND	ND
M	WE 14	44481	7/04/2016		67	890	640	0.5	0.034	72	0.24	ND	0.9	7.6 8	40 0.0	26 (	0.01 16	7	ND	3200	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/	A N/A	N/A	N/A	N/A N/A	N/A	N/A N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M	NE SE1	154534	6/07/2016		57	970	470	0.30	0.021	66	0.43	ND	1.6	7.6 6	10 0.0	04	ND 110	16	ND	3100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/	A N/A	N/A	N/A	N/A N/A	N/A	N/A N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M	NE SE1	157867	6/10/2016		61	900	560	0.41	0.012	67	0.110	ND	1.3	7.3 6	50 0.0	04	ND 120	16	0.0	1 3600	2100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/	A N/A	N/A	N/A	N/A N/A	N/A	N/A N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M		160904	12/01/2017		70	1100	580	0.18	0.021	76	0.27	ND	1.8	7.8 6	10 0.0	04	ND 130	13	ND	3500	2100	ND	0.07	NA	ND	0.054	ND	0.004	0.0010	ND	ND N	) ND	0.013	ND	ND NE	ND	ND ND	ND	ND	ND	ND	ND	ND	ND
M		164082	6/4/2017			1100				67	7.3	ND	0.9		30 0.0	07	ND 110	20	ND	_			- '	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/	A N/A	N/A	N/A	N/A N/A	N/A	N/A N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M		167897	6/7/2017			1200					0.14	ND	1.5		70 0.	.1	ND 99	_	ND	3100	N/A			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/	A N/A	N/A	N/A	N/A N/A	N/A	N/A N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M		171359	6/10/2017			1100				55	0.55	ND			20 0.3		ND 110	_	ND			-		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/		N/A	N/A	N/A N/A	N/A	N/A N/A		N/A	N/A	N/A	N/A	N/A	N/A
M		174394	12/1/2018				280				0.240		- 1		20 0.0		ND 91	_	_				-	NR	ND	0.04	0.0002	0.008		ND	ND N		ND		ND NE		ND ND	ND		ND	ND	ND	ND	ND
M		177839	10/4/2018			1200		0.56		53	0.14	ND			50 0.0	_	ND 85	_	_	_		-		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A N/		N/A	-	N/A N/A		N/A N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M		181445	12/7/2018				270			53 55	0.16 ND			7.4 5	30 0.0 50 0.2		ND 92		ND ND	_		N/A		N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/		N/A N/A	,	N/A N/A		N/A N/A N/A N/A	_	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A
M	AE SET	187247	6/12/2018		25	1200	300	0.52	0.008	22	UD	IVD	0.7	7.3 5	30 0.2		ND 12	6.5	ND	3000	N/A	N/A	N/A	N/A	IV/A	N/A	N/A	N/A	N/A	N/A	N/A N/	n N/A	N/A	IN/A	N/A N/A	N/A	N/A N/A	N/A	N/A	N/A	IN/A	IN/A	N/A	IN/A





			£ 1				Job Info	rmatio	on				
Date:			6	/12/18	3			Time:	arr	ive	1000	>	depart (400.
Project N	Vame:	UHS	SC - S	ده رو	- W	ste		Proje	ct Num	ber:	045	0054	
Site Loc	ation:	Jobl	et R	oad	ک دم	~Ł	***************************************	Samp	ler:	50	2	,	
Well ID:	M	WΑ		,				Weat	her:	نه	ı	•	
							Equip	ment					
Water qu	uality equ	ipment de	escription:	Bail	aJ		.situ		erface	probe	number:	5-4:	H 122 3,2015
	equipmer	nt:	Bailer type	: (F	Plastic	<b>)</b>	Teflon						
(please	cirice)		Pump type	e: F	Peristalti	<u> </u>	Submers	ible	Micr	o-pur	rge /	Amazon	Other:
					Well G	auging a	and Purg	je Volu	ıme C	alcul	lations		
Casing [	Diameter		25n	nm 50r	nm 10	0mm   1	25mm	150mm	2001	nm	250mm	300mm	Volume of water in well / V
Convers	ion Facto	r	0.9	08 (1.5	96) 7	.85	31.4	49.1	70	.7	125.7	196.3	= Prxrxh V = volume in litres
Total We	II Depth	(-) Water	level (=)	Water Co	olumn	•	<u>'</u>						P = 3.14159 r = radius in cm
15.90	<b>&gt;</b> m	(-) <u>6.7</u>	<u>///</u> m (=)	9.2 Water Col	m lumn (x)	Convers	ion Factor	r (=) [i	itres ne	r 1 W	ell Volum	9	h = height of water column in cm
				Water Col	m (x)	( -	96	(=)	(8 -	-		Ļ ,	
Depth to	product:		m	F	Product T	hickness		_m		Verif	ied with B	ailer: Y	N
						Wate	r Quality	/ Para	meter	c			
Reginair	ng purge t	ime <sup>,</sup>			Ending p			y i aia			<u> </u>	······································	
Litres	Time	PH	Temp ∘C	- 1	DO	Redox		J				omments	· · · · · · · · · · · · · · · · · · ·
LINES	111110	, ,,	Temp 0	mS/cm	mg/L	mV	<10cm						
2.0		_	22.1	19.72	1,92	71.3							
4.0			22.1	19.71	201	725							
6.0			26.1	19.7	1.97	726							
								(	law	٦ , ر	\0 C	sbour	, no odow
										,			
												. ,	
		*pH, ter	mp, cond re	adings not i	necessary	if well is p	urged dry	Exan	nple Co	mmei			udy / turbid / very turbid / no odour / our / strong odour / drawdown depth
18			/ell Volum	ne ater prior to	samolino			Sampl	e time			_ Conta	ainers used6
NA	•	Flow ra	ite	ator prior to	odinping	Did field	paramete	rs stabi	lise? [	Ŷ) ı	N NA	Was the	well dry purged? Y N
							Field QC	Chec	ks				
Was pre	-cleanino	sampling	a equipme	nt used fo	r these s				(V) N	П			
•	_			nt properly			ontaminati	ion?	Ž) \				
	·	• •	ipment co		, ,			Ì	(Y) N	I NA			
		·		ime of col	lection?			ŀ	YIN	┪—			
		•		rior to pre		ns?		ŀ	YM	λıΑ	_		
	e sample		•	•					Y (1)			ate sampl	e ID
Rinsate								}	YK			te blank ID	



Job Information
Date: 6 12 18 Time: arrive (000 depart (400
Project Name: Scare Waste facility Project Number: 0450054
Site Location: No Slet Rd Score Sampler: SC
Well ID: Meather: Fire
Equipment
Water quality equipment description: W-5.44 Interface probe number: Soling 122 3:2015
Purging equipment: Bailer type: Plastic Teflon
(please cirlce)  Pump type: Peristaltic Submersible Micro-purge Amazon Other:
Well Gauging and Purge Volume Calculations
Casing Diameter 25mm 100mm 125mm 150mm 200mm 250mm 300mm Volume of water in well / V
Conversion Factor 0.98 1.96 7.85 31.4 49.1 70.7 125.7 196.3 V = volume in litres
Total Well Depth (-) Water level (=) Water Column  LS. 95 m (-) 6.20 m (=) 9.75 m  P = 3.14159 r = radius in cm h = height of water column in cm
Water Column (x) Conversion Factor (=) Litres per 1 Well Volume
9.75 m(x) 1.91 (=) 198- L
Depth to product: m Product Thickness: m Verified with Bailer: Y N
Water Quality Parameters
Beginning purge time: Ending purge time:
Litres Time PH Temp °C Cond DO Redox Drawdown Comments mS/cm mg/L mV <10cm
2.0 6.98 21.9 16.01 3.47 77.8
4.0 7.01 21.9 16.01 3.57 79.1
60 7.01 2.9 16.01 3.50 78.8
Clear no colour, no odoar.
Clay 10 Cook, No Cook.
*pH, temp, cond readings not necessary if well is purged dry  Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / odour / drawdown depth
Total Well Volume Actual amount of water prior to sampling  Sample time  Containers used  6.
Flow rate mL/minute  Did field parameters stabilise?  N NA  Was the well dry purged?  Y N
Field QC Checks  Was pre-cleaning sampling equipment used for these samples? N
Was pre-cleaning sampling equipment properly protected from contamination?
Was documentation of equipment conducted?
Were air bubbles present in vials at time of collection?
Was sample for metals field filtered prior to preservations?  Y N NA
Duplicate sample collected?  Y N Duplicate sample ID
Pincate blank collected?



							Job Inf	ormati	on				
Date:	٦,	12.1	18					Time	а	rrive	(00	Ø	depart 1400
Project N	vame:	آدہ ~و	- h	yo He	faci	لرئاس		Proje	ct Nu	mber:	O4	500	
Site Loc		Not		Rd ?	500~2			Samp	oler:	5	5 _		7
Well ID:	W	رح	•	7				Weat	her:	F	ine		
							Equi	pment					
Water qu	uality equ	ipment de	scription:	in	- 5; l.					e prob	e number	<u>کے لیہ</u>	st 122 312011
	equipme	nt: E	Bailer type	:: <i>{</i>	lastic		Teflon						
(please	cirice)	F	Pump type	): F	Peristaltic	;	Submer	sible	Mi	cro-pı	urge	Amazon	Other:
					Well Ga	uging	and Pui	ge Vol	ume	Calcu	ulations		
Casing [	Diameter		25m	ım 50r	nm 10	Omm	125mm	150mm	20	0mm	250mm	300mm	Volume of water in well / V
Convers (volume in	ion Facto factor L/m)	r	0.9	8 1.	96 7	.85	31.4	49.1	7	0.7	125.7	196.3	V = volume in litres
		(-) Water											r = radius in cm
	(O m	(-) <u>~~,</u>	<u>6</u> m (=)			Conver	sion Fact	or (≔) L	itres (	oer 1 V	Veli Volum	e	h = height of water column in cm
				7.2			1.96					_L	<del></del>
Depth to	product:		m		Product T	hicknes	s:	_ m		Ver	ified with f	Bailer:	YN
						Wat	er Quali	ty Para	mete	ers			
Beginnir	ng purge t	ime:			Ending p								
Litres	Time	РН	Temp ∘C		DO mg/L	Redox					(	Comment	s
3		7.48	21.1	391	1.96	71.8				·····			,
4.0		7.20	21.1	-,-	216	77.1	)	+-				***************************************	
( . 0		7.20		3.92	2.10	17:		1					
8.0		7.4	21.1	392	2.11	77.2					•	<del></del>	
ه ۱۰۰		7.10	21.1	392	2.10	77.1	-						
		μ.ω			<u></u>	7	_				······································	·	
										·			
	w												
										,			
***************************************													
		⁺pH, ten	np, cond re	adings not	necessary	if well is <sub>l</sub>	ourged dry	Exar	nple	Comm	ents: clear sligh	/ slightly o t odour / o	sloudy / turbid / very turbid / no odour / dour / strong odour / drawdown depth
14	١١.		ell Volum	ne ater prior to	sampling			Samp	le tim	ė		Cor	ntainers used
٨	//x·	Flow ra mL/min				Did field	d paramet	ers stab	ilise?		N NA	Was t	he well dry purged? Y
							Field C	C Chec	cks				
Was pre	-cleaning	sampling	equipme	nt used fo	r these sa	amples?				N			William Control of the Control of th
Was pre	-cleaning	sampling	equipme	nt properl	y protecte	d from o	contamina	ition?	0	N			
Was doo	cumentati	on of equ	ipment co	nducted?					0	N N	1A		
Were air	bubbles	present is	n vials at t	ime of col	lection?				Y	D N	IA		
Was sar	mple for n	netals field	d filtered p	rior to pre	eservation	s?			Υ	MV	IA		
Duplicat	e sample	collected	?						Y		— Dupli	cate sam	ple ID
Rinsate	blank col	lected?							Υ	0	Rins	ate blank	ID



		······································					Job Inf	ormatio	n			
Date:		6.17	2.18					Time:	arrive		٥٦	depart (400
Project I	Vame:	500		æ5de	Faci	1,1		Projec	t Number:		(500	
Site Loc	ation:	1	بهاد ه	t Ro	2 1	~~~		Sampl	er:	50	·	
Well ID:	MU)	-	Lea	dieM	٠ / ـــــــــــــــــــــــــــــــــــ			Weath	er:	Fine	***************************************	
							Equi	pment				
Water q	uality equ	ipment de	scription:	(n	Sc	لب		-	erface prob	e number:	SI.	id 122 312015
	equipmer	nt: E	Bailer type	e: (	Plastic)	•	Teflon					
(please	cirlce)	F	oump type	e:	Peristalti	С	Submer	sible	Micro-pu	irge /	Amazon	Other:
			•		Well G	auging	and Pur	ge Volu	me Calcu	lations		
Casing i	Diameter		25r	nm 50	mm 10	00mm.	125mm	150mm	200mm	250mm	300mm	Volume of water in well / V
Convers	ion Facto	r	0.9	98 (1.	96)	7.85	31.4	49,1	70.7	125.7	196.3	= Prxrxh V = volume in litres
Total We	ell Depth	(-) Water	level (=)	Water C			I.				L_,,,,,,	P = 3.14159 r = radius in cm
	m	(-) <u>65</u>	<u>Ø</u> m (=)			Conver	sion Facto	or (=\ Lit	res per 1 V	Vell Volume	<b>.</b>	h = height of water column in cm
											<u> </u>	<del></del>
Depth to	product:		m		Product 1	hicknes	s:	_ m	Veri	fied with B	ailer: Y	N
						Wat	er Quali	y Parar	neters			
Beginnir	ng purge t	ime:			Ending p	urge tim	e:					
Litres	Time	РН	Temp °C	Cond mS/cm	DO mg/L	Redo: mV	Drawdov			С	omments	
					9.2	1	1	<u>'</u>			<del></del>	
									············		·	
							<del>                                     </del>		•			
										Seq.	th /	
						<u> </u>		<del>                                     </del>			<del>_ ====</del>	
	w <del></del>											
	,											
		⁺pH, ten	np, cond re	adings not	necessary	if well is	ourged dry	Exam	ple Comme			oudy / turbid / very turbid / no odour / our / strong odour / drawdown depth
			ell Volun	ne ater prior to	samolino			Sample	time		_ Conta	ainers used(
		Flow ra	te	o.o. po	out.ip.ii.ig	Did field	d paramet	ars stahil	ise? Y	N NÃ.	Was the	well dry purged? Y
		mL/min	ute			DIG NO					1100 (1)	, well dry purged? [
						······································	Field Q	C Chec	ks	···		
,				ent used fo					N (A			
						ea trom	contamina	uon?	N (Y			
		•		onducted?				(_	Y) N N			
		•		time of co		nc?			Y N N			
		collected		prior to pr	saei valiO	io f		1			ate sample	a ID
·	e sample blank coll							-	Y		te blank ID	



Job Information													
Date:		6-12-18						Time:	Time: arrive (000 depart (M00				
Project Name: Some Worke Locality Site Location: Noble + Rd Scome.								Proje	Project Number: 045 0054				
Site Location: Noble + Rd Score.								Samp	Sampler: (				
Well ID: MWE Weather: fine													
							Equ	ipment					
Water quality equipment description: 1-544 Interface probe number: Solund 122 312015.													
Purging equipment: Bailer type: Plastic Teflon  (please cirlce)  Pump type: Peristaltic Submersible Micro-purge Amazon Other:													
Well Gauging and Purge Volume Calculations													
Casing Diameter			25	imm 150	nm 100mm		125mm	150mm	200mm	250mm	300mm	Volume of water in well / V	
Conversion Factor (volume in factor L/m)			0	0.98 1.96 7.85		.85	31.4	49.1	70.7	125.7	196.3	V = volume in litres	
Total Well Depth (-) Water level (=) Water Column  Total													
m (x)L													
Depth to product: m Product Thickness: m Verified with Bailer: Y N										N			
Water Quality Parameters													
Beginnir	ng purge t	ime:			Ending po	urge time	9:						
Litres	Time	PH Temp °C Cond DO Redox Drawdown Comments mS/cm mg/L mV <10cm											
2.0		7.7	3	13.0	2.91	70,1							
4.0		7.65	FLA	198	2.90	20.	र्ज						
6.0		7.65	711 6	1.98	2.90	206	,						
											·		
							<u>.</u>						
*pH, temp, cond readings not necessary if well is purged dry  Example Comments: clear / slightly cloudy / turbid / very turbid / no odour / slight odour / odour / strong odour / drawdown depth													
			/ell Volu		sampling			Sampl	e time		Conta	ainers used	
	Actual amount of water prior to sampling  Flow rate mL/minute  Did field parameters stabilise?  N NA  Was the well dry purged?  Y												
Field QC Checks													
10(00 000	clossics	campling	a aquiae	ent used fo	or those co	moles?	riela C	о опес	/ N				
,	-						ontamin	ation?					
Was pre-cleaning sampling equipment properly protected from contamination?													
Was documentation of equipment conducted?  Were air bubbles present in vials at time of collection?  Y N NA  Y N NA													
		•				s?			- 1				
Was sample for metals field filtered prior to preservations?  Y N NA  Duplicate sample collected?  Duplicate sample ID												e ID	
	e sample blank col							1	V V	,	te blank IC		