

# QUARTERLY GROUNDWATER MONITORING THE SCONE WASTE LANDFILL

# THE SCONE WASTE LANDFILL

Noblet Road Scone NSW 2337

**Upper Hunter Shire Council** 

DLH1186\_H001401

October 2017



ii

**PROJECT NAME** 

**PROJECT ID** 

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Scone Waste Landfill Groundwater Monitoring

**DLH1186** 

H001401

**Upper Hunter Shire Council** 

Stephen Challinor

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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)

DLA Environmental Services
EC Electrical Conductivity

EPA Environment Protection Authority (NSW)

NEPC National Environment Protection Council

NEPM National Environment Protection Measure

NHMRC National Health and Medical Research Council

NRMMC Natural Resource Management Ministerial Council

**NSW** New South Wales

OCP Organochlorine Pesticides
TOC Total Organic Carbon



### **TABLE OF CONTENTS**

1.0	INTRODUCTION	
1.1	General	1
1.2	Scope of Works	1
2.0	MONITORING PARAMETERS	2
3.0	SAMPLING METHODOLOGY	3
3.1	Groundwater Sampling	3
4.0	RESULTS	4
5.0	DISCUSSION	9
6.0	CONCLUSIONS	11
7.0	REFERENCES	12

### **FIGURES**

Figure 1 Site Location Regional
Figure 2 Site Location Local

Figure 3 Site Layout with Sample Locations

### **ATTACHMENTS**

Attachment 1 NATA Certified Analytical Results

Attachment 2 YSI Water Quality Meter Calibration Certificate

Attachment 3 Data Log

Attachment 4 Groundwater Field Data Sheets



## 1.0 INTRODUCTION

#### 1.1 General

DLA Environmental Services (DLA) was engaged by Upper Hunter Shire Council (the Client) to conduct annual and quarterly surface and groundwater monitoring of the following area:

### **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 the New South Wales (NSW) Environmental Protection Authority (EPA) Environmental Protection Licence 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. It is anticipated that quarterly monitoring will be undertaken in April, July and October with annual reporting undertaken in the January reporting period.

Quarterly groundwater monitoring was undertaken on Friday 6<sup>th</sup> October 2017 by staff of DLA.

### 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.



### 2.0 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

		Threshold Criteria	
Analytes	Units	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

 $<sup>\</sup>ensuremath{\text{C}}$  - 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



### 3.0 SAMPLING METHODOLOGY

### 3.1 Groundwater Sampling

Groundwater samples were collected from well locations MWA, MWB, MWC, MWD and MWE. 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 a YSI Quatro Pro Plus Water Quality Meter and a flow through cell. 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%.

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 DLA that decontamination procedures were appropriate during groundwater sampling and no cross contamination can be inferred.



### 4.0 RESULTS

All wells were sampled during the October 2017 sampling event, results are detailed below.

Refer to **Table 4a – Table 4e** for a tabulated summary of the laboratory results.

Refer to **Figure 3** for sampling locations.

Table 4a – Groundwater Results Comparison October 2017

Sampling Parameter	Units	Threshold Criteria	MWA Oct 2016	MWA Jan 2017	MWA Apr 2017	MWA July 2017	MWA Oct 2017
		(mg/L)					
Calcium	mg/L	NA	580	600	570	640	600
Alkalinity (total)	mg/L	NA	430	460	450	470	470
Chloride	mg/L	NA	7400	8200	7700	7900	7600
Fluoride	mg/L	NA	0.15	ND	0.14	0.12	0.14
Iron	mg/L	0.3 <sup>B</sup>	ND	ND	ND	ND	0.034
Magnesium	mg/L	NA	1100	1200	1100	1200	1100
Manganese	mg/L	1.9 <sup>A</sup>	0.02	0.004	0.006	0.007	0.014
ОСР	mg/L	0.00001 <sup>c</sup>	ND	ND	ND	ND	ND
Potassium	mg/L	410 <sup>D</sup>	4.4	5.6	3.1	4.3	4.9
рН	рН	6.5 – 8	6.8	7.3	6.8	7.0	6.6
Sodium	mg/L	NA	2100	2100	2200	2200	2000
Ammonia	mg/L	0.9 <sup>A</sup>	0.14	0.13	0.14	0.07	0.42
Nitrate	mg/L	0.7	0.50	0.13	0.24	0.24	0.41
Sulfate	mg/L	NA	37	38	39	42	43
тос	mg/L	4.0	6.2	3.9	6.4	8.0	5.0
Total phenolics	mg/L	0.32	0.22	0.02	0.16	ND	ND
EC	μS/cm	NA	21000	19000	21000	21000	20000

Samples highlighted in **Bold** exceed threshold criteria

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 4b - Groundwater Results Comparison October 2017

Sampling Parameter	Units	Threshold Criteria (mg/L)	MWB Oct 2016	MWB Jan 2017	MWB Apr 2017	MWB July 2017	MWB Oct 2017
Calcium	mg/L	NA	600	590	580	640	610
Alkalinity (total)	mg/L	NA	360	380	360	390	380
Chloride	mg/L	NA	6000	6300	6000	6000	6000
Fluoride	mg/L	NA	0.22	ND	0.27	0.26	0.26
Iron	mg/L	0.3 <sup>B</sup>	0.006	ND	ND	ND	0.005
Magnesium	mg/L	NA	830	850	760	820	790
Manganese	mg/L	1.9 <sup>A</sup>	0.008	ND	0.009	0.01	0.009
ОСР	mg/L	0.00001 <sup>c</sup>	ND	ND	ND	ND	ND
Potassium	mg/L	410 <sup>D</sup>	3.6	5	2.8	4.0	4.1
рH	рН	6.5 – 8	6.9	7.2	6.6	7.0	6.7
Sodium	mg/L	NA	1800	1700	1700	1800	1600
Ammonia	mg/L	0.9 <sup>A</sup>	0.09	0.10	0.09	0.21	0.09
Nitrate	mg/L	0.7	1.1	0.59	0.71	0.83	0.75
Sulfate	mg/L	NA	69	70	77	75	70
тос	mg/L	4.0	6.6	5	6.8	8.2	6.3
Total phenolics	mg/L	0.32	0.14	0.04	0.02	ND	ND
EC	μS/cm	NA	17000	16000	17000	16000	16000

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 October 2017

Sampling Parameter	Units	Threshold Criteria (mg/L)	MWC Oct 2016	MWC Jan 2017	MWC April 2017	MWC July 2017	MWC Oct 2017
Calcium	mg/L	NA	67	44	34	26	35
Alkalinity (total)	mg/L	NA	630	830	670	640	720
Chloride	mg/L	NA	770	880	520	370	500
Fluoride	mg/L	NA	0.34	0.13	0.44	0.46	0.41
Iron	mg/L	0.3 <sup>B</sup>	ND	ND	ND	0.008	ND
Magnesium	mg/L	NA	120	89	68	52	73
Manganese	mg/L	1.9 <sup>A</sup>	5.6	7.8	7.3	4.6	4.6
ОСР	mg/L	0.00001 <sup>c</sup>	ND	ND	ND	ND	ND
Potassium	mg/L	410 <sup>D</sup>	1.1	2	0.9	0.8	0.9
рН	рН	6.5 – 8	7.1	7.6	7.1	7.2	7.1
Sodium	mg/L	NA	620	510	540	430	490
Ammonia	mg/L	0.9 <sup>A</sup>	0.04	0.12	0.06	0.33	0.41
Nitrate	mg/L	0.7	ND	ND	ND	0.005	ND
Sulfate	mg/L	NA	180	200	120	90	110
тос	mg/L	4.0	24	21	23	23	19
Total phenolics	mg/L	0.32	ND	ND	ND	ND	ND
EC Canada a biabliable dia	μS/cm	NA	3900	4200	2900	2400	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



Table 4d - Groundwater Results Comparison October 2017

Sampling Parameter	Units	Threshold Criteria (mg/L)	MWD (leachate) Oct 2016	MWD (leachate) Jan 2017	MWD (leachate) April 2017	MWD (leachate) July 2017	MWD (leachate) Oct 2017
Calcium	mg/L	NA	210	260	260	150	190
Alkalinity (total)	mg/L	NA	1600	2300	1500	2500	2500
Chloride	mg/L	NA	1600	2800	2200	2800	3700
Fluoride	mg/L	NA	0.27	ND	0.28	0.35	0.32
Iron	mg/L	0.3 <sup>B</sup>	1.2	1.1	0.920	1.6	0.3
Magnesium	mg/L	NA	150	230	190	230	260
Manganese	mg/L	1.9 <sup>A</sup>	0.6	0.850	0.780	0.42	0.28
ОСР	mg/L	0.00001 <sup>c</sup>	ND	ND	ND	ND	ND
Potassium	mg/L	410 <sup>D</sup>	140	210	130	180	210
рН	рН	6.5 – 8	7.3	7.5	7.3	7.5	7.2
Sodium	mg/L	NA	1000	1400	1200	1700	1800
Ammonia	mg/L	0.9 <sup>A</sup>	150	250	210	310	350
Nitrate	mg/L	0.7	ND	ND	ND	ND	ND
Sulfate	mg/L	NA	110	330	310	100	240
Total Organic	mg/L	4.0	200	270	150	320	320
Total phenolics	mg/L	0.32	0.07	0.04	0.19	0.05	0.03
EC	μS/cm	NA	7800	11000	9400	12000	13000

ND = No Detection above Laboratory LOR

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.

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 October 2017

Sampling Parameter	Units	Threshold Criteria (mg/L)	MWE Oct 2016	MWE Jan 2017	MWE April 2017	MWE July 2017	MWE Oct 2017
Calcium	mg/L	NA	61	70	34	60	56
Alkalinity (total)	mg/L	NA	900	1100	1100	1200	1100
Chloride	mg/L	NA	560	580	360	340	310
Fluoride	mg/L	NA	0.41	0.18	0.52	0.5	0.51
Iron	mg/L	0.3 <sup>B</sup>	0.012	0.021	0.006	0.077	0.015
Magnesium	mg/L	NA	67	76	67	65	55
Manganese	mg/L	1.9 <sup>A</sup>	0.110	0.27	7.3	0.14	0.055
ОСР	mg/L	0.00001 <sup>c</sup>	ND	ND	ND	ND	ND
Potassium	mg/L	410 <sup>D</sup>	1.3	1.8	0.9	1.5	1.4
рН	рН	6.5 – 8	7.3	7.8	7.3	7.5	7.4
Sodium	mg/L	NA	650	610	530	570	520
Ammonia	mg/L	0.9 <sup>A</sup>	0.04	0.04	0.07	0.1	0.38
Nitrate	mg/L	0.7	ND	ND	ND	ND	ND
Sulfate	mg/L	NA	120	130	110	99	110
Total Organic	mg/L	4.0	16	13	20	26	17
Total phenolics	mg/L	0.32	0.01	ND	ND	ND	ND
EC	μS/cm	NA	3600	3500	3200	3100	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



## 5.0 DISCUSSION

Due to the sites topography, 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 perched landfill water table, being the leachate within the landfill.

The water sampled from well MWD is landfill leachate and as such the Threshold Criteria is not used as a comparison, only as an indicator of current conditions. 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 October 2017 sampling event in relation to the Threshold Criteria. The following exceedances of the Threshold Criteria occurred:

- Nitrate in MWB exceeded the Threshold Criteria (0.7 mg/L) with a concentration of 0.75 mg/L. Exceedances of nitrate have been consistent in MWB since October 2016. There has been no nitrate detected in leachate well MWD which suggests that the landfill is not the source of the nitrate. The nitrate may be migrating onto the Site through groundwater from the farmland to the north.
- Manganese in MWC exceeded the Threshold Criteria (1.9 mg/L) with a concentration of 4.6 mg/L. The reported concentration is equivalent to the results of the previous monitoring round in July 2017, however represents an overall decrease since the previous rounds of monitoring carried out between October 2016 and April 2017. Manganese concentrations in leachate well MWD have been consistently below the Threshold Criteria which suggests that the landfill is not the source of the nitrate.
- Ammonia in MWD exceeded the Threshold Criteria (0.9mg/L) with a concentration of 320 mg/L. The concentration of ammonia in MWD has consistently increased since October 2016.
- Total Organic Carbon (TOC) exceeds the Threshold Criteria (4 mg/L) in all monitoring wells (MWA, MWB, MWC, MWD and MWE) as follows:
  - TOC in MWA reported a concentration of 5 mg/L, decreasing from 8.0 mg/L reported in July 2017;
  - TOC in MWB reported a concentration of 6.6 mg/L, decreasing from 8.2 mg/L reported in July 2017;
  - TOC in MWC reported a concentration of 19 mg/L, decreasing from 23 mg/L reported in July 2017;



- TOC in MWD reported a concentration of 320 mg/L which is equivalent to the concentration reported in July 2017, however is an overall increase the previous rounds of monitoring carried out between October 2016 and April 2017; and
- TOC in MWE reported a concentration of 17 mg/L, decreasing from 26 mg/L reported in July 2017.

The Threshold Criteria used for TOC is intended for drinking water, not groundwater. Due to the magnitude of the exceedances and the intention of the Threshold Criteria used, these exceedances are regarded as minor. The TOC concentration 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.

The following notable changes occurred within the groundwater chemistry in landfill leachate well MWD:

- Ammonia has increased to 350 mg/L, from a concentration of 310 mg/L in the July 2017 monitoring round. Concentrations of ammonia in MWD have consistently been substantially higher than in the surrounding wells.
- Chloride has increased to 3700mg/L, from a concentration of 2800 mg/L in the July 2017 monitoring round. The current concentration is the highest concentration reported since the October 2016 monitoring round, and represents a continued increase in concentration overtime.
- Iron has decreased to 0.3 mg/L, from a concentration of 1.6 mg/L in the July 2017 monitoring round. The current concentration is less than the Threshold Criteria (0.3 mg/L).

Refer to **Attachment 3** – Data Log.

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



### 6.0 CONCLUSIONS

The results of laboratory analysis of the samples collected from the Scone Waste Landfill during the October 2017 quarterly sampling event confirmed several exceedances of the Threshold Criteria in the wells external to the landfill. 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 October 2017 sampling event: nitrate in MWB, manganese in MWC, ammonia in MWD, and TOC in MWA, 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 or regarded as minor due to the criteria being Australian Drinking Water Guidelines. Trending of these analytes over time may indicate a seasonal fluctuation of regional groundwater conditions. All remaining exceedances are in MWD which is the leachate monitoring well. Exceeding concentrations in MWD are substantially higher than other wells, this indicates that it is unlikely that releases of landfill leachate into the local groundwater are 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. Further monitoring may reveal the source and extent of elevated concentrations of particular analytes. As more data becomes available, it will become clearer which analytes are consistently elevated and may allow for determining the source of contamination.

The next water sampling event will be the annual monitoring which will be undertaken in January 2018.



## 7.0 REFERENCES

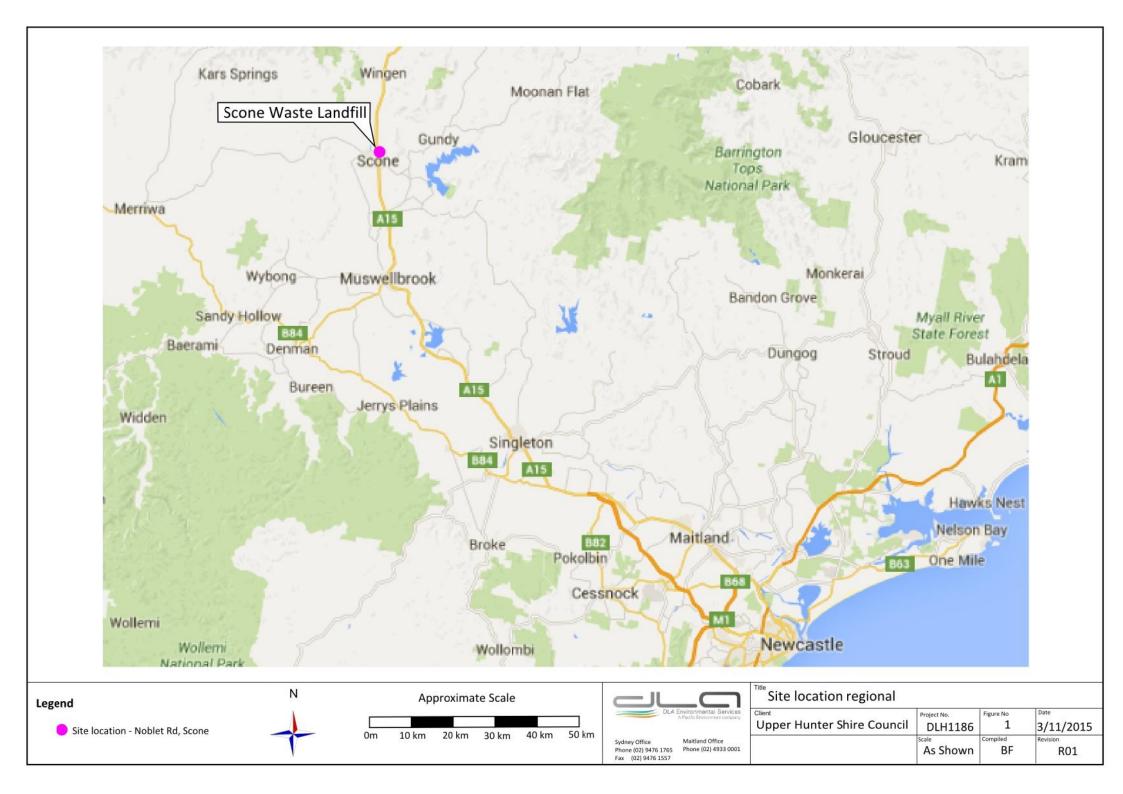
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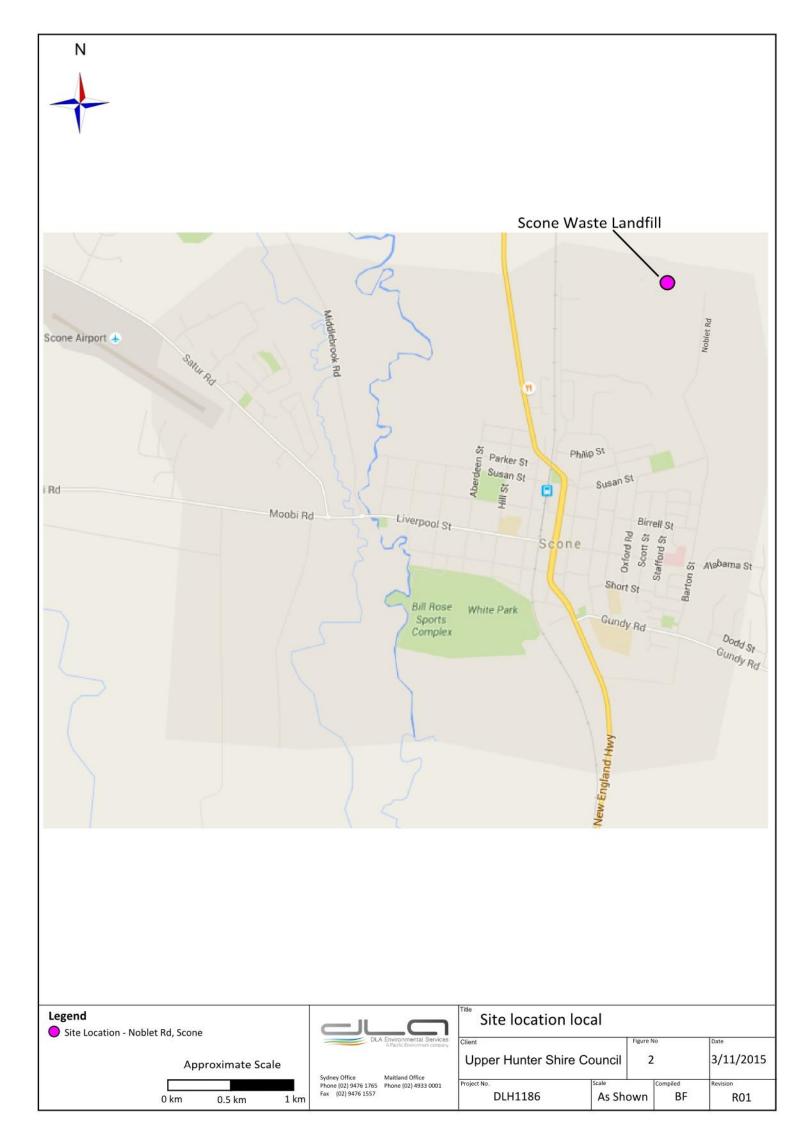
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Groundwater well location



Approximate Scale
Om 50m 100m

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Title Site layout with sample locations							
Upper Hunter Shire Council	Project No. DLH1186	Figure No	Date 16/10/2015				
	As Shown	Compiled BF	Revision RO1				





### **ANALYTICAL REPORT**





CLIENT DETAILS -

LABORATORY DETAILS

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Project **DLH1186** SGS Reference SE171359 R0 (Not specified) Order Number Date Received 13/10/2017 5 20/10/2017 Samples Date Reported

COMMENTS

Telephone

Facsimile

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.

SIGNATORIES

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OC Pesticides in Water [AN420] Tested: 16/10/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	   WATER	WATER	WATER	WATER
			6/10/2017	6/10/2017	6/10/2017	6/10/2017	6/10/2017
PARAMETER	UOM	LOR	SE171359.001	SE171359.002	SE171359.003	SE171359.004	SE171359.005
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

20/10/2017 Page 2 of 14



SE171359 R0

Total Phenolics in Water [AN289] Tested: 17/10/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
							-
			6/10/2017	6/10/2017	6/10/2017	6/10/2017	6/10/2017
PARAMETER	UOM	LOR	SE171359.001	SE171359.002	SE171359.003	SE171359.004	SE171359.005
Total Phenois	mg/L	0.01	<0.01	<0.01	<0.01	0.03	<0.01

20/10/2017 Page 3 of 14



SE171359 R0

### Anions by Ion Chromatography in Water [AN245] Tested: 17/10/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	   WATER	WATER	WATER
			6/10/2017	6/10/2017	6/10/2017	6/10/2017	6/10/2017
PARAMETER	UOM	LOR	SE171359.001	SE171359.002	SE171359.003	SE171359.004	SE171359.005
Fluoride	mg/L	0.1	0.14	0.26	0.41	0.32	0.51
Chloride	mg/L	1	7600	6000	500	3700	310
Nitrate Nitrogen, NO3-N	mg/L	0.005	0.41	0.75	<0.005	<0.050↑	<0.005
Sulfate, SO4	mg/L	1	43	70	110	240	110

20/10/2017 Page 4 of 14



SE171359 R0

pH in water [AN101] Tested: 16/10/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
							-
			6/10/2017	6/10/2017	6/10/2017	6/10/2017	6/10/2017
PARAMETER	UOM	LOR	SE171359.001	SE171359.002	SE171359.003	SE171359.004	SE171359.005
pH**	No unit	-	6.6	6.7	7.1	7.2	7.4

20/10/2017 Page 5 of 14



SE171359 R0

### Conductivity and TDS by Calculation - Water [AN106] Tested: 16/10/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
			6/10/2017	6/10/2017	6/10/2017	6/10/2017	6/10/2017
PARAMETER	UOM	LOR	SE171359.001	SE171359.002	SE171359.003	SE171359.004	SE171359.005
Conductivity @ 25 C	μS/cm	2	20000	16000	3000	13000	3000
Total Dissolved Solids (by calculation)	mg/L	2	12000	9400	1800	8100	1800

20/10/2017 Page 6 of 14



SE171359 R0

### Alkalinity [AN135] Tested: 13/10/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
			6/10/2017	6/10/2017	6/10/2017	6/10/2017	6/10/2017
PARAMETER	UOM	LOR	SE171359.001	SE171359.002	SE171359.003	SE171359.004	SE171359.005
Bicarbonate Alkalinity as CaCO3	mg/L	5	470	380	720	2500	1100
Carbonate Alkalinity as CaCO3	mg/L	1	<1	<1	<1	<1	<1
Hydroxide Alkalinity as CaCO3	mg/L	5	<5	<5	<5	<5	<5
Phenolphthalein Alkalinity as CaCO3*	mg/L	5	<5	<5	<5	<5	<5
Total Alkalinity as CaCO3	mg/L	5	470	380	720	2500	1100

20/10/2017 Page 7 of 14



SE171359 R0

Acidity and Free CO2 [AN140] Tested: 17/10/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
							-
			6/10/2017	6/10/2017	6/10/2017	6/10/2017	6/10/2017
PARAMETER	UOM	LOR	SE171359.001	SE171359.002	SE171359.003	SE171359.004	SE171359.005
Acidity to pH 8.3	mg CaCO3/L	5	200	140	130	360	84

20/10/2017 Page 8 of 14



SE171359 R0

### Ammonia Nitrogen by Discrete Analyser (Aquakem) [AN291] Tested: 18/10/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
							-
			6/10/2017	6/10/2017	6/10/2017	6/10/2017	6/10/2017
PARAMETER	UOM	LOR	SE171359.001	SE171359.002	SE171359.003	SE171359.004	SE171359.005
Ammonia Nitrogen, NH₃ as N	mg/L	0.01	0.42	0.09	0.41	350	0.38

20/10/2017 Page 9 of 14



SE171359 R0

Forms of Carbon [AN190] Tested: 18/10/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
							-
			6/10/2017	6/10/2017	6/10/2017	6/10/2017	6/10/2017
PARAMETER	UOM	LOR	SE171359.001	SE171359.002	SE171359.003	SE171359.004	SE171359.005
Total Organic Carbon as NPOC	mg/L	0.2	5.0	6.3	19	320	17

20/10/2017 Page 10 of 14



SE171359 R0

### Metals in Water (Dissolved) by ICPOES [AN320] Tested: 18/10/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	   WATER	WATER	WATER
			6/10/2017	6/10/2017	6/10/2017	6/10/2017	6/10/2017
PARAMETER	UOM	LOR	SE171359.001	SE171359.002	SE171359.003	SE171359.004	SE171359.005
Calcium, Ca	mg/L	0.1	600	610	35	190	56
Magnesium, Mg	mg/L	0.1	1100	790	73	260	55
Sodium, Na	mg/L	0.1	2000	1600	490	1800	520
Potassium, K	mg/L	0.2	4.9	4.1	0.9	210	1.4

20/10/2017 Page 11 of 14



SE171359 R0

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 16/10/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
			6/10/2017	6/10/2017	6/10/2017	6/10/2017	6/10/2017
PARAMETER	UOM	LOR	SE171359.001	SE171359.002	SE171359.003	SE171359.004	SE171359.005
Iron, Fe	μg/L	5	34	5	<5	300	15
Manganese, Mn	μg/L	1	14	9	4600	280	55

20/10/2017 Page 12 of 14



\_ METHOD \_\_

\_\_\_\_\_ METHODOLOGY SUMMARY \_

### **METHOD SUMMARY**

SE171359 R0

WIETHOD	METHODOLOGY SUMMARY ————————————————————————————————————
AN020	Unpreserved water sample is filtered through a 0.45µm 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+.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is 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.
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 containing only carbon dioxide, bicarbonates and carbonates, titration to pH 8.3 at 25°C corresponds 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 a 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).
Calculation	Free and Total Carbon Dioxide may be calculated using alkalinity forms only when the samples TDS is <500mg/L. If TDS is >500mg/L free or total carbon dioxide cannot be reported. APHA4500CO2 D.

20/10/2017 Page 13 of 14

SE171359 R0



FOOTNOTES -

\* NATA accreditation does not cover the performance of this service.

\*\* Indicative data, theoretical holding time exceeded.

Not analysed.NVL Not validated.

IS Insufficient sample for analysis.

LNR Sample listed, but not received.

UOM Unit of Measure.
LOR Limit of Reporting.

↑↓ Raised/lowered Limit of

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 "Total" 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
- b. 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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20/10/2017 Page 14 of 14



#### Multi Parameter Water Meter

Instrument

**YSI Quatro Pro Plus** 

Serial No.

10H100317



# Air-Met Scientific Pty Ltd 1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	1	
•	Fuses	1	
	Capacity	✓	
Switch/keypad	Operation	<b>✓</b>	
Display	Intensity	✓	
	Operation (segments)	1	
Grill Filter	Condition	<b>✓</b>	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	<b>√</b>	
Sensor	1. pH	<b>V</b>	
	2. mV	✓	
	3. EC	1	
	4. D.O	1	
	5. Temp	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

### Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle	Instrument Reading
			-	Number	
1. pH 10.00		pH 10.00		304261	pH 9.29
1. pH 7.00		pH 7.00		290453	pH 6.65
2. pH 4.00		pH 4.00		288994	pH 3.81
3. mV		229.6mV		299345/297604	230.9mV
4. EC		2.76mS	,	292380	2.83mS
5. D.O		0.00ppm		CS13715	0.00ppm
6. Temp		22.0°C /		MultiTherm	21.8°C

Calibrated by:

Ben O'Donnell

Calibration date:

3/10/2017

Next calibration due:

2/11/2017

**ATTACHMENT 3 – DATA LOG** 

	DI A Feviro	Jonantal Soules	Threshold Criteria	NA	NA	NA	NA	0.3	NA	1.9	0.00001	NA	6.5-8	NA	0.9	0.7	NA	4 (	0.32	NA	NA	NA (	0.015	0.024 (III) 0.013 (V)	0.055 (pH> 6.5)	NA	0.0002	0.09 0	.0014 0.0	001 NA	0.0034	0.0006	0.008	0.26	0.95 0.	18 0.	08 NA	NA	6500	0.05	0.03	0.0003 0.0000	03 0.016	0.00002
			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	mg/L m	ng/L m	mg/L µ	ıS/cm ı	mg/L ∽	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L m	g/L mg/	L mg/L	mg/L	mg/L	mg/L	mg/L m	g/L mg	/L mg/	L mg/L	mg/L	mg/L	mg/L	mg/L mg/L	L mg/L	mg/L
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toring /ell	mical	ampl	ment																																				CVCs/VOCCs					
Moni	Che	ate S	Com																																									
MWA	135493	6/10/2015		620	440	7700	0.1	ND	1200	0.028	ND	3.2	6.8	2400	0.006	0.76	66	4	ND :	19000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/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	N/A N/A	N/A	N/A
MWB MWC	135493	6/10/2015 6/10/2015		650 62	370 730	6300 690	0.3		840 130	0.008		2.6	6.9 7.1	1900 670		1.3 0.17			_		_		N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	-	_	I/A N/A	N/A N/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	-	N/A N/A
MWD	135493	0,10,2015	leachate	150	2400	2800	0.4	140	220			170	7.6	1700	310	_						11411	N/A	N/A N/A	N/A	N/A N/A	N/A N/A		,,,,	I/A N/A	,		N/A N/A		,	7	A N/A	,	N/A	N/A N/A	,	N/A N/A	,	N/A N/A
MWE	135493	6/10/2015		75	700	860	0.5		89	0.44	ND	1.7	7.4		0.006	ND					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 N/A	,	N/A
MWA MWB	SE148082 SE148082	- 1,00,000		630 650	430 370		ND ND		1100 810	0.01		4 3.5	7	2200 1700	0.2	1.3	69	_			16000 15000	_	_	0.001	ND ND	0.77	ND ND			ND ND			0.009 <b>0.012</b>	ND ND	_	_	D ND	_	ND ND	ND ND	ND ND	ND ND		ND ND
MWC	SE148082			56	750	630	0.34		110	4.9	ND	0.9	7.2		0.13	ND					2400			0.002	ND	0.02	ND			ND ND			ND	ND	_		D ND		ND ND	ND ND	ND	ND ND		ND ND
MWD	SE148082	7.5 7 5 5	leachate		1200		_	0.33			_	110	7.3	690	110	_		_	_		2500			0.017	ND	0.49	ND		_	ND 0.03	_		0.026		0.0028 0.0		_		ND	ND		0.0059 ND		
MWE	SE148082 144481	14/01/2016 7/04/2016		80 700	750 460	850 7300	0.35	0.019 ND	79 1300	0.23	ND ND	1.1 3.1	7.4		0.12	ND 0.62	200 43	_	_		2200 N/A		0.25 N/A	0.005 N/A	ND N/A	0.048 N/A	ND N/A			ND ND			ND N/A				D ND 'A N/A		ND N/A	ND N/A	ND N/A	ND ND N/A N/A		ND N/A
MWB	144481	7/04/2016		720	380	6300	0.3	0.02	880	0.007		2.6	7.1	2300		_	61	4	ND :			_	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	N/A N/A	N/A	N/A
MWC	144481	.,.,,		290		3700	0.0	0.038	420			1.4	7.2	1900				-			_	_	N/A	N/A	N/A	N/A	N/A		,	/A N/A			N/A				'A N/A	_	14/11	N/A	_	N/A N/A	,	11911
MWD MWE	144481 144481	7/04/2016 7/04/2016	leachate	160 67	2200 890	2600 640	0.3		230 72	0.45		180 0.9	7.7	1900 840	210 0.026	ND 0.01		_	_		N/A N/A	_	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	_	-	I/A N/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	_	N/A N/A
MWA	SE154534	0,01,2020		620	460			0.021	1200	0.021		3.7	7.1			0.36					,	1411	N/A	N/A	N/A	N/A	N/A		,	/A N/A	,		N/A	11/11		/A N		,	N/A	N/A	,	N/A N/A	,	N/A
MWB	SE154534 SE154534	0,01,2020		650 55	390 730	6100 610	0.24	0.000	820 93	0.008 <b>5.400</b>	ND ND	3.1 1.0	7.1 7.4	1700 580							_	-	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 N/A	,	N/A N/A N/A N/A	,	N/A N/A
MWD	SE154534	.,.,	leachate	250	1200	1000		0.520		0.960	ND ND	120	7.3	630	80			_			_	_	N/A	N/A	N/A	N/A	N/A	-	_	/A N/A	_		N/A		-	/A N	_		N/A	N/A		N/A N/A	-	N/A
MWE	SE154534			57	970	470	0.30	0.000	66	0.430	_	1.6	7.6	610	0.04			_	_		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 N/A	,	N/A
MWA MWB	SE157863 SE157863	0, 10, 1010		580 600	430 360	7400 6000	0.20	ND 0.006		0.020		4.4 3.6	6.8	2100 1800		0.50 1.1					12000 10000	10.1	NA NA	NA NA	NA NA	NA NA	NA NA	1471		NA NA	1000	10.1	NA NA	1011	_		A NA		1471	NA NA	1411	NA NA		NA NA
MWC	SE157863	6/10/2016			630		0.54	ND	120	5.600	ND	1.1	7.1	620	0.04	ND	180	24	ND	-		1471	NA	NA	NA	NA	NA	1471	1471	NA NA		NA	NA	NA	NA N	NA N		1471	NA	NA		NA NA		NA
MWD MWE	SE157863 SE157863	-, -, -, -	leachate	210 61	1600 900	1600 560	0.27		150 67	0.600	ND ND	140 1.3	7.3 7.3	1000 650	150 0.04	ND ND	_				4700 2100	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	_		NA NA	_		NA NA				A NA	_	NA NA	NA NA	NA NA	NA NA	_	NA NA
MWA	SE160904			600	460		ND ND		1200	0.004		6	7.3	2100	_	0.13	38				14000	_	0.059	NA	ND	0.59	ND	ND		005 0.00	_		0.008	ND	_	_	D ND	1011	ND	ND	ND	ND ND		ND
MWB	SE160904	, -,		590	380				850			5	7.2	1700			-1-0						0.017	NA	ND 0.005	0.55	ND			ND 0.00			0.007				D ND		ND	ND		ND ND		ND
MWC	SE160904 SE160904	111	leachate	44 260	830 2300	880 2800	0.13 ND	ND 1.100	230	7.800 0.850	_	2 210	7.6 7.5	510 1400	0.12 <b>250</b>	_		_	_		2400 6200		0.017	NA NA	0.006 0.014	0.05	ND ND			ND ND ND 0.03	_		ND 0.035	ND 3		ND N 1009 0.0	D ND 034 0.04		ND ND	ND ND	ND ND	ND ND 0.0004 ND		ND ND
MWE	SE160904	111				580		0.021	_	_				610	_	_		13				_	0.07	NA	ND	0.054	ND		_	ND ND	_		0.013			_	D ND		ND	ND		ND ND		ND
MWA	SE164082 SE164082			570	450 360		0.14	ND ND		0.006	_	0.2	_	2200 1700		0.24	39 77	6.4 (					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 'A N/A		N/A N/A	N/A N/A		N/A N/A N/A N/A	-	N/A N/A
MWC	SE164082	, -,		34	360 670			ND ND		7.300				1700 540			120		0.02 ND				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
MWD	SE164082	0, ,, ====	leachate	260	1500	2200	0.28	0.920	190				7.3	1200	210	ND	310 :	150 (	0.19	9400		_	_	N/A	N/A	N/A	N/A	11/11		/A N/A	,	-	N/A				A N/A	_	N/A	N/A		N/A N/A	,	N/A
MWE	SE164082 SE167897	, -,			1100 470	360 7900		0.006 ND		7.300 0.007		0.9	7.3	530 2200				_			_	_	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A		,	I/A N/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	,	N/A N/A
MWB	SE167897			640	390		0.12	_	820		_		7	1800			72	_	140			_	_	N/A	N/A	N/A	N/A			/A N/A	_		N/A	-			'A N/A	_	,	N/A		N/A N/A	,	N/A
MWC	SE167897		least 1	26	640			0.008	52			0.8	7.2	430					_		_	_	_	N/A	N/A	N/A	N/A			I/A N/A	_	_	N/A				A N/A	_	_	N/A		N/A N/A	,	
MWD	SE167897 SE167897	6/7/2017 6/7/2017	leachate		2500 1200	2800 340		1.6 0.077			_	180 1.5	7.5 7.5	1700 570	310 0.1	_	100				_	_	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	-	_	I/A N/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	_	N/A N/A
MWA	SE171359	6/10/2017		600	470	0.10	0.14	0.034	1100	0.14	ND	4.9	6.6	2000	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	N/A	N/A N/A	N/A	N/A
MWB	SE171359	0, 20, 202.		610	380	6000		0.005 ND	790 73	0.00		4.1 0.9	6.7 7.1	1600 490	_	0.75	-1-0	_			_	_	N/A	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 N/A N/A N/A	_	N/A
MWC	SE171359 SE171359	6/10/2017 6/10/2017	leachate	35 190	720 2500	500 3700	0.41		73 260			0.9 210.0	7.1	490 1800	0.41 350						N/A N/A	_	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A		,	I/A N/A	,		N/A N/A	11/11		/A N	'A N/A 'A N/A	_	N/A N/A	N/A N/A	,	N/A N/A N/A N/A	,	11911
MWE	SE171359	6/10/2017		56	1100	310	0.51	0.015	55			1.4	7.4				_				_	_	N/A	N/A	N/A	N/A	N/A	N/A	N/A N	/A N/A	_	N/A			N/A N		'A N/A	_	N/A	N/A		N/A N/A	N/A	N/A

	Threshold Criteria		-	- 0.3	-	1.9	0.00001	- 6.5-	-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 0.0014	0.001	- (	0.0034 0.	0006 0.00	8 0.2	6 0.95	0.18 0.	08 -	-	6500	0.05	0.03 0.00	003 0.00	0.0	016 0.00	0002
	Units	mg/L mg/L	mg/L r	ng/L mg/L	mg/L	mg/L	mg/L	mg/L pH	l mg/L	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 m	g/L mg/L	mg/L	mg/L	mg/L n	ng/L mg,	L mg/	L mg/L	mg/L mg	g/L mg/l	L mg/L	mg/L	mg/L r	mg/L mg	g/L m	g/L mg	g/L mg	g/L
DLA Environmental Services A Paulo Environmental Consort	Analytes	Calcium	Chloride	Fluoride	Magnesium	Manganese	Organochlorine pesticides (OCP)	Potassium pH	Sodium	Ammonia	Nitrate	Sulfate	Total organic carbon	Total phenolics Electrical	conductivity (EC) Total dissolved	Biochemical oxygen demand	Phosphate	Arsenic III & V	Aluminium	Barium	Cadmium	Copper	Chromium VI	Chromium (total)	Lead	Mercury	Ē	Benzene	Toluene	trnyibenzene total	Tetrachlorethen e (TCE)	1,1,1- Trichloroethane (TCA)	Tetrachloroethe ne (PCE)	1,2- Dichloroethene Vinvl Chloride	VIIIVICIIIO	PCBS	РАНЅ	OPPS
	Monitoring frequency	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	rearry	Yearry	Yearly	Yearıy
Monitoring Well Chemical Report Date Sampled	Comment																														c	CVCs/VOC	Cs					
																																		$\overline{}$	$\overline{}$			
MWA 135493 6/10/2015		620 440	7700	0.1 ND	1200	0.028	ND	3.2 6.8	3 2400	0.006	0.76	66	4	ND 190	000 N/A	N/A	N/A	N/A	N/A	N/A	N/A N	/A N/A	N/A	N/A	N/A I	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 N	I/A N/	'/A N/	/A
MWA 135493 6/10/2015 MWA SE148082 14/01/2016				0.1 ND ND ND	1200 1100	0.028 0.01	ND ND	3.2 6.8 4 7	2400 2200	0.006	0.76 0.24	66 34	4 4.2	ND 190		N/A 0 ND	N/A 0.22	N/A 0.001	N/A ND	N/A 0.77	N/A N ND N	/A N/A ID ND	N/A ND	N/A ND	N/A I	N/A N/A ND 0.00	A N/2	A N/A ND	N/A N ND N	/A N/A D ND		N/A ND	N/A ND	N/A N/ ND NE			I/A N/: ND NI	I/A ID
				0.1 ND ND ND 0.1 ND				3.2 6.8 4 7 3.1 7				66 34 43	3	0.25 230 ND 180	000 1600 000 N/A	N/A 0 ND N/A	N/A 0.22 N/A			N/A 0.77 N/A	N/A N ND N N/A N	/A N/A D ND /A N/A	N/A ND N/A	N/A ND N/A	N/A I ND N/A I	N/A N/A ND 0.00 N/A N/A		_	N/A N ND N N/A N	/A N/A D ND /A N/A	-	N/A ND N/A	N/A ND N/A	N/A         N/           ND         NI           N/A         N/A	ID N	ND NI		I/A ID /A
MWA         SE148082         14/01/2016           MWA         144481         7/04/2016           MWA         SE154534         6/07/2016				0.1 ND ND ND 0.1 ND 0.12 0.021				3.2 6.8 4 7 3.1 7 3.7 7.1			0.24	66 34 43 35	3 <b>6.1</b>	0.25 230 ND 180 0.03 210	000 1600 000 N/A	N/A	N/A 0.22 N/A N/A	0.001	ND	N/A 0.77 N/A N/A	N/A N ND N N/A N	/A N/A  D ND  /A N/A  /A N/A	N/A ND N/A N/A	N/A	N/A I		A N/	A N/A	N/A N ND N N/A N	/A N/A	ND A N/A		N/A ND N/A N/A	N/A N/A ND NE N/A N/A N/A N/A	ID N	ND NI I/A N/ I/A N/	ND NE I/A N/ I/A N/	I/A ID /A /A
MWA SE148082 14/01/2016 MWA 144481 7/04/2016 MWA SE154534 6/07/2016 MWA SE157863 6/10/2016		630 430 700 460 620 460 580 430		0.1 ND ND ND 0.1 ND 0.12 0.021 ).15 ND			ND ND	3.2 6.8 4 7 3.1 7 3.7 7.1 4.4 6.8			0.24	66 34 43 35 37	3 <b>6.1</b>	0.25 230 ND 180	000 1600 000 N/A	N/A	N/A 0.22 N/A N/A N/A	0.001	ND N/A	N/A 0.77 N/A N/A N/A	N/A N ND N N/A N N/A N	/A N/A  D ND  /A N/A  /A N/A  /A N/A	N/A	N/A	N/A I	N/A N/	A N/	A N/A	N/A N	/A N/A	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/ ND NI N/A N/. N/A N/. N/A N/.	ID N /A N /A N /A N	ND NI I/A N/ I/A N/	ND NI I/A N/ I/A N/	I/A ND /A /A /A
MWA SE148082 14/01/2016 MWA 144481 7/04/2016 MWA SE154534 6/07/2016 MWA SE157863 6/10/2016 MWA SE160904 12/01/2017		630 430 700 460 620 460 580 430 600 460	7800 7300 7900 7400 8200	0.1 ND ND ND 0.1 ND 0.12 0.021 0.15 ND ND ND	1100 1300 1200 1100 1200	0.01 0.009 0.021 0.020 0.004	ND ND ND ND	3.2 6.8 4 7 3.1 7 3.7 7.1 4.4 6.8 5.6 7.3	2200 2800 1 2200 3 2100 3 2100	0.2 0.006 0.14 0.14 0.13	0.24 0.62 0.36 0.50 0.13	34 43 35 37 38	3 <b>6.1</b> <b>6.2</b> 3.9	0.25 230 ND 180 0.03 210 0.22 210 0.02 190	000 1600 000 N/A 000 N/A 000 1200 000 1400	N/A N/A 0 N/A 0 ND	N/A 0.22 N/A N/A N/A 0.059	0.001 N/A N/A N/A N/A	ND N/A N/A N/A N/A ND	N/A 0.77 N/A N/A N/A 0.59	N/A N ND 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	N/A N/A N/A 0.005	N/A N/A N/A 0.001	N/A I N/A I N/A I ND	N/A N/A N/A N/A N/A N/A ND 0.00	A N/A A N/A A N/A	A N/A A N/A A N/A O ND	N/A N N/A N N/A N ND N	/A N/A /A N/A /A N/A ID ND	ND N/A 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 ND ND	ID N /A N /A N /A N /A N	ND NI I/A N/ I/A N/ I/A N/ I/A N/ ND NI	ND NE I/A N/ I/A N/ I/A N/ I/A N/	//A ND //A //A //A
MWA         SE148082         14/01/2016           MWA         144481         7/04/2016           MWA         SE154534         6/07/2016           MWA         SE157863         6/10/2016           MWA         SE160904         12/01/2017           MWA         SE164082         6/4/2017		630 430 700 460 620 460 580 430	7800 7300 7900 7400 8200	0.1 ND ND ND 0.1 ND 0.12 0.021 0.15 ND ND ND 0.14 ND	1100 1300 1200 1100 1200 1100	0.01 0.009 0.021 0.020 0.004 0.006	ND ND ND ND ND ND ND ND ND	3.2 6.8 4 7 3.1 7 3.7 7.1 4.4 6.8 5.6 7.3 3.1 6.8	2200 2800 1 2200 3 2100 3 2100 3 2200	0.2 0.006 0.14 0.14 0.13 0.14	0.24 0.62 0.36 0.50 0.13 0.24	66 34 43 35 37 38 39	3 6.1 6.2 3.9 6.4	0.25 230 ND 180 0.03 210 0.22 210 0.02 190 0.16 210	000 1600 000 N/A 000 N/A 000 1200 000 1400	N/A N/A 0 N/A 0 ND		0.001 N/A N/A N/A NA N/A	ND N/A N/A N/A N/A ND N/A	N/A 0.77 N/A N/A N/A 0.59 N/A	N/A N ND N N/A N N/A N N/A N ND N N/A N	/A N/A D ND /A N/A /A N/A /A N/A D ND /A N/A /A N/A /A N/A /A N/A	N/A	N/A N/A N/A 0.001	N/A I	N/A N/	A N/A A N/A A N/A	A N/A A N/A A N/A O ND	N/A N	/A N/A /A N/A /A N/A ID 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 ND	N/A N/A ND NE N/A	ID N /A N /A N /A N /A N	ND NI I/A N/	ND NE I/A N/	I/A ND  /A  /A  /A  /D  /A
MWA SE148082 14/01/2016 MWA 144481 7/04/2016 MWA SE154534 6/07/2016 MWA SE157863 6/10/2016 MWA SE160904 12/01/2017		630 430 700 460 620 460 580 430 600 460	7800 7300 7900 7400 8200	0.1 ND ND ND 0.1 ND 0.12 0.021 0.15 ND ND ND ND 1.14 ND 1.12 ND 1.14 0.034	1100 1300 1200 1100 1200	0.01 0.009 0.021 0.020 0.004	ND ND ND ND	3.2 6.8 4 7 3.1 7 3.7 7.1 4.4 6.8 5.6 7.3 3.1 6.8 4.3 7	2200 2800 1 2200 3 2100 3 2100	0.2 0.006 0.14 0.14 0.13	0.24 0.62 0.36 0.50 0.13	34 43 35 37 38	3 6.1 6.2 3.9 6.4	0.25 230 ND 180 0.03 210 0.22 210 0.02 190	000 1600 000 N/A 000 N/A 000 1200 000 1400	N/A N/A 0 N/A 0 ND	N/A 0.22 N/A N/A N/A 0.059 N/A N/A	0.001 N/A N/A N/A N/A	ND N/A N/A N/A N/A ND	N/A 0.77 N/A N/A N/A 0.59 N/A N/A	N/A N ND N N/A N	/A N/A ID ND /A N/A N/A N/A N/A N/A ID ND /A N/A N/A N/A N/A N/A	N/A N/A N/A 0.005	N/A N/A N/A 0.001	N/A I N/A I N/A I ND	N/A N/A N/A N/A N/A N/A ND 0.00	A N/A A N/A A N/A	A N/A A N/A A N/A O ND	N/A N N/A N N/A N ND N	/A N/A /A N/A /A N/A ID ND	ND N/A 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 ND ND	ID N /A N /A N /A N /A N /A N ID N /A N /A N	ND NI I/A N/	ND NE  I/A N/  I/A N/  I/A N/  I/A N/  I/A N/  I/A N/  I/A N/	I/A ND I/A

Column   C				Threshold Criteria			- 0.3	-	1.9	0.00001	- (	6.5–8	0.9	0.7		4	0.32			- 0.01	0.024 (III) 0.013 (V)	0.055 (pH> 6.5)		0.0002	0.09 0.0	0.00	1 -	0.0034	0.0006	0.008	0.26	0.95	0.18 0.0	8 -		6500	0.05	0.03	0.0003	0.00003	0.016	0.00002
Monitoring Purp Purp Purp Purp Purp Purp Purp Purp				Units	mg/L mg/	L mg/L r	ng/L mg/	L mg/l	L mg/L	mg/L	mg/L	pH mg	/L mg/L	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 m	g/L mg/	L mg/L	mg/L	mg/L	mg/L	mg/L	mg/L i	ng/L mg	/L mg/	L mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CVC4/VOCCS    MWB   135493   6/10/2015   650   370   6300   0.3   ND   840   0.008   ND   2.6   6.9   1900   ND   1.3   100   5   ND   16000   ND   ND   ND   ND   ND   ND   ND		DLA Env		Analytes	Calcium Alkalinity	Chloride	Fluoride	Magnesium	Manganese	Organochlorine pesticides (OCP)	Potassium	Hd .	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	ТРН	Benzene	Toluene	total	Tetrachlorethen e (TCE)	1,1,1- Trichloroethane	Tetrachloroethe	1,2- Dichloroethene	Vinyl Chloride	PCBs	PAHS	OPPs
MWB   135493   6/10/2015   650   370   6300   0.3   ND   840   0.008   ND   2.6   6.9   1900   ND   1.3   100   5   ND   16000   N/A   N				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
MWB 5E14882 14/01/2016 650 370 600 ND ND 810 0.012 ND 810	. <u>.</u>	t <u>a</u>	7.	Ħ																																						
MWB         144481         7/04/2016         7/04/2016         7/04/2016         7/04/2016         7/04/2016         80         0.00         0.00         1.0	Monito	Chemic Repor	Date Sample	Сотте																															•	CVCs/VOC	Cs					
MWB 5E154534 6/07/2016 650 390 6100 0.24 0.008 820 0.008 ND 3.1 7.1 1700 0.95 69 7.6 ND 16000 N/A	Monito	132493	8 ag mg S S S S S S S S S S S S S S S S S S	Соште	650 370	6300	0.3 NE	840	0.008	ND	2.6	6.9 19	00 ND	1.3	100	5	ND	16000	N/A	N/A N/A	. N/A	N/A	N/A	N/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	N/A	N/A	N/A	N/A	N/A
MWB \$5157864 6/10/2016 600 \$60 \$60 \$0.02 \$0.006 \$830 \$0.008 \$ND \$0.5 \$0.00 \$0.02 \$0.006 \$830 \$0.008 \$ND \$0.5 \$0.00				Сотте			0.3 NE	840	0 0.008		_			_	_		_	_	_	-	,	_	_	N/A ND	N/A N	I/A N/A	N/A 0.001	N/A ND	N/A ND	N/A 0.012	N/A ND	N/A ND	N/A N/	A N/A	N/A	N/A	N/A	N/A ND	N/A ND	N/A ND	_	N/A ND
MWB         \$2160904         \$12/01/2017         \$90         \$80         \$00         \$0.00 <t< td=""><td>MWB</td><td>SE148082</td><td>14/01/2016</td><td>Comme</td><td>650 370</td><td>6000</td><td>_</td><td>_</td><td>0 0.008 0 0.012 0 0.007</td><td>ND</td><td>3.5</td><td>7 17</td><td>00 0.15</td><td>1.3</td><td>69</td><td></td><td>0.31</td><td>18000</td><td>15000</td><td>ND 0.1</td><td>0.002</td><td>ND</td><td>0.62</td><td></td><td></td><td></td><td>_</td><td>_</td><td></td><td></td><td></td><td>N/A ND N/A</td><td>N/A N/ ND NI N/A N/</td><td>A N/A D ND A N/A</td><td>N/A ND</td><td>N/A ND</td><td>N/A</td><td></td><td></td><td></td><td>ND</td><td></td></t<>	MWB	SE148082	14/01/2016	Comme	650 370	6000	_	_	0 0.008 0 0.012 0 0.007	ND	3.5	7 17	00 0.15	1.3	69		0.31	18000	15000	ND 0.1	0.002	ND	0.62				_	_				N/A ND N/A	N/A N/ ND NI N/A N/	A N/A D ND A N/A	N/A ND	N/A ND	N/A				ND	
MWB 5E16408	MWB MWB	SE148082 144481 SE154534	14/01/2016 7/04/2016 6/07/2016	Сотте	650 370	6000	_	_	0 0.008 0 0.012 0 0.007 0 0.008	ND	3.5	7 17	00 0.15	1.3	69		0.31	18000 15000	15000 N/A	ND 0.1	0.002 N/A	ND N/A	0.62 N/A				_	_				N/A ND N/A	N/A N/ ND NE N/A N/ N/A N/	A N/A D ND A N/A A N/A	N/A ND	N/A ND	N/A				ND N/A N/A	ND N/A N/A
MWB \$5167897 6/7/2017 640 390 6000 0.26 ND 820 0.1 ND 820 0.21 ND 820 0.21 0.83 75 8.2 ND 16000 N/A	MWB MWB MWB	SE148082 144481 SE154534 SE157864	14/01/2016 7/04/2016 6/07/2016 6/10/2016	Comme	650 370 720 380 650 390 600 360	6000 6300 6100 6000	0.3 0.0 0.24 0.00 0.22 0.00	2 880 08 820 06 830	0 0.008 0 0.012 0 0.007 0 0.008 0 0.008	ND	3.5	7 17 7.1 23 7.1 17 6.9 18	00 0.15 00 ND 00 0.10 00 0.09	1.3 1.3 0.95 1.1	69 61 69 69	7 4 7.6 6.6	0.31 ND ND 0.14	18000 15000 16000 17000	15000 N/A N/A 10000	ND 0.1 N/A N/A N/A N/A	0.002 N/A N/A N/A	ND N/A N/A N/A	0.62 N/A N/A N/A	N/A N/A N/A	N/A N N/A N N/A N	I/A N/A I/A N/A 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	N/A N/A N/A	N/A N/A N/A	N/A N/ ND NI N/A N/ N/A N/ N/A N/	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/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
	MWB MWB MWB MWB	SE148082 144481 SE154534 SE157864 SE160904	14/01/2016 7/04/2016 6/07/2016 6/10/2016 12/01/2017	Сопие	650 370 720 380 650 390 600 3600 590 380	6000 6300 6100 6000 6300	0.3 0.0 0.24 0.00 0.22 0.00 ND NE	2 880 08 820 06 830 0 850	0 0.008 0 0.012 0 0.007 0 0.008 0 0.008 0 ND	ND	3.5 2.6 3.1 3.6 5	7 17 7.1 23 7.1 17 6.9 18 7.2 17	00 0.15 00 ND 00 0.10 00 0.09 00 0.10	1.3 1.3 0.95 1.1 0.59	69 61 69 69 70	7 4 7.6 6.6 5	0.31 ND ND 0.14 0.04	18000 15000 16000 17000 16000	15000 N/A N/A 10000 13000	ND 0.1 N/A N/A N/A N/A N/A N/A ND 0.01	0.002 N/A N/A N/A N/A N/A	ND N/A N/A N/A ND	0.62 N/A N/A N/A 0.55	N/A N/A N/A ND	N/A N N/A N N/A N	I/A N/A I/A N/A I/A N/A ND ND	N/A N/A N/A 0.001	N/A N/A N/A	N/A N/A N/A	N/A N/A N/A	N/A N/A N/A	N/A N/A N/A	N/A N/ ND NE N/A N/ N/A N/ N/A N/ N/A N/	A N/A 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 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 ND	ND N/A N/A N/A ND	ND N/A N/A N/A ND
MWB   SE171359   6/10/2017   610   380   6000   0.26   0.005   790   0.01   ND   4.1   6.7   1600   0.09   0.75   70   6   ND   16000   N/A   N/	MWB MWB MWB MWB MWB	SE148082 144481 SE154534 SE157864 SE160904 SE164082	14/01/2016 7/04/2016 6/07/2016 6/10/2016 12/01/2017 6/4/2017	Сошие	650 370 720 380 650 390 600 360 590 380 580 360	6000 6300 6100 6000 6300 6000	0.3 0.0 0.24 0.00 0.22 0.00 ND NE 0.27 NE	2 880 08 820 06 830 0 850 0 760	0.008 0.008 0 ND 0.009	ND	3.5 2.6 3.1 3.6 5	7 17 7.1 23 7.1 17 6.9 18 7.2 17 6.6 17	00 0.15 00 ND 00 0.10 00 0.09 00 0.10 00 0.09	1.3 1.3 0.95 1.1 0.59 0.71	69 61 69 69 70 77	7 4 7.6 6.6 5 6.8	0.31 ND ND 0.14 0.04	18000 15000 16000 17000 16000 17000	15000 N/A N/A 10000 13000 N/A	ND 0.1 N/A N/A N/A N/A N/A N/A ND 0.01 N/A N/A	0.002 N/A N/A N/A N/A N/A	ND N/A N/A N/A ND	0.62 N/A N/A N/A 0.55 N/A	N/A N/A N/A ND N/A	N/A M N/A M N/A M ND I	I/A N/A I/A N/A I/A N/A I/A N/A ND ND I/A 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 ND N/A	N/A N/A N/A 0.007 N/A	N/A N/A N/A ND N/A	N/A N/A N/A ND N/A	N/A N/ N/A N/ N/A N/ ND NI N/A N/	A N/A A N/A A N/A O ND 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 ND	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 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
	MWB MWB MWB MWB MWB MWB	SE148082 144481 SE154534 SE157864 SE160904 SE164082 SE167897	14/01/2016 7/04/2016 6/07/2016 6/10/2016 12/01/2017 6/4/2017 6/7/2017	Сопше	650 370 720 380 650 390 600 360 590 380 580 360	6000 6300 6100 6100 6300 6300 6300 6000 60	0.3 0.0 0.24 0.00 0.22 0.00 ND NE 0.27 NE 0.26 NE	2 880 08 820 06 830 0 850 0 760	0.008 0.008 0 ND 0.009	ND ND ND ND ND	3.5 2.6 3.1 3.6 5	7 17 7.1 23 7.1 17 6.9 18 7.2 17 6.6 17 7 18	00 0.15 00 ND 00 0.10 00 0.09 00 0.09 00 0.09	1.3 1.3 0.95 1.1 0.59 0.71 0.83	69 61 69 69 70 77 75	7 4 7.6 6.6 5 6.8	0.31 ND ND 0.14 0.04 0.02 ND	18000 15000 16000 17000 16000 17000 16000	15000 N/A N/A 10000 13000 N/A N/A	ND 0.1 N/A N/A N/A N/A N/A N/A ND 0.01 N/A N/A N/A N/A	0.002 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	0.62 N/A N/A N/A 0.55 N/A N/A	N/A N/A N/A ND N/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	N/A N/A N/A N/A 0.001 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 0.007 N/A	N/A N/A N/A ND N/A	N/A N/A N/A ND N/A	N/A N/ N/A N/ N/A N/ ND NI N/A N/	A N/A A N/A A N/A O ND 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 ND	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 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	ND N/A N/A N/A ND N/A N/A

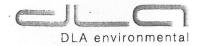
			Criteria					0.3		1.9	0.00001	- (	6.5–8	- 0	0.9 0			0.32				0.015	0.024 (III) 0.013 (V)	0.055 (pH> 6.5)		0.0002	0.09	0.0014	0.001	- 0.	0034	0.0006	0.008	0.26 0	.95 0.:	18 0.0	8 -		6500	0.05	0.03	0.0003	0.0000	3 0.01	6 0.00002
			Units	mg/L	pH r	ng/L m	g/L m	g/L mg/	L mg/L	mg/L	μS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L n	ng/L	mg/L	mg/L r	ng/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								
	DLA Enviro A Pacif																				, i																			Ĕ			PCBs	PAHS	OPPs
			Monitoring frequency	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												
Monitoring Well	Chemical Report	Date Sampled	Comment																																				CVCs/VOC	Cs					
MWC	135493	6/10/2015		62	730	690	0.4	ND	130	2.2	ND	0.6	7.1	670 1	ND 0.	17 350	18	ND	3900	N/A	N/A	N/A	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	I/A N,	/A N/.	A N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MWC S	SE148082	14/01/2016		56	750	630	0.34	ND	110	4.9	ND	0.9	7.2	590 0	.12 N	ID 300	21	ND	4300	2400	ND	0.19	0.003	ND	0.047	ND	0.011	0.001	ND	ND	ND	ND	ND	ND I	ND N	D NE	) ND	ND	ND	ND	ND	ND	ND	ND	ND ND
MWC	144481	7/04/2016		290	660	3700	0.3	0.038	420	3.1	ND	1.4	7.2	.000	ND 4	<b>.9</b> 220	9	ND	9600	N/A	N/A	N/A	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	I/A N	/A N/.	A N/A	A N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MWC S	SE154534	6/07/2016		55	730	610	0.24	0.006	93	5.4	ND	1.0	7.4	580 0	.05 0	15 220	24	ND	3300	N/A	N/A	N/A	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	I/A N	/A N/.	A N/A	A N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SE157865	6/10/2016		67	630	770	0.34	ND	120	5.6	ND	1.1	7.1	620 0	.04 N	ID 180	24	ND	3900	2400	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A I	N/A	N/A	N/A	N/A N	I/A N,	/A N/.	A N/A	A N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		12/01/2017		44	830	880	0.13	ND	89	7.8	ND	2	7.6	510 0	.12 N	ID 200	21	ND	4200	2400	ND	0.017	NA	0.006	0.05	ND	0.013	ND	ND	ND	ND	ND	ND	ND N	N DI	D NE	) ND	ND	ND	ND	ND	ND	ND	ND	ND
MWC S	SE164082	6/4/2017		34	670	520	0.44	ND	68	7.3	ND	0.9	7.1	540 0	۰۵6 ۱	ID 120	23	ND	2900	N/A	N/A	N/A	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	I/A N,	/A N/.	A N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ι N/A
MWC S	SE167897	6/7/2017		26	_	370	0.46	0.008	52	4.6	ND	0.8	7.2	430 0	.33 0	01 90	23	ND	2400	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A I	N/A	N/A	N/A	N/A N	I/A N,	/A N/.	A N/A	N/A	N/A	N/A	N/A	N/A	N/A	_	
MWC S	SE171359	6/10/2017		35	720	500	0.41	ND	73	4.60	ND	0.9	7.1	490 0	.41 N	ID 110	19	ND	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	I/A N	/A N/	A N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

			Threshold Criteria	-	-	-	-	0.3		1.9	0.00001		6.5–8 -	0.9	0.7	-	4 0.	32	-	-	- 0	0.015 0.0 0.0	)24 (III) )13 (V)  (	0.055 pH> 6.5)	-	0.0002	0.09	0.0014	0.001	- 0	.0034 0.	.0006	0.008	0.26	0.95	0.18	0.08	-	-	6500	0.05	0.03	0.0003	3E-05	0.016	0.00002
			Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	pH mg	/L mg/l	L mg/L	mg/L	mg/L m	g/L μS	/cm r	mg/L	mg/L n	ng/L r	ng/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ng/L i	mg/L r	ng/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
	DLA Environm		Analytes	Calcium	Alkalinity	Chloride	Fluoride	Iron	Magnesium	Manganese	Organochlorine pesticides (OCP)	Potassium	PH Sodium	Ammonia	Nitrate	Sulfate	Total organic carbon	iotal prienolics 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	Tetrachlorethene (TCE)	1,1,1- Trichloroethane (TCA)	Tetrachloroethen e (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	Quarteriy	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
Monitorin g Well	Chemical Report	Date Sampled	Comment																																				CV	Cs/VOCCs						
MWD	135493	6/10/2015	leachate	150	2400	2800	0.3	1.8	220	0.46	ND	170	7.6 170	00 310	ND	66	330 N	ID 11	.000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MWD	SE148082	14/01/2016	leachate	170	1200	1000	0.32	0.33	110	0.87	ND	110	7.3 69	0 110	ND.	18	<b>140</b> 0.	47 5	800	2500	48 (	0.13 (	0.017	ND	0.49	ND	0.004	ND	ND I	0.031	ND	ND	0.026	34	0.0028	0.0034	0.023	0.0351	ND	ND	ND	ND	0.0059	ND	0.004	ND
MWD	144481	7/04/2016	leachate	160	2200	2600	0.3	2.2	230	0.45	ND	180	7.7 190	00 210	ND.	35	290 N	ID 9	600	N/A	N/A I	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MWD	SE154534	6/07/2016	leachate	250	1200	1000	0.14	5.2	120	0.96	ND	120	7.3 63	0 <b>80</b>	ND	140	<b>140</b> 0.	01 5	200	N/A	N/A I	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MWD	SE157866	6/10/2016	leachate	210	1600	1600	0.27	0.001	150	0.600	ND	140	7.3 100	0 <b>150</b>	ND.	110	<b>200</b> 0.	07 7	800	4700	N/A I	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MWD	SE160904	12/01/2017	leachate	260	2300	2800	ND	1.100	230	0.850	ND	210	7.5 140	0 250	ND.	330	<b>270</b> 0.	04 11	.000	6200	170 (	0.89	NA	0.014	0.91	ND	0.017	ND	ND	0.03	ND	ND	0.035	3	0.002	0.0009	0.0034	0.042	ND	ND	ND	ND	0.0004	ND	0.017	ND
MWD	SE164082	6/4/2017	leachate	260	1500	2200	0.28	0.920	190	0.780	ND	130	7.3 120	0 210	ND.	310	<b>150</b> 0.	19 9	400	N/A	N/A I	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MWD	SE167897	6/7/2017	leachate	150	2500	2800	0.35	1.6	230	0.42	ND	180	7.5 170	00 310	ND.	100	<b>320</b> 0.	05 12	1000	N/A	N/A I	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MWD	SE171359	6/10/2017	leachate	190	2500	3700	0.32	0.300	260	0.28	ND	210.0	7.2 180	0 350	ND	240	<b>320</b> 0.	03 13	000	N/A	N/A I	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

<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.

			Threshold Criteria				0.3	- 1	1.9 0.00	0001	- 6.5⊣	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	0.0014	0.001	- 0.0	034 0.0	0006 0	.008 0.	26 0.9!	0.18	0.08		- (	5500	0.05 0.0	3 0.000	03 0.	0.00003	0.016	0.00002
			Units	mg/L	mg/L mg/	/L mg/L	mg/L i	mg/L m	ig/L m	g/L m	g/L pH	mg/L	mg/L	mg/L mg	/L mg/l	mg/L	μS/cm	mg/L m	g/L mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L m	ıg/L m	g/L m	ıg/L n	ng/L ma	g/L mg/	L mg/L	mg/L	mg/L n	ng/L r	ng/L	mg/L mg	/L mg/l		mg/L	mg/L	mg/L
	DLA Envis		Analytes	Calcinm	Alkalinity Chloride	Fluoride	Iron	Magnesium	Manganese Organochlorine	pesticides (OCP)	Potassium pH	Sodium	Ammonia	Nitrate	Total organic	Total phenolics	Electrical conductivity (EC)	Total dissolved solids	oxygen demand Phosphate	Arsenic III & V	Aluminium	Barium	Cadmium	Cobalt	Copper	Chromium VI	(total)	Lead	Mercury	Zinc	Benzene	Toluene	Ethylbenzene	total	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	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
_ ⊆	=		벋																																							
Monitori g Well	Chemica Report	Date Sample	Comme																																cvo	s/VOCCs						
Monitori g Well	Chemics Report	6/10/2012 Sample 5	Comme	75	700 86	0 0.5	0.015	89 0	1.44 N	ID 1	1.7 7.4	730	0.006	ND 14	10 8	ND	4000	N/A 1	i/A N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A I	N/A N	I/A N	N/A I	N/A N	/A N/A	N/A	N/A	N/A I		s/VOCCs	N/A N/	A N/A	A	N/A	N/A	N/A
	135493 SE148082	., .,	Comme	_		0 0.5 0 0.35	0.015 0.019	89 0 79 0	_		l.7 7.4 l.1 7.4			ND 14		_			I/A N/A ND <b>0.25</b>	N/A 0.005	N/A ND	N/A 0.048	N/A ND	N/A 0.002	N/A ND	N/A I	N/A N	_	_	_		_	N/A ND	N/A I	N/A	N/A	N/A N/ ND N	A N/A	_	N/A ND	N/A ND	N/A ND
		., .,	Comme	_	750 85	0 0.5 0 0.35 0 0.5		89 0 79 0 72 0	1.23 N	ID 1	1.1 7.4	690	0.12		00 10	0.02	4600	2200		N/A 0.005 N/A	N/A ND N/A	N/A 0.048 N/A	N/A ND N/A	N/A 0.002 N/A		N/A I	_	ND I	ND	ND N	D ND	ND	N/A ND N/A		N/A ND	N/A ND	N/A N/	A N/A D ND A N/A	)		_	
MWE	SE148082	14/01/2016	Comme	80	750 85 890 64	0 0.5 0 0.35 0 0.5 0 0.30			1.23 N	ID 1	1.1 7.4 0.9 7.6	690 840	0.12 0.026	ND 20	00 <b>10</b>	0.02 ND	4600	2200 N/A	ND <b>0.25</b>	N/A 0.005 N/A N/A	N/A ND N/A	N/A 0.048 N/A N/A	N/A ND N/A	N/A 0.002 N/A N/A			_	ND I	ND N/A I	ND N	ID ND	ND N/A		N/A I	N/A ND N/A	N/A ND N/A	N/A N/	A N/A D ND A N/A A N/A	Α	ND	ND	ND
MWE MWE MWE	SE148082 144481 SE154534 SE157867	14/01/2016 7/04/2016 6/07/2016 6/10/2016	Comme	80 67 57 61	750 85 890 64 970 47 900 56	0 0.5 0 0.30 0 0.41	0.034 0.021 0.012		1.23 N 1.24 N 1.43 N 110 N	ND 1 ND 0 ND 1	1.1 7.4 0.9 7.6 1.6 7.6 1.3 7.3	690 840 610 650	0.12 0.026 0.04 0.04	ND 20 0.01 10 <0.005 11 <0.025 11	00 <b>10</b> 50 <b>7</b> 10 <b>16</b> 20 <b>16</b>	0.02 ND ND 0.01	4600 3200 3100 3600	2200 N/A	ND 0.25 I/A N/A I/A N/A I/A N/A	N/A N/A N/A	N/A ND N/A N/A	N/A 0.048 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 I N/A I N/A I	N/A N N/A N	1 A N N A/I	ND N/A I N/A I	ND N N/A N N/A N N/A N	ID ND /A N/A /A N/A	ND N/A N/A N/A	N/A N/A N/A	N/A I N/A I	N/A ND N/A N/A	N/A ND N/A N/A	N/A N/ ND N N/A N/ N/A N/ N/A N/	A N/A D ND A N/A A N/A A N/A	) A A	ND N/A N/A N/A	ND N/A N/A N/A	N/A N/A N/A
MWE MWE	SE148082 144481 SE154534	14/01/2016 7/04/2016 6/07/2016 6/10/2016	Comme	80 67 57 61	750 85 890 64	0 0.5 0 0.30 0 0.41	0.034 0.021 0.012 0.021	72 0 66 0 67 0. 76 0	1.23 N 1.24 N 1.43 N 110 N	ND 1 ND 0 ND 1 ND 1 ND 1	1.1 7.4 0.9 7.6	690 840 610 650	0.12 0.026 0.04 0.04	ND 20	00 <b>10</b> 50 <b>7</b> 10 <b>16</b> 20 <b>16</b>	0.02 ND ND 0.01	4600 3200	2200 N/A	ND <b>0.25</b> I/A N/A	N/A 0.005 N/A N/A N/A NA	N/A ND N/A N/A N/A ND	N/A 0.048 N/A N/A N/A 0.054	N/A ND N/A N/A N/A	N/A 0.002 N/A N/A N/A 0.004	N/A N/A N/A		N/A N N/A N N/A N	1	ND   N/A   I   N/A   I   N/A   I   N/A   I   N/A   O	ND N N/A N N/A N N/A N N/A N	/A N/A /A N/A /A N/A /A N/A	ND N/A N/A N/A N/A	N/A N/A N/A ND	N/A I N/A I N/A I ND	N/A ND N/A N/A N/A N/A	N/A ND N/A	N/A N/ ND N N/A N/ N/A N/	A N/A A N/A A N/A	) A A	ND N/A N/A	ND N/A N/A N/A ND	ND N/A N/A N/A ND
MWE MWE MWE	SE148082 144481 SE154534 SE157867	14/01/2016 7/04/2016 6/07/2016 6/10/2016 12/01/2017	Сотте	80 67 57 61 70	750 85 890 64 970 47 900 56	0 0.5 0 0.30 0 0.41 0 0.18	0.034 0.021 0.012 0.021	72 0 66 0 67 0. 76 0	1.23 N 1.24 N 1.43 N 110 N	ND 1 ND 0 ND 1 ND 1 ND 1	1.1 7.4 0.9 7.6 1.6 7.6 1.3 7.3	690 840 610 650 610	0.12 0.026 0.04 0.04 0.04	ND 20 0.01 16 <0.005 11 <0.025 11 ND 13	00 <b>10</b> 50 <b>7</b> 10 <b>16</b> 20 <b>16</b>	0.02 ND ND 0.01	4600 3200 3100 3600	2200 N/A N/A N/A N/A 12100	ND 0.25 I/A N/A I/A N/A I/A N/A	N/A N/A N/A	N/A N/A N/A	N/A 0.048 N/A N/A N/A 0.054	N/A ND N/A N/A N/A ND	N/A N/A N/A	N/A N/A N/A 0.0010 N/A	N/A I N/A I N/A I ND N/A I	N/A N N/A N N/A N ND N	ND   1 I/A   N I/A   N I/A   N ND   I I/A   N	ND	ND N N/A N N/A N N/A N N/A N N/A N	/A N/A /A N/A /A N/A /A N/A /A N/A	ND N/A N/A N/A ND N/A	N/A N/A N/A ND N/A	N/A I N/A I N/A I ND I	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/ ND N N/A N/ N/A N/ N/A N/	A N/A A N/A A N/A O ND	A A A	ND N/A N/A N/A	ND N/A N/A N/A ND N/A	ND N/A N/A N/A ND N/A
MWE MWE MWE MWE MWE	SE148082 144481 SE154534 SE157867 SE160904	14/01/2016 7/04/2016 6/07/2016 6/10/2016 12/01/2017 6/4/2017	Comme	80 67 57 61 70	750 85 890 64 970 47 900 56 1100 58	0 0.5 0 0.30 0 0.41 0 0.18 0 0.52	0.034 0.021 0.012 0.021 0.006	72 0 66 0 67 0. 76 0 67 <b>7.</b>	1.23 N 1.24 N 1.43 N 110 N	ND 1 ND 0 ND 1	1.1 7.4 0.9 7.6 1.6 7.6 1.3 7.3 1.8 7.8 0.9 7.3 1.5 7.5	690 840 610 650 610 530	0.12 0.026 0.04 0.04 0.04 0.07	ND 20 0.01 16 <0.005 11 <0.025 11 ND 13	00 10 50 7 10 16 20 16 30 13	0.02 ND ND 0.01 ND	4600 3200 3100 3600 3500	2200   N/A	ND 0.25 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A NA	N/A N/A N/A ND	N/A N/A N/A 0.054	N/A ND N/A N/A N/A ND N/A	N/A N/A N/A 0.004	N/A N/A N/A 0.0010 N/A	N/A I N/A I N/A I ND	N/A N N/A N N/A N ND N	ND   1 I/A   N I/A   N I/A   N ND   I I/A   N	ND	ND N N/A N N/A N N/A N N/A N N/A N	/A N/A /A N/A /A N/A /A N/A /A N/A	ND N/A N/A N/A ND N/A	N/A N/A N/A ND N/A	N/A I N/A I N/A I ND I	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/ ND N N/A N/ N/A N/ N/A N/ N/A N/	A N/A A N/A A N/A O ND A N/A	) A A A )	ND N/A N/A N/A ND	ND N/A N/A N/A ND	ND N/A N/A N/A ND
MWE MWE MWE MWE MWE MWE	SE148082 144481 SE154534 SE157867 SE160904 SE164082 SE167897	14/01/2016 7/04/2016 6/07/2016 6/10/2016 12/01/2017 6/4/2017	Comme	80 67 57 61 70 34	750 85 890 64 970 47 900 56 1100 58 1100 36 1200 34	0 0.5 0 0.30 0 0.41 0 0.18 0 0.52 0 0.5	0.034 0.021 0.012 0.021 0.006 0.077	72 0 66 0 67 0. 76 0 67 <b>7.</b> 65 0	1.23 N 1.24 N 1.43 N 110 N 1.27 N 300 N	ND 1 ND 0 ND 1	1.1 7.4 0.9 7.6 1.6 7.6 1.3 7.3 1.8 7.8 0.9 7.3	690 840 610 650 610 530	0.12 0.026 0.04 0.04 0.04 0.07	ND 20 0.01 10 <0.005 11 <0.025 12 ND 11 ND 12 ND 9	00 10 50 7 10 16 20 16 30 13	0.02 ND ND 0.01 ND ND	4600 3200 3100 3600 3500 3200	2200   N/A	ND 0.25 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A NA N/A	N/A N/A N/A ND	N/A N/A N/A 0.054 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 0.004	N/A N/A N/A 0.0010 N/A	N/A I N/A I N/A I ND N/A I	N/A N N/A N N/A N ND N	I/A N	ND	ND N N/A N N/A N N/A N N/A N N/A N N/A N	ID ND /A N// /A N// /A N// /A N// ID ND /A N// /A N// /A N//	ND N/A N/A N/A ND N/A N/A	N/A N/A N/A ND N/A	N/A I N/A I N/A I ND   N/A I	N/A ND N/A N/A N/A ND 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/ ND N N/A N/ N/A N/ N/A N/ ND N	A N/A A N/A A N/A O ND A N/A A N/A	A A A A A A A A A A A A A A A A A A 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





DLA Project Code: DLH1186	Sample ID: MWA
Project: The Scone Waste Landfill	Well Collar RL:
Client: Upper Hunter Shire Council	Sampler(s): TS
Address: Noblet Rd, Scone NSW 2289	Signature:
BH ID: MWA	Date: 1.10 - 17

Well Status				300		
Monument damaged:	YES (NO / N/A	Well ID visible:		YES	/ NO / N/A	
Locked well casing:	YES NO / N/A	Cap on PVC casing	<b>:</b>	(YES)	NO / N/A	
Cement footing damaged:	YES / NO NA	Water in monume	ent casing:	YES	(NO) N/A	
Standing water, vegetation around monument:	YES (NO NA	Internal obstruction	on in casing:	YES	/NO) N/A	
Well Damaged:	YES ( NO / N/A	Odours from grou	ndwater:	YES	(NO) N/A	
Nearby works:		······				
al- Sligh	l genor	y Cr				71
Comments:	sedu	ent no	ader			
	************************		••			
Casing above ground:	m agl	Weather Conditi	ons:			
Standing water level:	m bgl	Temperature	15-20 🗆 20	0-25 🗗		
Total well depth:	m bgl		25-30 □ >3	30 🗆		
Initial well volume:	L					
Water level after purging:2	m bgl	Clear 🗆	Partly cloudy	/ D C	Overcast	-
Volume of water purged:	L					
Water level at time of sampling:	m bgl	Calm	Slight breeze	MI DE	oderate breeze	
Well purged dry:	YES NO		Windy			
Purging equipment: backer	0					
Sample equipment:		Fine 🗆	Showers	D I	Rain	

Note: 50mm internal diameter pipe = 1.96 L/m. All measurements below well collar

Water Quality Details: w 5 /cm

AAGIEL	quality Deta	112. M) / CAN	l				
Time am/pm	DO (mg/L <sup>-1</sup> )	EC (μS cm <sup>-1</sup> )	рН	Redox (mV)	Temp (°C)	Salinity (% Refract)	Comments
9:55	7.11	1968	37.8		21.5	12.67	
	7.09	14709	7.08	72.5	21.5	12.69	
	1.93	19726	7.03	72.9	21.5	12.70	
							,
				- 70			
		-					
							~

Additional Comments:			



DLA Project Code: DLH1186	Sample ID:
Project: The Scone Waste Landfill	Well Collar RL:
Client:  Upper Hunter Shire Council	Sampler(s):
Address: Noblet Rd, Scone NSW 2289	Signature:
BH ID: MWB	Date:

Well Status						
Monument damaged:	YES / NO / N/A	Well ID visible:			YES / NO / N/A	1
Locked well casing:	YES / NO / N/A	Cap on PVC casir	ng:		YES / NO / N/A	V .
Cement footing damaged:	YES / NO / N/A	Water in monum	ent casing:	J. 1274	YES / NO / N/A	<b>\</b>
Standing water, vegetation around monument:	YES / NO / N/A	Internal obstruct	ion in casing:	May represent	YES / NO / N/A	
Well Damaged:	YES / NO / N/A	Odours from gro	undwater:		YES / NO / N/A	١
Nearby works:	······································	•••				
Comments:	no o dei					
Casing above ground: 0.75	m agl	Weather Condi	tions:			
Standing water level:	m bgl	Temperature	15-20 🗆	20-25.		
Total well depth: 15, 45	m bgl		25-30 🗆	>30 🗆		
Initial well volume:	L					
Water level after purging:	m bgl	Clear 🗆	Partly cl	oudy 🛘	Overcast	B
Volume of water purged:	L					
Water level at time of sampling:	m bgl	Calm 🗆	Slight br	eeze 🗗	Moderate br	eeze 🗆
Well purged dry:	YES NO		Windy			
Purging equipment:						
Sample equipment: Donles		Fine 🖵	Showers	s 🗆	Rain	

Note: 50mm Internal diameter pipe = 1.96 L/m. All measurements below well collar

#### **Water Quality Details:**

Time am / pm	DO (mg/L <sup>-1</sup> )	EC (μS cm <sup>-1</sup> )	рН	Redox (mV)	Temp (°C)	Salinity (% Refract)	Comments
10 15	3.63	16072	7.06	76.5	20.9	10.30	
	3.57	16672	7.03	75.8	20.9	16.30	
	3.53	16072	7.07	75.4	20.9	10.30	
			2	-			
ad							

Additional Comments.	



DLA Project Code: DLH1186	Sample ID:
Project: The Scone Waste Landfill	Well Collar RL:
Client: Council	Sampler(s):
Address: Noblet Rd, Scone NSW 2289	Signature:
BH ID: MWC	Date: 12 10.12

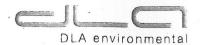
Well Status	14.						
Monument damaged:	YES / NO / N/A	Well ID visible:			YES / NO / N/A		
Locked well casing:	YES /NO / N/A	Cap on PVC casing	<b>;:</b>		ES/ NO / N/A		
Cement footing damaged:	YES / NO / N/A	Water in monume	ent casing:		YES (NO) N/A		
Standing water, vegetation around monument:	YES (NO) N/A	Internal obstruction	on in casing:		YES /NO/ N/A		
Well Damaged:	YES NO N/A	Odours from grou	ndwater:	-	YES (NO / N/A		
Nearby works:		•••					
	*************************						
Comments:		// *** * ** *** *** ** * * * * * * * *					
	*******************************		**				
Casing above ground:	m agl	Weather Conditi	ons:				
Standing water level: 575 4.12	m bgl	Temperature	15-20 🗆	20-25 🗆			
Total well depth: 11.87	m bgl		25-30 □	>30 🗆			
Initial well volume:	L						
Water level after purging:	m bgl	Clear 🗆	Partly clo	udy 🖯	Overcast		
Volume of water purged:	L			•		, ,	
Water level at time of sampling:	m bgl	Calm-	Slight bro	eeze 🗆	Moderate br	eeze 🗆	
Well purged dry:	YES / NO		Windy				
Purging equipment: Sa (ex-							
Sample equipment:		Fine	Showers		Rain		

Note: 50mm internal diameter pipe = 1.96 L/m. All measurements below well collar

#### **Water Quality Details:**

Time	DO (mg/L <sup>-1</sup> )	EC	рН	Redox	Temp	Salinity	Comments
am / pm		(μS cm <sup>-1</sup> )	2171	(mV)	(°C)	(% Refract)	
10.50	2-13	3026	1.31	-72.9	20.7	1.73	
Lo:52	7.80	3 025	7.26	~83·3	20.7	1.73	
10.53	1.72	3025	7.23	-83.8	20.7	1.73	
1.0.55	1.69	3025	7.21	- 84.9	20.7	1.73	

Additional Comments:		
	20	



DLA Project Code: DLH1186	Sample ID:				
Project: The Scone Waste Landfill	Well Collar RL:				
Client: 1000 Upper Hunter Shire Council	Sampler(s):	7			
Address: Noblet Rd, Scone NSW 2289	Signature:				
BH ID: MWE	Date:				

Well Status						
Monument damaged:	YES /NO /N/A	Well ID visible:		Υ	ES / NO / N/A	
Locked well casing:	YES /(ND) N/A	Cap on PVC casing	g:	Y	ES / NO / N/A	
Cement footing damaged:	YES /NO/ N/A	Water in monume	ent casing:	Y	ES / NO / N/A	
Standing water, vegetation around monument:	YES NO / N/A	Internal obstructi	on in casing:	Y	ES / NO / N/A	
Well Damaged:	YES /NO/ N/A	Odours from grou	indwater:	Y	ES / NO / N/A	
Nearby works:		***************************************				
		***************************************				1
Comments:	• • • • • • • • • • • • • • • • • • • •	***************************************	******	٠,		U
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Casing above ground:	m agl	Weather Condit	ions:			
Standing water level: 3-57	m bgl	Temperature	15-20 🖪	20-25 🗆		
Total well depth: 9.53	m bgl		25-30 🗆	>30 🗆		
Initial well volume: 5 · 96	L			/		
Water level after purging:	m bgl	Clear 🗆	Partly clou	idy 🗹	Overcast	
Volume of water purged:	L			/		
Water level at time of sampling: 182 Bgl	m bgl	Calm 🗆	Slight bree	ze 🗹	Moderate bree	ze 🗆
Well purged dry:	YES / NO		Windy			
Purging equipment:		7				
Sample equipment:		Fine 🖸	Showers		Rain	

Note: 50mm internal diameter pipe = 1.96 L/m. All measurements below well collar

#### **Water Quality Details:**

Time	DO	EC	рН	Redox	Temp	Salinity	Comments
am / pm	(mg/L <sup>-1</sup> )	(μS cm <sup>-1</sup> )		(mV)	(°C)	(% Refract)	187.00
11.45	3.70	2844	7.75	22.8	18.7	1-70	
11.47	3-05	2847	7.68	25.3	18.8	1-69	*
11.49	2-34	2847	7.68	22.4	18.8	1.69	
21.51	2-15	2847	7.60	21.4	18.9	1.69	
11.53	2.10	2852	7.59	20-2	18.9	1.69	
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