

QUARTERLY GROUNDWATER MONITORING THE SCONE WASTE LANDFILL

THE SCONE WASTE LANDFILL

Noblet Road Scone NSW 2337

Upper Hunter Shire Council

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ABBREVIATIONS

ACM Asbestos Containing Material
AHD Australian Height Datum

ANZECC Australian and New Zealand Environment and Conservation Council

AST Above-ground Storage Tank

ASS Acid Sulfate Soil
B(a)P Benzo(a)Pyrene
BGL Below Ground Level

BH Borehole

BETEX Benzene, Toluene, Ethyl Benzene, Xylene

COC Chain of Custody documentation
CLM Contaminated Land Management

DA Development Application

DEC Department of Environment and Conservation (NSW)
DECC Department of Environment and Climate Change (NSW)
DECCW Department of Environment, Climate Change and Water (NSW)

DLA DLA Environmental Services

DP Deposited Plan
DQO Data Quality Objective
EC Electrical Conductivity
EIL Ecological Investigation Level
EMP Environmental Management Plan

EPA Environment Protection Authority (NSW)

ESL Ecological Screening Level
HIL Health-Based Investigation Level

LOR Limit of Reporting MW Monitoring Well

NATA National Association of Testing Authorities, Australia

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

NSW New South Wales

OCP Organochlorine Pesticides

OEH Office of Environmental and Heritage
OPP Organophosphorus Pesticides

OH&S Occupational Health and Safety
PAH Polycyclic Aromatic Hydrocarbons

PCB Polychlorinated Biphenyls
PID Photo-Ionisation Detector
PQL Practical Quantification Limit

QA/QC Quality Assurance and Quality Control

RAP Remedial Action Plan

RPD Relative Percentage Difference
SAC Site Acceptance Criteria

SAQP Sampling Analysis and Quality Plan

SEPP State Environmental Planning Policy

SWL Standing Water Level

TCLP Toxicity Characteristic Leaching Procedure

TRH Total Recoverable Hydrocarbons

UCL Upper Confidence Limit
UST Underground Storage Tank
VOC Volatile Organic Compounds

WHS Work Health Safety



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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).

The Groundwater Monitoring Report provides and overview of the current condition of groundwater at the Site in relation to the Site Criteria and satisfies the groundwater monitoring requirements of the 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 Thursday 6th July 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 ground water 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 95% trigger values and National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 2013.

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

		Threshold Criteria NEPM	
Analytes	Units	2013 and ANZECC 2000	Monitoring Frequency
		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 ^E	Quarterly
Magnesium	mg/L	NA	Quarterly
Manganese	mg/L	1.9 ^D	Quarterly
Organochlorine pesticides (OCP)	mg/L	0.00001 ^F	Quarterly
Potassium	mg/L	410 ^Q	Quarterly
рН	рН	6.5 – 8	Quarterly
Sodium	mg/L	NA	Quarterly
Ammonia	mg/L	0.9 ^D	Quarterly
Nitrate	mg/L	0.7	Quarterly
Sulfate	mg/L	NA	Quarterly
Total organic carbon	mg/L	4	Quarterly
Total phenolics	mg/L	0.32	Quarterly
Electrical conductivity (EC)	μS/cm	NA	Quarterly
Total dissolved solids	mg/L	NA	Yearly
Biochemical Oxygen Demand	mg/L	NA	Yearly
Phosphate	mg/L	0.015 ^G	Yearly
Arsenic III & V	mg/L	0.024 (III), 0.013 (V)	Yearly
Aluminium	mg/L	0.055 (pH> 6.5)	Yearly
Barium	mg/L	NA	Yearly
Cadmium	mg/L	0.0002	Yearly
Cobalt	mg/L	0.09 ^M	Yearly
Copper	mg/L	0.0014	Yearly
Chromium VI	mg/L	0.001 ^D	Yearly



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

Sampling Parameter	Units	Threshold Criteria NEPM 2013 and ANZECC 2000 Fresh Water	Monitoring Frequency
Chromium (total)	mg/L	0.001	Yearly
Lead	mg/L	0.0034	Yearly
Mercury	mg/L	0.0006	Yearly
Zinc	mg/L	0.008 ^D	Yearly
ТРН	mg/L	0.6 ^l	Yearly
Benzene	mg/L	0.95	Yearly
Toluene	mg/L	0.18 ^L	Yearly
Ethylbenzene	mg/L	0.08 ^L	Yearly
CVCs/VOCCs:			
- Total	mg/L	NA	Yearly
- Tetrachlorethene (TCE)	mg/L	NA	Yearly
- 1,1,1-Trichloroethane (TCA)	mg/L	6500 (1,1,2 TCA)	Yearly
- Tetrachloroethene (PCE)	mg/L	0.05 ^N	Yearly
- 1,2-Dichloroethene	mg/L	0.03 ^P	Yearly
Vinyl Chloride	mg/L	0.0003 ^N	Yearly
PCBs	mg/L	0.00003 ^A	Yearly
PAHs	mg/L	0.016 ^B	Yearly
OPPs	mg/L	0.00002 ^c	Yearly

- A Trigger value for Aroclor 1254 used in absence of trigger value for total PCBs
- B Trigger value for Naphthalene used in absence of reliable trigger value for total PAHs
- C Trigger value of Azinphos methyl used in absence of reliable trigger value for total OPP
- D Trigger value may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance
- E Interim working level, in absence of reliable trigger value
- F Trigger value for DDT used in absence of trigger value for total OCP
- G Filterable Reactive Phosphate
- I Dutch Intervention (2000) Mineral Oil Criteria
- L ANZECC 2000 Low reliability trigger value
- M ANZECC 2000 Moderate reliability trigger value
- N NEPM 2013 drinking water criteria
- P Australian Drinking Water Guidelines 2011
- Q 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 five well locations including MWA, MWB, MWC, MWD and MWE. Purging and sampling of monitoring wells was conducted in accordance with the NEPM (NEPC, 2013), the *Guidelines for the Assessment and Management of Groundwater Contamination* (NSW DEC, 2007) and the *Murray-Darling Basin Groundwater Quality Sampling Guidelines*.

Wells were purged with a low flow peristaltic pump or 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;
- EC± 5%;
- Temp \pm 0.20;
- Redox ± 10%; and,
- Dissolved Oxygen ± 10%.

Samples were obtained using a low-flow peristaltic pump with disposable Low Density Polyethylene Tubing (LDPE) tubing / samples were obtained using a disposable bailer.

Groundwater samples were collected into laboratory prepared sample containers for specific analytes, i.e. into a combination of plastic unpreserved, plastic preserved, glass amber unpreserved and preserved glass vials. All 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 for metals were lab filtered prior to testing. All samples were then placed immediately into a chilled esky to prevent the loss of potential volatile components.

Decontamination procedures between sampling events and sampling locations are outlined below.

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;
- Rinsing with deionised water; and



 Disposable Teflon tubing was used with the low flow pump and was replaced between sample locations (Groundwater Sampling Only).

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



4.0 RESULTS

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

Refer to **Table 4a – Table 4e** for results. Refer to **Figure 3** for sampling locations.

Table 4a – Groundwater Results Comparison July 2017

Sampling Parameter	Units	Threshold Criteria	MWA Oct	MWA Jan	MWA Apr	MWA July
		(mg/L)	2016	2017	2017	2017
Calcium	mg/L	NA	580	600	570	640
Alkalinity (total)	mg/L	NA		460	450	470
Chloride	mg/L	NA	7400	8200	7700	7900
Fluoride	mg/L	NA	0.15	ND	0.14	0.12
Iron	mg/L	0.3 ^E	ND	ND	ND	ND
Magnesium	mg/L	NA	1100	1200	1100	1200
Manganese	mg/L	1.9 ^D	0.02	0.004	0.006	0.007
ОСР	mg/L	0.00001 ^F	ND	ND	ND	ND
Potassium	mg/L	410 ^Q	4.4	5.6	3.1	4.3
pH	рН	6.5 – 8	6.8	7.3	6.8	7.0
Sodium	mg/L	NA	2100	2100	2200	2200
Ammonia	mg/L	0.9 ^D	0.14	0.13	0.14	0.07
Nitrate	mg/L	0.7	0.50	0.13	0.24	0.24
Sulfate	mg/L	NA	37	38	39	42
Total Organic Carbon (TOC)	mg/L	4	6.2	3.9	6.4	8.0
Total phenolics	mg/L	0.32	0.22	0.02	0.16	ND
EC	μS/cm	NA	21000	19000	21000	21000

Samples highlighted in **Bold** exceed threshold criteria

ND = No Detection above Laboratory LOR

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

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

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

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



Table 4b – Groundwater Results Comparison July 2017

		Threshold	MWB	MWB	MWB	MWB
Sampling Parameter	Units	Criteria	Oct	Jan	Apr	July
		(mg/L)	2016	2017	2017	2017
Calcium	mg/L	NA	600	590	580	640
Alkalinity (total)	mg/L	NA	360	380	360	390
Chloride	mg/L	NA	6000	6300	6000	6000
Fluoride	mg/L	NA	0.22	ND	0.27	0.26
Iron	mg/L	0.3 ^E	0.006	ND	ND	ND
Magnesium	mg/L	NA	830	850	760	820
Manganese	mg/L	1.9 ^D	0.008	ND	0.009	0.01
ОСР	mg/L	0.00001^{F}	ND	ND	ND	ND
Potassium	mg/L	410 ^Q	3.6	5	2.8	4.0
рН	рН	6.5 – 8	6.9	7.2	6.6	7.0
Sodium	mg/L	NA	1800	1700	1700	1800
Ammonia	mg/L	0.9 ^D	0.09	0.10	0.09	0.21
Nitrate	mg/L	0.7	1.1	0.59	0.71	0.83
Sulfate	mg/L	NA	69	70	77	75
Total Organic Carbon (TOC)	mg/L	4	6.6	5	6.8	8.2
Total phenolics	mg/L	0.32	0.14	0.04	0.02	ND
EC	μS/c	NA	17000	16000	17000	16000

ND = No Detection above Laboratory LOR

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

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

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

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



Table 4c – Groundwater Results Comparison July 2017

Sampling Parameter		Threshold Criteria (mg/L)	MWC Oct 2016	MWC Jan 2017	MWC April 2017	MWC July 2017
Calcium	mg/L	NA	67	44	34	26
Alkalinity (total)	mg/L	NA	630	830	670	640
Chloride	mg/L	NA	770	880	520	370
Fluoride	mg/L	NA	0.34	0.13	0.44	0.46
Iron	mg/L	0.3 ^E	ND	ND	ND	0.008
Magnesium	mg/L	NA	120	89	68	52
Manganese	mg/L	1.9 ^D	5.6	7.8	7.3	4.600
ОСР	mg/L	0.00001 ^F	ND	ND	ND	ND
Potassium	mg/L	410 ^Q	1.1	2	0.9	0.8
рН	рН	6.5 – 8	7.1	7.6	7.1	7.2
Sodium	mg/L	NA	620	510	540	430
Ammonia	mg/L	0.9 ^D	0.04	0.12	0.06	0.33
Nitrate	mg/L	0.7	ND	ND	ND	0.005
Sulfate	mg/L	NA	180	200	120	90
Total Organic Carbon (TOC)	mg/L	4	24	21	23	23
Total phenolics	mg/L	0.32	ND	ND	ND	ND
EC	μS/c	NA	3900	4200	2900	2400

ND = No Detection above Laboratory LOR

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

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

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

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



Table 4d – Groundwater Results Comparison July 2017

		Threshold	MWD	MWD	MWD	MWD
Sampling Parameter	Units	Criteria	(leachate)	(leachate)	(leachate)	(leachate)
	l	(mg/L)	Oct 2016	Jan 2017	April 2017	July 2017
Calcium	mg/L	NA	210	260	260	150
Alkalinity (total)	mg/L	NA	1600	2300	1500	2500
Chloride	mg/L	NA	1600	2800	2200	2800
Fluoride	mg/L	NA	0.27	ND	0.28	0.35
Iron	mg/L	0.3 ^E	1.2	1.1	0.920	1.6
Magnesium	mg/L	NA	150	230	190	230
Manganese	mg/L	1.9 ^D	0.6	0.850	0.780	0.42
ОСР	mg/L	0.00001 ^F	ND	ND	ND	ND
Potassium	mg/L	410 ^Q	140	210	130	180
рН	рН	6.5 – 8	7.3	7.5	7.3	7.5
Sodium	mg/L	NA	1000	1400	1200	1700
Ammonia	mg/L	0.9 ^D	150	250	210	310
Nitrate	mg/L	0.7	ND	ND	ND	ND
Sulfate	mg/L	NA	110	330	310	100
Total Organic Carbon (TOC)	mg/L	4	200	270	150	320
Total phenolics	mg/L	0.32	0.07	0.04	0.19	0.05
EC	μS/c	NA	7800	11000	9400	12000

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.

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

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

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

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



Table 4e - Groundwater Results Comparison July 2017

Sampling Parameter Units		Threshold Criteria (mg/L)	MWE Oct 2016	MWE Jan 2017	MWE April 2017	MWE July 2017
Calcium	mg/L	NA	61	70	34	60
Alkalinity (total)	mg/L	NA	900	1100	1100	1200
Chloride	mg/L	NA	560	580	360	340
Fluoride	mg/L	NA	0.41	0.18	0.52	0.5
Iron	mg/L	0.3 ^E	0.012	0.021	0.006	0.077
Magnesium	mg/L	NA	67	76	67	65
Manganese	mg/L	1.9 ^D	0.110	0.27	7.3	0.14
ОСР	mg/L	0.00001 ^F	ND	ND	ND	ND
Potassium	mg/L	410 ^Q	1.3	1.8	0.9	1.5
pH	рН	6.5 – 8	7.3	7.8	7.3	7.5
Sodium	mg/L	NA	650	610	530	570
Ammonia	mg/L	0.9 ^D	0.04	0.04	0.07	0.1
Nitrate	mg/L	0.7	ND	ND	ND	ND
Sulfate	mg/L	NA	120	130	110	99
Total Organic Carbon (TOC)	mg/L	4	16	13	20	26
Total phenolics	mg/L	0.32	0.01	ND	ND	ND
EC	μS/c	NA	3600	3500	3200	3100

 ${\sf ND} = {\sf No} \ {\sf Detection} \ {\sf above} \ {\sf Laboratory} \ {\sf LOR}$

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

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

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

Q – 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 July 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 0.83 mg/L. This is the lowest exceedance observed in this well over the past 12 months. Exceedances of nitrate have been consistent in MWB since October 2016. There was no detection for Nitrate in MWD the leachate well, giving no indication that the Nitrate in the affected wells is sourced from the landfill. The Nitrate may be migrating onto the site from the farmland to the north through the local ground water;
- Iron in MWD exceeded the Threshold Criteria (0.3mg/L) with a concentration of 1.6mg/L.
 This is the highest concentration reported since July 2016. Exceedances of iron have been reported in this monitoring well for the past four sampling events;
- Ammonia in MWD exceeded the Threshold Criteria (0.9mg/L) with a concentration of 310mg/L. This concentration had increased in comparison to the past three sampling events, April 2017 (210 mg/L), January 2017 (250 mg/L) and October 2016 (150 mg/L). Exceedances of ammonia are common for MWD and have been reported in all past sampling events; and
- Exceedances of the Threshold Criteria (4 mg/L) for TOC occurred in all wells MWA, MWB, MWC, MWD and MWE. MWA exceeded the Threshold Criteria with a TOC reading of 8.0 mg/L, increasing from the April 2017 reading of 6.4 mg/L. MWB increased to 0.83 mg/L from the April 2017 sampling event of 0.71 mg/L. MWC has exceeded the Threshold criteria (4 mg/L) consistently since October 2015 with the reading being 23 mg/L. MWE has exceeded the Threshold criteria consistently since October 2015 and has increased slightly from 20 mg/L in the April sample event to 26 mg/L in the July 2017 sampling event. 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.

The following changes and detections occurred in the landfill leachate well MWD;

- Ammonia concentration has increased to 310 mg/L from the April 2017 concentration of 210 mg/L. Concentrations of ammonia in MWD have consistently been substantially higher than in the surrounding wells;
- Iron concentration has increased to 1.6 mg/L in July 2017 from 0.92 in April 2017; and
- TOC concentration has increased to 320 mg/L from the April 2017 sampling event (150 mg/L).

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

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 July 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 July 2017 sampling event; nitrate in MWB, iron in MWD, 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, iron, ammonia 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.

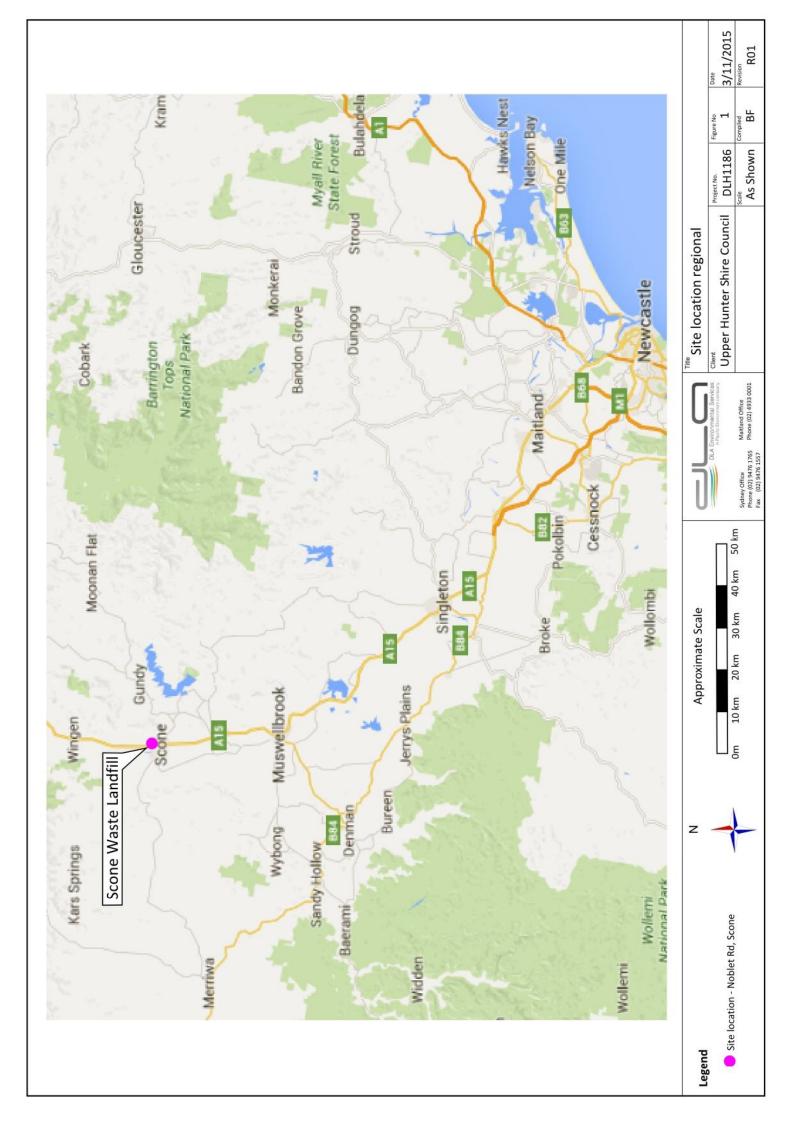
The next water sampling event will be the annual monitoring which will be undertaken in October 2017.



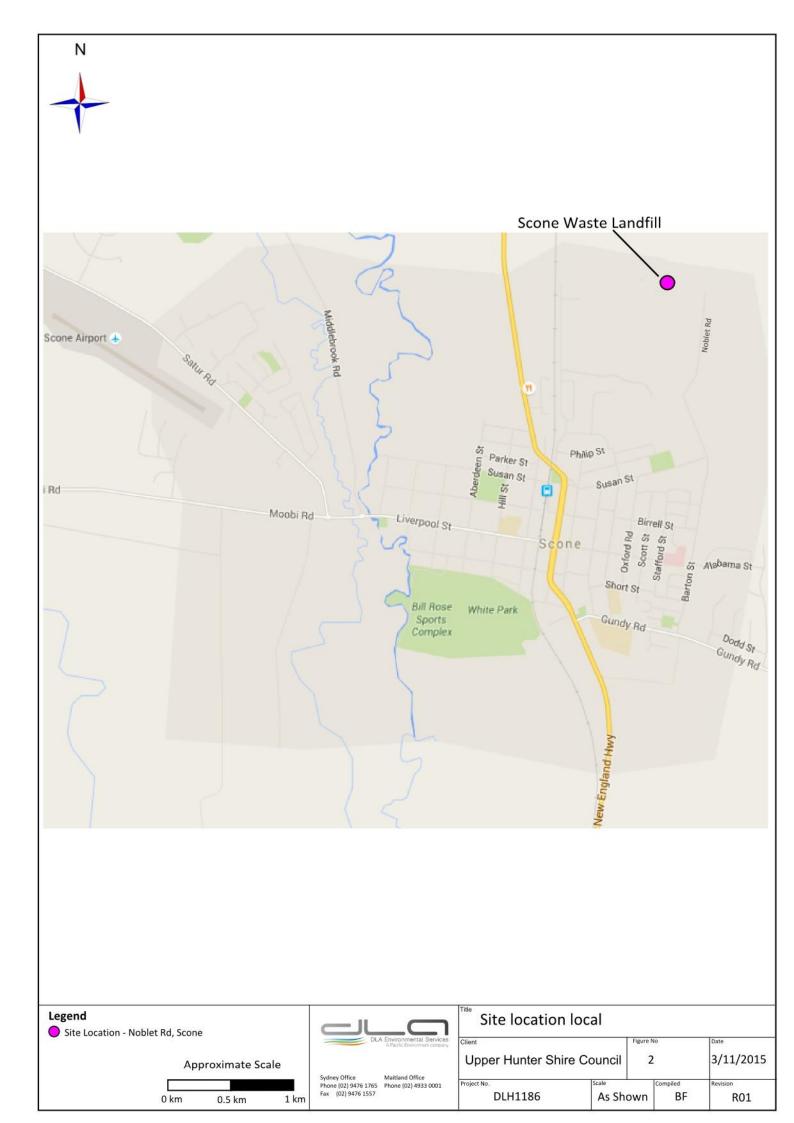
7.0 REFERENCES

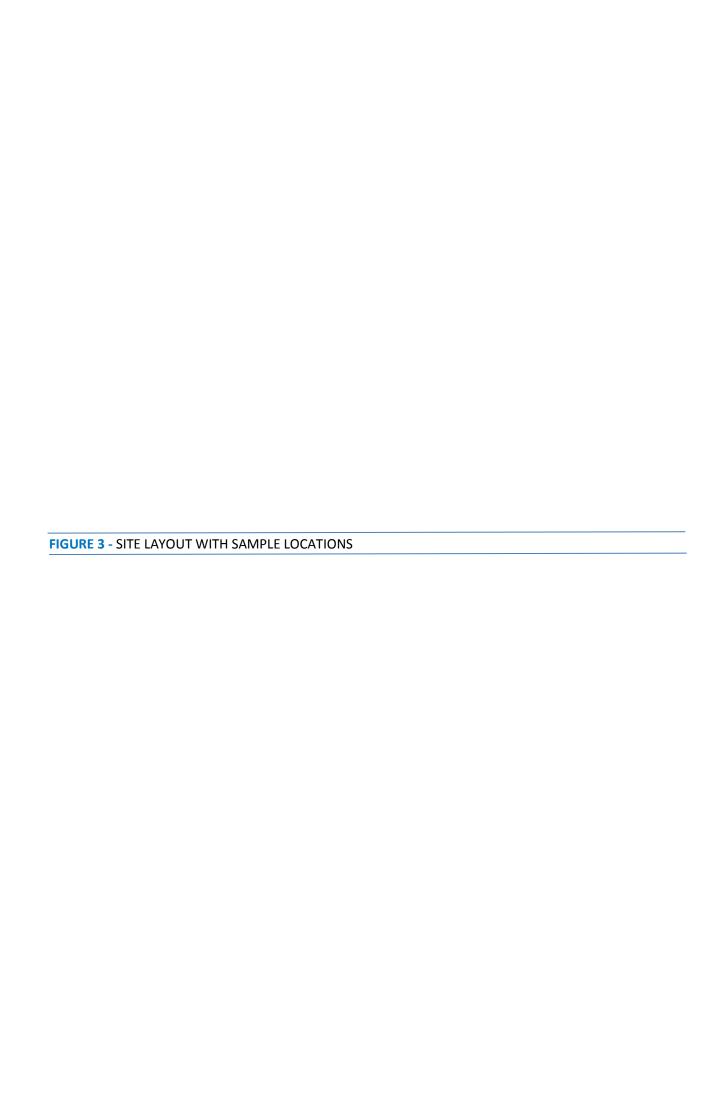
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 Management Act 1997 (NSW DECC, 2009);
- Contaminated Sites: Guidelines for the Assessment and Management of Groundwater Contamination (NSW DEC, 2007);
- Contaminated Sites: Guidelines on Significant Risk of Harm from Contaminated Land and the Duty to Report (NSW EPA 1999);
- Contaminated Sites: Sampling Design Guidelines (NSW EPA 1995);
- Environmental Guidelines: Solid Waste Landfills (NSW EPA, 1996);
- Health Based Soil Investigation Levels, Imray, P & Langley, A, National Environmental Health Forum
 Monographs, Soil Series No. 2 (2nd Ed), South Australian Health Commission (NEHF 1998b);
- National Environment Protection (Assessment of Site Contamination) Measure (No.1) (NEPC, 2013);
- Storage and Handling of Dangerous Goods Code of Practice 2005;
- Pacific Southwest, Region 9 Regional Screening Levels (US EPA, 2014);
- Work Health and Safety Act 2011 (NSW) and associated regulations.
- R.W. Young and others, Ferruginous weathering under cool temperate climates during the Late
 Pleistocene in southeastern Australia, Zeitschrift fur Geomorphologie, 38(1), 1994,
- Quality Criteria for Water, U.S. Environmental Protection Agency, July 1976.
- Potassium in Drinking-water Background document for development of WHO Guidelines for Drinkingwater Quality, World Health Organization, 2009
- Ambient Water Quality Guidelines for Organic Carbon, Ministry of Environment, Lands and Parks,
 British Columbia, Canada 2001















Groundwater well location



Approximate Scale
Om 50m 100m

DLA Environmental Services A Paolic Environment company

Sydney Office Maitland Office Phone (02) 9476 1765 Phone (02) 4933 0001 Fax (02) 9476 1557

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



SGS				С	HAI	IN C	F C	UST	ΓOD	9 Y	k AN	IAL`	YSI	S RI	EQL	JEST					Page1_ of1
SGS Environmental Se	ervices	Compar	Company Name: DLA Environmental Services								Projec	t Nam	e/No:	DLH'	1186						
Unit 16, 33 Maddox St	reet	Address	<i>i</i> :	_	42B C	Church	Street	Maitla	nd NS	SW 23	20			Purch	ase Or	der No:					
Alexandria NSW 2015				F							Resulf	ts Req	uired By:	-							
Telephone No: (02) 85	940400		Т									Telephone:			0422	055544	1				
Facsimile No: (02) 85		Contact	Name:	_	Steph	en Ch	allinor							Facsir							
Email: au.samplereceipt.sydney@sgs.com														Email	Result	ts:	hunte Stepl	er@dlae hen.cha	enviro allinor(nment @dlae	<u>al.com.au</u> & nvironmental.com.au
Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	wos	flouride	Chloride	Iron	manganese	organochlorine pesticides	ammonia	nitrate	T0C	total phenolics			SC	GS EH	Comments S Alexandria Laboratory
MWA	6/7/17	f	х			5	Х	Х	X	Х	X	Х	Х	X	Х	Х					37897 COC
MWB	6/7/17	2	Х			5	X	Х	X	Х	Х	Х	Х	Х	Х	Х			Re	eceive	ed: 12 – Jul – 2017
MWC	6/7/17	3	Х			5	Х	Х	X	Х	Х	Х	Х	Х	Х	Х				I 1	, I
MWD	6/7/17	4	х			5	Х	Х	Х	Х	X	X	X	Х	Х	х					Leachate
MWE	6/7/17	5	Х			5	Х	Х	X	Х	X	Х	Х	Х	Х	Х					
Relinquished By: Kath Ske			te/Time	0.7/7/:	17						Pocois	red By		(P)				Date/T	ime	12	1-12 0 11:10
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Relinquished By: Coston Samples Intact: Yes/ No		10	te/Time mperat	"	Ambie	7 (2 <i>0</i> ent / 0	hilled	21	m			ed By e Coo		ealed:	Date/Time Paled: Yes/ No Laboratory Quotation No:			ion No:			
		Co	mment	s: me	tals no	ot field	l filtere	d													



ANALYTICAL REPORT





CLIENT DETAILS -

LABORATORY DETAILS

Contact

Stephen Challinor

Client

DLA ENVIRONMENTAL SERVICES PTY LTD

Address

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NSW 2320

Telephone Facsimile

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Email

stephen.challinor@dlaenvironmental.com.au

Project Order Number **DLH1186** (Not specified)

5 Samples

Huong Crawford Manager

Laboratory

SGS Alexandria Environmental

Address

Unit 16, 33 Maddox St

Alexandria NSW 2015

18/7/2017

+61 2 8594 0400 Telephone Facsimile +61 2 8594 0499

Email

Date Reported

au.environmental.sydney@sgs.com

SGS Reference SE167897 R0 Date Received 12/7/2017

COMMENTS

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

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

SIGNATORIES

Bennet Lo

Senior Organic Chemist/Metals Chemist

kmln

Dong Liang

Metals/Inorganics Team Leader

Kamrul Ahsan

Senior Chemist

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Environment, Health and Safety

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Member of the SGS Group



SE167897 R0

OC Pesticides in Water [AN420] Tested: 13/7/2017

			2024	104/2	MANA	LULID.	
			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
			6/7/2017	6/7/2017	6/7/2017	6/7/2017	6/7/2017
PARAMETER	UOM	LOR	SE167897.001	SE167897.002	SE167897.003	SE167897.004	SE167897.005
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

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SE167897 R0

Total Phenolics in Water [AN289] Tested: 13/7/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
							-
			6/7/2017			6/7/2017	6/7/2017
PARAMETER	UOM	LOR	SE167897.001	SE167897.002	SE167897.003	SE167897.004	SE167897.005
Total Phenols	mg/L	0.01	<0.01	<0.01	<0.01	0.05	<0.01

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SE167897 R0

Forms of Carbon [AN190] Tested: 13/7/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
							-
			6/7/2017			6/7/2017	6/7/2017
PARAMETER	UOM	LOR	SE167897.001	SE167897.002	SE167897.003	SE167897.004	SE167897.005
Total Organic Carbon as NPOC	mg/L	0.2	8.0	8.2	23	320	26

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Ammonia Nitrogen by Discrete Analyser (Aquakem) [AN291] Tested: 13/7/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
							-
			6/7/2017			6/7/2017	6/7/2017
PARAMETER	UOM	LOR	SE167897.001	SE167897.002	SE167897.003	SE167897.004	SE167897.005
Ammonia Nitrogen, NH₃ as N	mg/L	0.01	0.07	0.21	0.33	310	0.10

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SE167897 R0

Anions by Ion Chromatography in Water [AN245] Tested: 13/7/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	 WATER	 WATER	WATER
			6/7/2017			6/7/2017	6/7/2017
PARAMETER	UOM	LOR	SE167897.001	SE167897.002	SE167897.003	SE167897.004	SE167897.005
Fluoride	mg/L	0.1	0.12	0.26	0.46	0.35	0.50
Chloride	mg/L	1	7900	6000	370	2800	340
Nitrate Nitrogen, NO3-N	mg/L	0.005	0.24	0.83	0.005	<0.050↑	<0.025↑
Sulfate, SO4	mg/L	1	42	75	90	100	99

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pH in water [AN101/MA1490(Melb)] Tested: 12/7/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
							-
			6/7/2017			6/7/2017	6/7/2017
PARAMETER	UOM	LOR	SE167897.001	SE167897.002	SE167897.003	SE167897.004	SE167897.005
pH**	No unit	-	7.0	7.0	7.2	7.5	7.5

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SE167897 R0

Conductivity and TDS by Calculation - Water [AN106/MA1489(Melb)] Tested: 12/7/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
							-
			6/7/2017			6/7/2017	6/7/2017
PARAMETER	UOM	LOR	SE167897.001	SE167897.002	SE167897.003	SE167897.004	SE167897.005
Conductivity @ 25 C	μS/cm	2	21000	16000	2400	12000	3100
Total Dissolved Solids (by calculation)	mg/L	2	13000	9500	1400	7300	1900

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SE167897 R0

Alkalinity [AN135/MA1127(Melb)] Tested: 12/7/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
			6/7/2017			6/7/2017	6/7/2017
PARAMETER	UOM	LOR	SE167897.001	SE167897.002	SE167897.003	SE167897.004	SE167897.005
Bicarbonate Alkalinity as CaCO3	mg/L	5	470	390	640	2500	1200
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	390	640	2500	1200

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ANALYTICAL RESULTS

SE167897 R0

Acidity and Free CO2 [AN140] Tested: 17/7/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
							-
			6/7/2017			6/7/2017	6/7/2017
PARAMETER	UOM	LOR	SE167897.001	SE167897.002	SE167897.003	SE167897.004	SE167897.005
Acidity to pH 8.3	mg CaCO3/L	5	200	160	88	380	91

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ANALYTICAL RESULTS

SE167897 R0

Metals in Water (Dissolved) by ICPOES [AN320/AN321] Tested: 17/7/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
			6/7/2017			6/7/2017	6/7/2017
PARAMETER	UOM	LOR	SE167897.001	SE167897.002	SE167897.003	SE167897.004	SE167897.005
Calcium, Ca	mg/L	0.1	640	640	26	150	60
Magnesium, Mg	mg/L	0.1	1200	820	52	230	65
Sodium, Na	mg/L	0.1	2200	1800	430	1700	570
Potassium, K	mg/L	0.2	4.3	4.0	0.8	180	1.5

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ANALYTICAL RESULTS

SE167897 R0

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 17/7/2017

			MWA	MWB	MWC	MWD	MWE
			WATER	WATER	WATER	WATER	WATER
							-
			6/7/2017			6/7/2017	6/7/2017
PARAMETER	UOM	LOR	SE167897.001	SE167897.002	SE167897.003	SE167897.004	SE167897.005
Iron, Fe	μg/L	5	<5	<5	8	1600	77
Manganese, Mn	μg/L	1	7	10	4600	420	140

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METHOD SUMMARY

SE167897 R0

METHOD _____ METHODOLOGY SUMMARY _

AN020

Unpreserved water sample is filtered through a 0.45 µm membrane filter and acidified with nitric acid similar to APHA3030B

AN101/MA1490(Melb)

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/MA1489(Melb)

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 μ mhos/cm or μ S/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/MA1127(Melb)

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/AN321

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/AN321

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.

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FOOTNOTES SE167897 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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Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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airmet

Instrument

YSI Quatro Pro Plus

Serial No.

12C101137

Air-Met Scientific Pty Ltd 1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	1	
Connectors	Condition	✓	
Sensor	1. pH	✓	
	2. mV	1	
	3. EC	✓	
	4. D.O	✓	
	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		293215	pH 10.01
1. pH 7.00		pH 7.00		290453	pH 6.97
2. pH 4.00		pH 4.00		288994	pH 3.88
3. mV		229.6mV		OB1388/OB1390	230.0mV
4. EC		2.76mS		292380	2.76mS
5. D.O		0.00ppm		4347	0.00ppm
6. Temp		22.0°C		MultiTherm	21.9°C

Calibrated by:

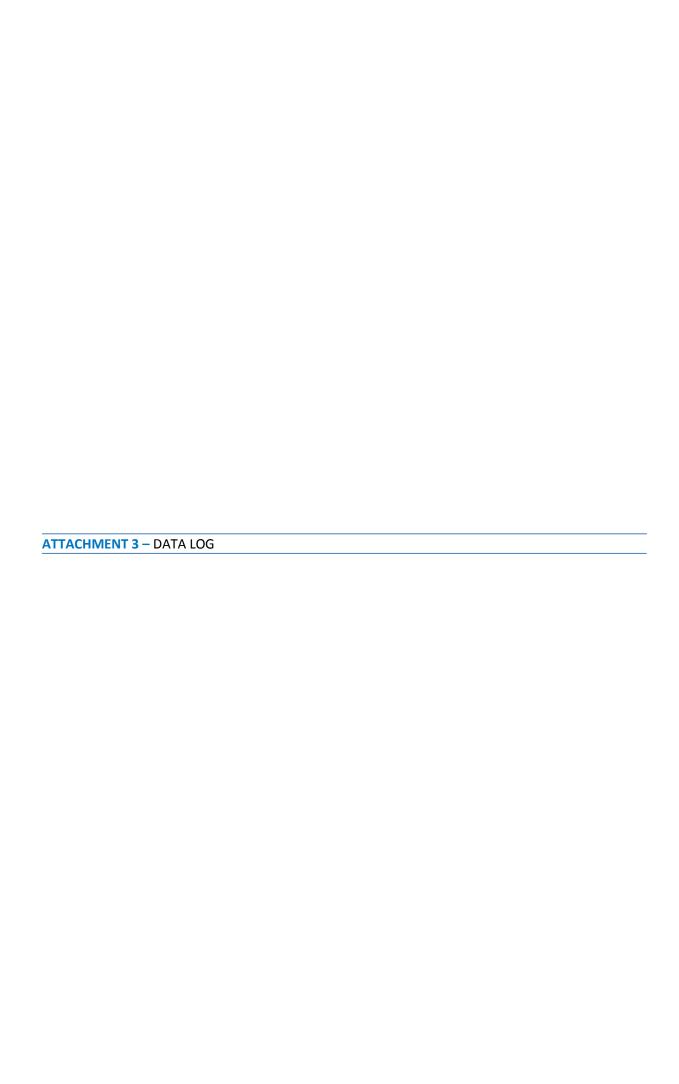
Sophie Boler

Calibration date:

4/07/2017

Next calibration due:

3/08/2017



		Threshold Criteria	NA	NA	NA	NA	0.3	NA	1.9 0.0	00001 N	IA 6.5-	8 NA	0.9	0.7	NA		0.32	NA	NA	NA	0.015	0.024 (III) 0.013 (V)	0.055 (pH>	NA	0.0002	0.09 0.	.0014 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 0.0	0.003	0.00002
		Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L n	ng/L m	g/L pH	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	mg/L r	mg/L mg/L	mg/L	mg/L	mg/L	mg/L	mg/L m	g/L n	ng/L mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L m	ıg/L m	g/L mg/L
0.000										8 <u>c</u>								· · · ·		e ge								=								ne	g	aue	eue	d)		
		Analytes																		20																		- F	1,2-Dichlor oeth	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
Monitoring Well	Chemical Report Date Sampled	Comment																																			CVCs/VOCCs	s				
MWA	135493 6/10/2015					0.1	ND	1200			.2 6.8			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/A	N/A	-	,	N/A N/A	,	N/A	N/A	N/A	N/A	N/A N	I/A N	/A N/A
MWB	135493 6/10/2015				6300	0.3	ND	840			.6 6.9		ND	1.3	100	5	ND	16000	N/A	N/A	N/A	N/A	N/A	N/A	14/11	1411	N/A N/A	N/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
MWC	135493 6/10/2015 135493 6/10/2015	leachate		730 2400	2800	0.4	ND 1.8	130 220			.6 7.1 70 7.6		ND 310	0.17 ND	350 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/A	N/A	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	I/A N	/A N/A
MWE	135493 6/10/2015 135493 6/10/2015	leachate		700	860	0.5	0.015	89			.7 7.4		0.006	ND ND	140	8	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/Δ	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 N/A	N/A N/A	N/A N	I/A N	A N/A
MWA	SE148082 14/01/2016				7800	ND ND	ND	1100			4 7	2200	0.000		34	4.2	0.25	23000	16000		0.22	0.001	ND ND	0.77	ND	ND	ND ND	ND.	ND	ND ND	0.009	ND N	,	ND ND		ND	ND	ND ND	ND	ND N	ND N	ND ND
MWB	SE148082 14/01/2016				6000	ND	ND	810		ND 3	.5 7	1700		1.3	69	7	0.31	18000	15000		0.13	0.002	ND	0.62	ND	ND	ND ND	0.001	ND	ND	0.012	ND N	ID .	ND ND		ND	ND	ND	ND	ND N	ND N	ND ND
MWC	SE148082 14/01/2016		56	750	630	0.34	ND	110	4.9	ND (.9 7.2	590	0.12	ND	300	21	ND	4300	2400	ND	0.19	0.003	ND	0.047	ND (0.011 0	0.001 ND	ND	ND	ND	ND	ND N	ID	ND ND	ND	ND	ND	ND	ND	ND N	ND N	ID ND
MWD	SE148082 14/01/2016	leachate	170	1200	1000	0.32	0.33	110	0.87	ND 1	10 7.3	690	110	ND	18	140	0.47	5800	2500	48	0.13	0.017	ND	0.49	ND (0.004	ND ND	0.031	ND	ND	0.026	34 0.0	028 0.	0.023	0.0351	ND	ND	ND	ND (0.0059	0.0	J04 ND
MWE	SE148082 14/01/2016				850	0.35	0.019	79			.1 7.4	690		ND	200	10	0.02	4600	2200		0.25	0.005	ND	0.048	ND (0.002	ND ND	ND	ND	ND	ND	ND N		ND ND	ND	ND	ND	ND	ND	ND 1	ND N	iD ND
MWA	144481 7/04/2016				7300	0.1	ND	1300			.1 7	2800	0.006	0.62	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	,	N/A N/A	N/A	N/A	N/A	N/A	N/A	N/A N	I/A N	/A N/A
MWB MWC	144481 7/04/2016 144481 7/04/2016				6300 3700	0.3	0.02	420 420		ND 2	.6 7.1	2300	ND ND	1.3	61	4	ND	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	/A I	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
MWD	144481 7/04/2016 144481 7/04/2016	leachate		660 2200	2600	0.3	0.038	220			80 7.7	1900	210	ND	220	200	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/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	N/A	N/A N/A	N/A N	I/A N	A N/A
MWF	144481 7/04/2016	leachate			640		0.034	72	0.1.0		.9 7.6	840	0.026	0.01	160	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	,	N/A N/A	N/A	N/A	N/A	N/A	N/A	N/A N	I/A N	/A N/A
MWA	SE154534 6/07/2016						0.021	1200			.7 7.1	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 I	N/A N/A	N/A	N/A	N/A	N/A	N/A	N/A N	I/A N	I/A N/A
MWB	SE154534 6/07/2016		650	390	6100	0.24	0.008	820	0.008	ND 3	.1 7.1	1700	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	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	N/A N	I/A N	I/A N/A
MWC	SE154534 6/07/2016		55	730	610	0.24	0.006	93	5.400	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	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	N/A N	I/A N	I/A N/A
MWD	SE154534 6/07/2016	leachate	250	1200	1000	0.14	0.520	120	0.960	ND 1	20 7.3	630	80	ND	140	140	0.01	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 I	N/A N/A	N/A	N/A	N/A	N/A	N/A	N/A N	I/A N	/A N/A
MWE	SE154534 6/07/2016				470	0.00	0.021	66	0.430		.6 7.6		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 I	N/A N/A	N/A	N/A	N/A	N/A	N/A	N/A N	I/A N	I/A N/A
MWA MWB	SE157863 6/10/2016			430 360	7400	0.15	ND 0.006	1100 830	0.020		.4 6.8		0.14	0.50	37 69	6.2	0.22	21000	12000	NA	NA NA	NA NA	NA	NΑ	NA	NA	NA NA	NA	NA	NA	NA	NA I	IA.	NA NA	NA	NA	NA	NA	NA	NA 1	NA N	A NA
MMC	SE157863 6/10/2016 SE157863 6/10/2016				770	0.22	0.00b ND	120	0.000		.6 6.9		0.09	ND	180	9.6	0.14 ND	2000	2400	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA I	IA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA I	NA N	A NA
MWD	SE157863 6/10/2016	leachate			1600		0.001	150	0.000		40 7.3			ND	110	200	0.07	7800	4700	NA.	NA	NA.	NA.	NA.	NA NA	NA	NA NA	NA.	NA NA	NA NA	NA	NA I	NA.	NA NA	NA NA	NA.	NA NA	NA NA	NA NA	NA I	NA N	NA NA
MWE	SE157863 6/10/2016				560	0.41	0.012	67			.3 7.3		0.04	ND	120	16	0.01	3600	2100	NA	NA	NA	NA	NA	NA	NA	NA NA	NA	NA	NA	NA	NA 1	IA.	NA NA	NA	NA	NA	NA	NA	NA I	NA N	NA NA
MWA	SE160904 12/1/2017			460	8200	ND	ND	1200		ND	6 7.3		0.20	0.13	38	4	0.02	19000	14000		0.059	NA	ND	0.59	ND	ND	ND 0.005	0.001	ND	ND	0.008	ND N	ID	ND ND	ND	ND	ND	ND	ND	ND 1	ND N	ND ND
MWB	SE160904 12/1/2017				6300	ND	ND	850			5 7.2		0.10	0.59	70	5	0.04	16000	13000		0.017	NA	ND	0.55	ND	ND	ND ND	0.001	ND	ND	0.007	140		ND ND	ND	ND	ND	ND	ND	ND N	ND N	ND ND
MWC	SE160904 12/1/2017				880	0.13	ND	89		ND	2 7.6			ND	200	21	ND	4200	2400		0.017	NA	0.006	0.05	ND (0.013	ND ND	ND	ND	ND	ND	ND N	ID	ND ND	ND	ND	ND	ND	ND	ND N	ND N	ND ND
MWD	SE160904 12/1/2017	leachate			2800		1.100	230			10 7.5		250	ND	330	270	0.04	11000	6200		0.89	NA	0.014	0.91	ND (0.017	ND ND	0.03	ND	ND	0.035	3 0.	002 0.	0009 0.003	0.042	ND	ND	ND	ND (0.0004 1	ND 0.0	017 ND
MWE MWA	SE160904 12/1/2017 SE164082 6/4/2017		70				0.021 ND	76			.8 7.8			ND	130	13	ND	3500	2100 N/A	ND N/A	0.07 N/A	NA N/A	ND N/A	0.054 N/A	ND (U.UU4 0	U.UU1 ND	ND N/A	ND N/A	ND N/A	0.013	ND N		ND ND N/A N/A	ND N/A	ND N/A	ND N/A	ND N/A	ND N/A	ND N	ND N	ND ND
MWB	SE164082 6/4/2017 SE164082 6/4/2017				7700 6000	0.14	ND ND				.1 6.8			0.24	39 77	6.4	0.16	21000 17000	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/Δ	N/A N/Δ	N/A	N/A N/A	N/A	N/A	N/A N/Δ	N/A N/Δ	N/A N	/A Ι	N/A N/A	N/A N/A	N/A N/Δ	N/A N/Δ	N/A N/Δ	N/A N/Δ	N/A N	/A Ν	Α N/A
MWC	SE164082 6/4/2017		34		520	0.27	ND	68			.8 6.6			0.71 ND	120	23	0.02 ND	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 I	N/A N/A	N/A	N/A	N/A	N/A	N/A	N/A N	I/A N	I/A N/A
MWD	SE164082 6/4/2017	leachate					0.920	190				1200	0.00	_	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/A	N/A	N/A N	,	N/A N/A	_	N/A	N/A	N/A	N/A	N/A N	I/A N	/A N/A
MWE	SE164082 6/4/2017						0.006				.9 7.3			ND	110	20	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 I	N/A N/A	N/A	N/A	N/A	N/A	N/A	N/A N	I/A N	/A N/A
MWA	SE167897 6/7/2017				7900	0.12	ND	1200	0.007	ND 4	.3 7	2200		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 I	N/A N/A	N/A	N/A	N/A	N/A	N/A	N/A N	I/A N	/A N/A
MWB	SE167897 6/7/2017		640	390	6000	0.26	ND	820	0.01	ND	4 7	1800	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	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	N/A N	I/A N	/A N/A
MWC	SE167897 6/7/2017						0.008	52			.8 7.2			0.000	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	N/A	N/A N	,	N/A N/A		N/A	N/A	N/A	N/A	N/A N	I/A N	/A N/A
MWD	SE167897 6/7/2017	leachate				0.35	1.6	230			80 7.5		_	ND	100	320	0.05	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	,	,	.,	I/A N/A
MWE	SE167897 6/7/2017		60	1200	340	0.5	0.077	65	0.14	ND 1	.5 7.5	570	0.1	ND	99	26	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 I	N/A N/A	N/A	N/A	N/A	N/A	N/A	N/A N	I/A N	I/A N/A
								Ac MAND :-	within the	shod landen	leachate wat	v table the	Throchold C-	torio ara	u applicatio	as indica*	of concert	water auclie	for com	icon to th - · ·	wells sure	nding the !	Ifill Event Ja	near of the T	hrochold C-14	torio for Mari	D are expected a	nd do not !-	dicata cort	nination is !	sing the cit-											
							*	MS IVIWID IS	within the per	cied landfill	reachate wat	er capie, the	i iii esnoid Cri	teria are oni	y applicable	as indicator	s or general	water quality	y ior compai	ISON TO THE W	weils surrour	nuing the land	ıııı. Exceedai	nces or the I	mesnoia Criti	ena for MW	o are expected a	mu ao not in	uicate contan	iiiidtion is leav	vilig the site											

	Threshold Criteria				0.3		1.9	0.00001	- 6	5.5 – 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 0.00	14 0.00	1 -	0.0034	0.0006	0.008	0.26	0.95 0.	18 0.08	-		6500	0.05	0.03 0.000	3 0.000	0.0	16 0.00002	
	Units	mg/L mg/l	mg/L	mg/L i	mg/L	mg/L	mg/L	mg/L	mg/L	pH 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	ng/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 mg/	L mg/	L mg	/L mg/L	
	Analytes	Calcium Alkalinity	Chloride	Fluoride	Iron	Magnesium	Manganese	Organochlorine pesticides (OCP)	Potassium	Hd 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	Chromium VI	Chromium (total)	Lead	Mercury	Zinc	HQL H	Benzene	Toluene Ethylbenzene	total	Tetrachlorethen e (TCE)	1,1,1- Trichloroethane (TCA)	Tetrachloroethe ne (PCE)	1,2- Dichloro ethene Vinyl Chloride	PCBs	AH V O	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	Variation	Yearly	
Monitoring Well Chemical Report Date	Comment																																	c	:VCs/VOC	Cs					
MWA 135493 6/10/2015		620 440	7700	0.1	ND	1200	0.028	ND	3.2	6.8 240	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/A	N/A	N/A	N/A	N/A	N/A	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	7 220	0.2	0.24	34	4.2	0.25	23000	16000	ND	0.22	0.001	ND	0.77	ND	ND NI) ND	ND.	ND	ND	0.009	ND	ND N	ID ND	ND	ND	ND	ND	ND ND	ND	NI) ND	_
MWA 144481 7/04/2016		700 460	7300	0.1	ND	1300	0.009	ND	3.1	7 280	0.006	0.62	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	7.1 220	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	N/A N/A	N/A			_
MWA SE157863 6/10/2016		580 430	7400	0.15	ND	1100	0.020	ND	4.4	6.8 210	0 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//	N/A	N/A	N/A	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 SE160904 12/01/2017 MWA SE164082 6/4/2017		570 450	8200	ND 0.14	ND	1200	0.004	ND ND	5.6	6.9 220	0.13	0.13	38	3.9 6.4	0.02	19000 21000	14000 N/A	ND N/A	U.U59	NA N/A	ND N/A	0.59 N/A	ND N/A	NU NI	0.00	0.001	ND N/A	ND N/A	0.008	ND N/A	NU N	ID ND	ND N/A	ND N/A	ND N/A	ND N/A	NU ND	ND N/A			+
MWA SE167897 6/7/2017		640 470	7900	0.12	ND	1200	0.007	ND	4.3	7 220	0 0.14	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	N/A	N/A	N/A N/A	N/A		'A N/A 'A N/A	

		Threshold Criteria				0.3		1.9	0.00001	- 1	6.5–8	- 0.	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	0.0006	0.008	0.26 0).95 0.	18 0.08	-		6500	0.05	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	g/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	mg/L	mg/L i	mg/L	mg/L	mg/L	mg/L	mg/L i	ng/L n	ng/L m	g/L mg/l	L mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		Analytes	Calcium	Chloride	Fluoride	Iron	Magnesium	Manganese	Organochlorine pesticides (OCP)	Potassium	표	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- Trichloroethane	Tetrachloroethe ne (PCE)	1,2- Dichloroethene	Vinyl Chloride	PCBs	PAHs	OPPs
		Monitoring frequency	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 Report	Date Sampled	Comment																																			CVCs/VOC	Cs					
MWB 135493 6/1	10/2015		650 370	6300	0.3	ND	840	0.008	ND	2.6	6.9 19	900 NI	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 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
MWB SE148082 14/0	01/2016		650 370	6000	ND	ND	810	0.012	ND	3.5	7 17	00 0.1	.5 1.3	69	7	0.31	18000	15000	ND	0.13	0.002	ND	0.62	ND	ND	ND	ND	0.001	ND	ND	0.012	ND	ND N	ID ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MWB 144481 7/0	04/2016		720 380	6300	0.3	0.02	880	0.007	ND	2.6	7.1 23	800 NI	1.3	61	4	ND	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 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
	07/2016		650 390	6100	0.24	0.008	820	0.008	ND	3.1	7.1 17	00 0.1	0.9	69	7.6	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 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
	10/2016		600 360	6000	0.22	0.006	830	0.008	ND	3.6	6.9 18	800 0.0	9 1.1	69	6.6	0.14	17000	10000	N/A	N/A	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	N/A	N/A	N/A	N/A	N/A
	01/2017		590 380	6300	ND	ND	850	ND	ND	5		00 0.1	.0 0.59	_		0.04	16000	13000		0.017	NA	ND	0.55	ND	ND	ND	ND	0.001	ND	ND	0.007	ND	ND N	ID ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/2017		580 360	6000	0.27	ND	760	0.009	ND	2.8	6.6 17	0.0	9 0.7	1 77	6.8	0.02	17000	N/A	N/A	N/A	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	,	N/A	N/A	N/A	N/A
MWB SE167897 6/7	7/2017		640 390	6000	0.26	ND	820	0.01	ND	4	7 18	800 0.2	1 0.8	75	8.2	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	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

			Threshold Criteria	-	-		- 0.	.3	- :	1.9 (0.00001	- 6	.5–8	- 0.	9 0.7	-	4	0.32	-			0.015 O	.024 (III) .013 (V)	0.055 (pH> 6.5)		0.0002	0.09	0.0014	0.001	- 0.0	0034	0.0006	0.008).26 0.	95 0.1	8 0.0	-	-	6500	0.05	0.03	0.0003	0.00003	0.016	0.00002
			Units	mg/L n	ıg/L me	g/L mg	g/L mg	g/L m	ng/L m	ng/L	mg/L	mg/L	pH m	g/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	mg/L	mg/L	mg/L r	ng/L m	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
	_الـ		Analytes	Calcium	Alkalinity		riuoride	uo <u>u</u>	Magnesium	Manganese	Organochlorine pesticides (OCP)	Potassium	됩 :	Sodium	Ammonia	Sulfate	Total organic carbon	Total phenolics	Electrical conductivity (EC)	Total dissolved solids	Bioche mical oxygen demand	Phosphate	Arsenic III & V	Aluminium	Barium	Cadmium	Cobalt	Copper	Chromium VI	Chromium (total)	Lead	Mercury	Zinc	ТРН	Benzene	Ethylbenzene	total	Tetrachlorethene (TCE)	1,1,1- Trichloroethane	Tetrachloroethene (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
Aonitoring Well	Chemical Report	Date Sampled	Comment																																			(CVCs/VOC	Cs					
MWC	135493	6/10/2015		62	30 69	90 0.	.4 N	D 1	130	2.2	ND	0.6	7.1 6	70 N	D 0.1	7 350	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 N	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
MWC	SE148082	14/01/2016		56	50 63	30 0.3	34 N	D 1	110	4.9	ND	0.9	7.2 5	90 0.:	12 NI	300	21	ND	4300	2400	ND	0.19	0.003	ND	0.047	ND	0.011	0.001	ND	ND I	ND	ND	ND	ND N	D N) NE	ND	ND	ND	ND	ND	ND	ND	ND	ND
MWC	144481	7/04/2016		290	60 37	00 0.	.3 0.0	38 4	120	3.1	ND	1.4	7.2 19	00 N	D 4.9	9 220	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 N	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
MWC	SE154534	6/07/2016				10 0.2				5.4	ND	1.0				.5 220		ND			-	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/	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A
MWC	SE157865	6/10/2016		67 6		70 0.3				5.6	ND	1.1		20 0.0	04 NE					2400		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/	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A
MWC	SE160904	12/01/2017		44 8		_				7.8	ND	2			12 NI	_	21					0.017	NA	0.006	0.05	ND	0.013	ND	ND	ND I	ND	ND	ND	ND N	D N	O NE	_		ND	ND	ND	ND	ND	ND	ND
MWC	SE164082 SE167897	6/4/2017 6/7/2017		34 6	_	20 0.4 70 0.4		D E	68 7	7.3	ND	0.9		40 0.0	06 NE	_			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	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
												0.8																																	

				Threshold Criteria	٠.	-	-		0.3		1.9	0.00001		6.5-8	-	0.9 ().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	0.008	0.26	0.95	0.18	0.08	-		6500	0.05	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 r	mg/L n	ng/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	mg/L r	ng/L	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
<u>_</u>	الــــ			Analytes	Calcium	Alkalinity	Chloride	Fluoride	Iron	Magnesium	Manganese	Organochlorine pesticides (OCP)	Potassium	Æ	Sodium	Ammonia	Nitrate	Total organic	Total phenolics	Electrical conductivity (EC)	Total dissolved solids	Biochemical	Phosphate	Arsenic III & V	Aluminium	Barium	Cadmium	Cobalt	Copper	Chromium VI	Chromium (total)	Lead	Mercury	Zinc	НД	Benzene	Toluene	Ethylbenzene	total	Tetrachlorethen e (TCE)	1,1,1- Trichlor oet han e (TCA)	Tetrachloroethe ne (PCE)	1,2. Dichloroethene	Vinyl Chloride	PCBs	PAHS	OPPs
				Monitoring frequency	Quarter!	Quarterl y	Quarter! y	Quarterl	Quarterl	Quarter! y	Quarterl	Quarter! y	Quarterl	Quarter! y	Quarterl y	Quarter y	y Quarter!	y Quarterl	Quarter!	Quarterl	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
Monitori	ng Well	Chemical Report	Date Sampled	Comment																																				CVC	s/VOCCs						
MW	VD :	135493	6/10/2015	leachate	150	2400	2800	0.3	1.8	220	0.46	ND	170	7.6	1700	310 I	ND 6	330	ND	11000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	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	VD S	E148082	14/01/2016	leachate	170	1200	1000	0.32	0.33	110	0.87	ND	110	7.3	690	110	ND 1	140	0.47	5800	2500	48	0.13	0.017	ND	0.49	ND	0.004	ND	ND (0.031	ND	ND	0.026	34 0	0.0028	0.0034	0.023	0.0351	ND	ND	ND	ND	0.0059	ND	0.004	ND
MW	VD	144481	7/04/2016	leachate	160	2200	2600	0.3	2.2	230	0.45	ND	180	7.7	1900	210	ND 3	290	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/A	N/A	N/A	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	VD S	E154534	6/07/2016	leachate	250	1200	1000	0.14	5.2	120	0.96	ND	120	7.3	630	80 1	ND 14	0 140	0.01	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/A	N/A	N/A	N/A	N/A	N/A	N/A
MW	VD S	E157866	6/10/2016	leachate	210	1600	1600	0.27	0.001	150	0.600	ND	140	7.3	1000 :	150 I	ND 11	0 200	0.07	7800	4700	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	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		E160904	12/01/2017	leachate	260	2300	2800	ND	1.100	230	0.850	ND	210	7.5	1400	250	ND 33	0 270	0.04	11000	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
MW	VD S	E164082	6/4/2017	leachate	260	1500	2200	0.28	0.920	190	0.780	ND	130	7.3	1200	210	ND 31	0 150	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/A	N/A	N/A	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	VD S	E167897	6/7/2017	leachate	150	2500	2800	0.35	1.6	230	0.42	ND	180	7.5	1700	310	ND 10	0 320	0.05	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	N/A	N/A	N/A	N/A	N/A	N/A

^{*}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	-	1.9	0.0000	1 -	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	0.008	0.26 0	.95 0.	.18 0.	08 -	-	6500	0.0	5 0.03	0.0003	0.00003	0.016	0.00002
				Units	mg/L	mg/L r	mg/L	рН	mg/L	ng/L i	mg/L r	ng/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	mg/L	mg/L	mg/L	ng/L m	g/L m	g/L m	g/L mg/	L mg/L	mg/L	L mg/	L mg/L	mg/L	mg/L	mg/L	mg/L						
=	_ال																									Aluminium																			PCBs	PAHs	OPPs
				Monitoring frequency	Quarterly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Vearly	Yearly	Yearly	Yearly	Yearly	Yearly																
Monitori ng Well	Chemical Report	Date	Sampled	Comment																																					CVCs/V	OCCs					
MWE	135493	6/10/2	2015		75	700	860	0.5	0.015	89	0.44	ND	1.7	7.4	730	0.006	ND	140	8	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	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
MWE	SE148082	14/01/	/2016		80	750	850	0.35	0.019	79	0.23	ND	1.1	7.4	690	0.12	ND	200	10	0.02	4600	2200	ND	0.25	0.005	ND	0.048	ND	0.002	ND	ND	ND	ND	ND	ND	ND 1	ND N	ND N	ID NE	ND	ND	NE	ND ND	ND	ND	ND	ND
MWE	144481	7/04/2	2016		67	890	640	0.5	0.034	72	0.24	ND	0.9	7.6	840	0.026	0.01	160	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	I/A N	I/A N	/A N/	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SE154534	, , .			57	970	470	0.30	0.021	66	0.43	ND	1.6	7.6	610	0.04 <	0.005	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	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
	SE15786				61		560	0.41	0.012	67	0.110	ND	1.3	7.3	650	0.04 <	0.025	120	16	0.01	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	I/A N	I/A N	/A N/	N/A	N/A	N/A	A N/A	N/A	N/A	N/A	N/A
	SE160904					_		0.18		/6	0.27	ND	1.8	7.8	610	0.04	ND	130	13	ND	3500		ND N/A	0.07	NA N/A	ND N/A	0.054	ND N/A	0.004	0.0010	ND N/A	ND N/A	ND N/A	ND	0.013	ND N	ND N	ND N	ID NL	ND NL/A	ND	NE	ND NI/A	ND N/A	ND N/A	ND N/A	ND N/A
		-, ,				1100			0.006	67	7.300	ND	0.9	7.3	530	0.07	ND	110	20	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	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
MWF	SE16789	7 6/7/2	2017		60	1200	340	0.5	0.077	65	0.14	ND	1.5	7.5	570	0.1	ND	99	26	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	I/A N	I/A N	/A N/	A N/A	N/A	N/A	A N/A	N/A	N/A	N/A	N/





	H+67	1186	IN PULL	Samp	le ID: Mt	U			
Project: M:t Vincent rd	Waste F	acility (SCONIE	Well	Collar RL:		0		
Client: CSR Maitland Oil			IHSC	Samp	ler(s): 😢	\$			
Address: M.t Vincent ro	l, East M	aitland	Noblet R	Signat	ture:	Mon	1		-333/10-
BH ID:			Scone	Date:	6/7/17				
Well Status			mas	cicled	/rushel	g			
Monument damaged:		6	ES (NO) N/A	W	ell ID visible:			ES/ NO / N/A	
ocked well casing:		Ÿ	ES (NO) N/A	Cap	p on PVC casing:		,	VED NO / N/A	
ement footing damaged:		Y	ES NO / N/A	Wa	ater in monument	t casing:		YES (NO) N/A	
tanding water, vegetation aroun	d monume	nt: Y	ES(NO) N/A	Int	emal obstruction	in casing:		YES (NO)/ N/A	
Vell Damaged:		Y	ES (NO) N/A	Od	ours from ground	lwater:		YES NO N/A	
learby works:	ritera menanana	*****************		M 1714114 PET STAGE (A PAGE	*****************			4) 3-3-3-27	
	7 1	. Ledhir published a land	O		(1844) - (1814) - (18				
omments:	E-MAS.TO	10- 0	+ IMON	w-c	J	<u> </u>			
asing above ground:	(1 77 871711164174111	PRISTED BY 100 AND 100	m agl	Wes	ther Condition	264			
tanding water level:			m bgl			15-20 🗆	20-25 E	1	
otal well denth: 15 -	7		m bgl	16		25-30 □	>30 🗆		
nitial well volume: 30	77	•	L					t.	
Vater level after purging:	1.1:	7	m bgl		Clear 🗖	Partly clo	udy 🗆	Overcast	
olume of water purged:	3		L		TOTAL CONTRACTOR			/	_
/ater level at time of sampling:	14.1		m bgl		Calm 🗆	Slight bre	eze 🗖	Moderate bree	ze 🗆
/ell purged dry:			YES /NO			Windy			
urging equipment: Baile	<u>ـ</u> ــ								
emple equipment: 7/					Fine 2	Showers		Rain	
Water Quality Details:	EC	pH	Redox	Temp	Salinity	Comme	ents	***	
am / pm (mg/L-1) (j	uS cm-1)	P S	(mV)	(°C)	(% Refract)		.,,,,,		
17.57 21.77 1	1037	6.87	105.4	22.2	7.91				
1.32	12 70	6.60	1060	20.9	201				
	4877	6.56	105.4	20.2	9.45				
	1 - 1		(0)	Λ-	1. 15				
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					1	Dr.			
Additional Comments:		L				I.			
Additional Comments:		cloa	ids V	<u> </u>	odoul				



DLA Project Code: D Project: M.t.Vincent		eoility C	CONF	Sampl		WMF	5		
Client: CSR Maitland City Council Wilsc				410	Well Collar RL: Sampler(s): K - S				
Address: M.t.Vincent	rd Fact M	laitland	Lalled	Signat		1			
BH ID:		1	Stone	Date:	11-1	11			
Direct.			30014	Date.	~ [[11			
Well Status					W. New .				
Monument damaged:		Y	ES /NO / N/A	We	ll 1D visible:		VEZ/NO/N/A		
ocked well casing:		Y	ES MO/ N/A	Car	on PVC casing:		(B) NO/N/A		
ement footing damaged:			EST NOY N/A	Wa	ter in monument	casing:	YES / NO / N/A		
tanding water, vegetation arc	ound monume		ES / 600 / N/A	Inte	ernal obstruction	In casing:	YES / NO / N/A		
Vell Damaged:		Y	ES NO / N/A	Ode	ours from ground	water:	YES / NO / N/A		
learby works:		· / • che i == 1+7 (7 + 41 + 1+4		44 H 14 H		ш			
					*****************************	e 12 8 0 0			
omments: [1841]	ument or	all	ed tob	Panna	ov Gron	ind			
est .	1 1-	Personal and adventured		14.0					
asing prove grounds manning			m agi		Weather Conditions:				
		******	m bgl	Te.		5-20 🗆 20-2			
otal well depth:			m bgl		2	5-30 🗆 >30			
itial well volume:			L					_	
		*******	m bgl		Clear 🖸	Partly cloudy D	Overcast	C	
olume of water purged: /ater level at time of sampling		·-1	L			wH 1.1	/		
rater lever at time of sampling rell purged dry:	i mandanina		m bgl		Calm 🗆	Slight breeze		ze C	
arging equipment: ba:	J		YES/(NO)			Windy E	1 .		
imple equipment:					Fine Z	Showers E	es area		
mibie equipment.		m internal dia	meter pipe = 1.9	L/m. All meas	surements below w		1 Rain		
Water Quality Detail				500 1 1 . 15 10 10 11 15 15 15 15 15 15 15 15 15 15 15 15	PPT				
Time DO	EC	pН	Redox	Tomp		Comments			
am / pm (mg/L-2)	(µS cm ⁻¹)	ÞΠ	(mV).	Temp (°C)	Salinity (% Refract)	Comments			
7.55 60	•	7 0 0		20.0				-	
2.24 30.3%	1254	7.08	95.5	0.0	8.02				
2.29 1816.	12285	6.82	18.4	19.4	7-98				
1.32 1.81	107	6.74	99.9	19.2	7.96				
1.36 17.2%	6601	6.47	611	1	1				
1 1									
				"					
Additional Comments:									
	~ \ V	(V) (V	dour	, 90	Stolm	h			



Project: M.t Vincent rd Waste Facility Cilent: CSR Maitland City Council M. & C Address: M.t Vincent rd, East Maitland M. Mol. & M. & C BH ID: Well Status Monument damaged: YES / NO / N/A Locked well casing: YES / NO / N/A VES / NO / N/A Standing water, vegetation around monument: YES / NO / N/A Well Damaged: YES / NO / N/A	Weather Conditions: Temperature 15-20 □ 20-25 ☑ 25-30 □ >30 □ Clear ☑ Partly cloudy □ Overcast Calm □ Slight breeze ☑ Moderate breeze
Address: M.t Vincent rd, East Maitland BH ID: Well Status Monument damaged: Locked well casing: Cement footing damaged: Standing water, vegetation around monument: Well Damaged: VES / VO / N/A VES / V	Well ID visible: Cap on PVC casing: Water in monument casing: Internal obstruction in casing: Odours from groundwater: Weather Conditions: Temperature 15-20 20-25 25-30 30 Clear Partly cloudy Overcast Calm Slight breeze Moderate breeze
Well Status Monument damaged: Locked well casing: Cement footing damaged: Standing water, vegetation around monument: Well Damaged: VES / WO N/A Well Damaged: Wearby works: Comments: Casing above ground: Casing above ground: Comments: Casing above ground: Casing above ground: Comments: Comments: Casing above ground: Comments: Comments: Casing above ground: Comments: Comment	Well ID visible: Cap on PVC casing: Water in monument casing: Internal obstruction in casing: Odours from groundwater: Weather Conditions: Temperature 15-20 20-25 25-30 Clear Partly cloudy Overcast Calm Slight breeze Moderate breeze
Well Status Monument damaged: Locked well casing: Cement footing damaged: Standing water, vegetation around monument: Well Damaged: Nearby works: Comments: Casing above ground: Standing water level: Cotal well depth: Water level after purging: Wolume of water purged: Monuments: YES / NO N/A YES /	Well ID visible: YES / NO / N/A Cap on PVC casing: YES / NO / N/A Water in monument casing: YES / NO / N/A Internal obstruction in casing: YES / NO / N/A Odours from groundwater: YES / NO / N/A Weather Conditions: Temperature 15-20 20-25 20 25-30 >30 1 Clear Partly cloudy 1 Overcast Calm Slight breeze 20 Moderate breeze
Monument damaged: Locked well casing: Cement footing damaged: Standing water, vegetation around monument: Well Damaged: Nearby works: Comments: Casing above ground: Casing above ground: Cotal well depth: Cotal well depth: Water level after purging: Wolume of water purged: Mean Managed: YES / NO N/A YES / NO	Cap on PVC casing: Water in monument casing: Internal obstruction in casing: Odours from groundwater: Weather Conditions: Temperature 15-20 20-25 25-30 Clear Partly cloudy Overcast Calm Slight breeze Moderate breeze
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Standing water, vegetation around monument: Well Damaged: Wes / Wo N/A YES / WO N/A The Second S	Internal obstruction in casing: YES MO/N/A Odours from groundwater: YES MO/N/A Weather Conditions: Temperature 15-20 20-25 20 25-30 >30 1 Clear Partly cloudy 1 Overcast Calm Slight breeze Moderate breeze
Well Damaged: VES / NO N/A Nearby works: Comments: Casing above ground: A and a	Odours from groundwater: YES NO / N/A Weather Conditions: Temperature 15-20 20-25 20 25-30 >30 10 Clear Partly cloudy 10 Overcast Calm 10 Slight breeze 20 Moderate breeze
Comments: Casing above ground: Casing abov	Odours from groundwater: YES NO / N/A Weather Conditions: Temperature 15-20 20-25 20 25-30 >30 10 Clear Partly cloudy 10 Overcast Calm 10 Slight breeze 20 Moderate breeze
Casing above ground: m agl Standing water level: 4.45 m bgl Standing water level: m bgl	Weather Conditions: Temperature 15-20 □ 20-25 ☑ 25-30 □ >30 □ Clear ☑ Partly cloudy □ Overcast Calm □ Slight breeze ☑ Moderate breeze
Tasing above ground: m agi Itanding water level: 4.45 m bgi Total well depth: 7.46 m bgi Initial well volume: 3.4.161 m bgi Vater level after purging: 15.42 m bgi	Temperature 15-20 20-25 20 25-30 30 Clear Partly cloudy Overcast Calm Slight breeze Moderate breeze
Tasing above ground: m agi Itanding water level: 4.45 m bgi Total well depth: 7.46 m bgi Initial well volume: 3.4.161 m bgi Vater level after purging: 15.42 m bgi	Temperature 15-20 20-25 20 25-30 30 Clear Partly cloudy Overcast Calm Slight breeze Moderate breeze
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rotal well depth: 17.46 m bgl nitial well volume: 31.101 t Vater level after purging: 15.47 m bgl Volume of water purged: 1	25-30 □ >30 □ Clear □ Partly cloudy □ Overcast Calm □ Slight breeze ☑ Moderate breeze
Nater level after purging: 15. 472 m bgl	Clear ☐ Partly cloudy ☐ Overcast Calm ☐ Slight breeze ☑ Moderate breeze
Vater level after purging: 15.47	Calm ☐ Slight breeze ☑ Moderate breeze
olume of water purged:	Calm ☐ Slight breeze ☑ Moderate breeze
Vater level at time of sampling:15-42 m bgl	
Vell purged dry: YES / NO	Windy 🔲
urging equipment: Baila	180
ample equipment: 2 and -	Fine Showers Rain
am / pm (mg/L-1) (μS cm-1) (mV)	Temp Salinity Comments (°C) (% Refract)
1153 21.6 4. 2094 7.70 -76.0 2	20.4 1.18
1.87 15.4 2043 7.41 -105.5 2	20.0 1-16
7.75	19.9 1.14
Additional Comments:	
Clear no odowr; sous Scolut	, Le



DLA Proje	ect Code: I	HH ST	118	6	Samp	le ID: M	MD		
The state of the s	Mut Vincent		acility	SCONE	the belleville and the second	Collar RL:			
	R Maitland	STATES IN STRUCT OF THE STATES OF THE	Mar Brist PASTER STEP L.	ISC	Samp		5		
	M.t Vincen				Signat		20.00		
BH ID:		4	Jodet &	-d	Date:	1171	17		
Dirib.					Dute.	6/1/		- A	-
Well St	tatus								
Aonument da	amaged:		٥	B/NO/MA	We	ell ID visible:		YES / NO KNT	
ocked well ca	asing:		,	ES / NO N/A	Ca	on PVC casing:		YES/NO/NA	
ement footin	ng damaged:		6	S / NO N/A	Wa	ter in monumen	t casing:	YES /00/ N/A	
tanding wate	er, vegetation as	round monume	ent: 🔏	BOX NOV N/A	Int	ernal obstruction	in casing:	YES /NO / N/A	
Vell Damage	d:		Ĝ	ANOV NA	Od	ours from ground	dwater:	(YES) NO / N/A	
learby works	* Ibrita (14444-)27(61424224	***********		,		-	4211	<u> </u>	
		·			************************				
comments:	<u>.</u>	reviou	sky v	un out			.		

asing above (ground:		lless () (m agi	Wea	ther Condition	ns:		
tanding wate	r level:	9. \$2		m bgl	Te	mperature :	15-20 🗆 20-25	e	
otal well dep	th:	2:100		m bgl			25-30 □ >30		
	nwe:7			L					
	ter purging:			m bgl		Clear	Partly cloudy 🗆	Overcast	
	ter purged:	/		L					
Vater level at	time of samplin	ig:\$5.7		m bgl		Calm 🗆	Slight breeze 2	Moderate bree	ze C
ell purged di				YES /(NO)			Windy 🗆		
	ment: Boil					,			
ample equipr	nent: Ba					Fine 🗹	Showers	Rain	
		note: 50m	m incernal or	imeter pipe = 1.5	ь i/m. All mea	surements below v	veli collar		
Water (Quality Deta	ils:					*		
Time	DO	EC	рH	Redox	Temp	Salinity	Comments	The second secon	-
am / pm	(mg/L ⁻¹)	(µS cm ⁻¹)		(mV)	(°C)	(% Refract)	T.		
254	2.5 pm	10297	7.21	- 121.3	26.2	5.82			
	1.00		-	-122.0	,				
2.56	13-4	10268	7.21	1020	25.6	5.82			
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DLA Enviro	nmehtal Servi	ces '()	.)		1	HIELD (DATA SHEET UPD	ATED 18/09/2014	4



DLA Proj	ect Code:	DL111187	118	(Samp	le ID: MW			
Project:	M.t Vincent	rd Waste	Eacility of	SCONE		Collar RL:			
Client: CSR Maitland City Council UHS C						Sampler(s): Ł-S			
	M:t-Vincer		4-:A1	Noblet &			hou		
BH ID:	10000			Date:					
And the second									b. 201
Well S	tatus								
Monument da	amaged:		•	YES NO N/A	W	ell ID visible:		YES/NO/NO	
Locked well ca	asing:		,	YES /NOY N/A	Ca	p on PVC casing:		(45 / NO / N/A	
Cement footing	ng damaged:		1	ES My / N/A	Wa	ater in monumen	t casing:	YES /NO N/A	
	er, vegetation a	round monum	ent:	ES (NO)/ N/A	Int	ernal obstruction	in casing:	YES /NO/ N/A	
Well Damage				ES (NO) N/A		aurs from ground		YES NO NA	
Nearby works	4 ar-v	**************		******************		····	****		
-	*******	*********************	************		\$2444\$4444\$	94n 1841.11111			
Comments:		*****************	*******************	***************************************		11.1 0.12.12.12.12.12.1			
				411+11-11-14-14-11-11-11-11-11-11-11-11-11-1					
	ground:			m agi		ther Condition		/	
Standing water	r level:2	.50	1441)1-1	m bgl	Te		15-20 🗆 20-25,	ά	
I ULGI WEN UED	th:	*** 100 111000144415554444		m bgl			25-30 🗆 >30 1	3	
	ume: ter purging:			L		/			
	ter purging: ter purged:			m bgl		Clear Z	Partly cloudy 🗆	Overcast	
				L L1		C-1 D	011-1-1	·	_
Water level at time of sampling:			m bgl YES/(f0)		Calm 🗆	Slight breeze	Moderate breez	e 🗆	
Purging equipr	2000	د ما		163/160			Windy		
Sample equipn		ري.				Fine 🗹	Showers	Rain	
		Note: 50m	m internal di	meter pipe = 1.9	6 L/m. All mea	surements below w		rain	

	Quality Deta					ppt			
Time	DO (1-1)	EC	pH	Redox	Temp	Salinity	Comments		
am/pm	(mg/L-1)	(μS cm ⁻¹)		(mV)	(°C)	(% teicarr)			
2.21	14.7%	2375	7-44	- 86.2	18.8	1.40			
2.25	1-62	2335	7.22	-121.5	17.8	1.7.1			
- 2 -	8.94	,		7.000		1.41			
2.18	16-0	2324	7-18	-119.0	17.8	1.40			
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DLA Environ	nmental Servi	ces				FIELD D	ATA SHEET UPDA	TED 18/09/2014	-