

Wentworth Shire Council
26-28 Adelaide St
Wentworth
NSW 2648



Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or
measurements included in this document are traceable
to Australian/national standards.

Attention: Izzy Tunali

Report 565167-W
Project name BURONGA LANDFILL BORE HOLE TESTS
Project ID SEPT 2017
Received Date Sep 27, 2017

Client Sample ID			BH2 Water	BH3 Water	BH4 Water
Sample Matrix			S17-Se32846	S17-Se32847	S17-Se32848
Eurofins mgt Sample No.			Sep 25, 2017	Sep 25, 2017	Sep 25, 2017
Date Sampled					
Test/Reference	LOR	Unit			
BTEX					
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001
Ammonia (as N)	0.01	mg/L	0.35	0.65	0.68
Chloride	1	mg/L	25000	23000	16000
Conductivity (at 25°C)	1	uS/cm	54000	50000	39000
Fluoride	0.5	mg/L	0.9	< 0.5	0.7
Nitrate (as N)	0.02	mg/L	0.19	0.03	44
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02
pH	0.1	pH Units	7.2	6.2	3.7
Phenolics (total)	0.05	mg/L	< 0.05	< 0.05	< 0.05
Sulphate (as SO ₄)	5	mg/L	3500	2800	3200
Total Organic Carbon	5	mg/L	< 5	< 5	7.5
Alkalinity (speciated)					
Total Alkalinity (as CaCO ₃)	20	mg/L	200	39	< 20
Heavy Metals					
Arsenic	0.001	mg/L	< 0.005	0.008	0.007
Lead	0.001	mg/L	0.022	0.007	0.035
Manganese	0.005	mg/L	0.74	3.5	1.2
Alkali Metals					
Calcium	0.5	mg/L	450	350	190
Magnesium	0.5	mg/L	1800	1500	1100
Potassium	0.5	mg/L	200	170	140
Sodium	0.5	mg/L	15000	13000	11000

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
 A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).
 If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
BTEX - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Oct 02, 2017	14 Day
Ammonia (as N) - Method: APHA 4500-NH3 Ammonia Nitrogen by FIA	Melbourne	Oct 02, 2017	28 Day
Chloride - Method: LTM-INO-4090 Chloride by Discrete Analyser	Melbourne	Oct 02, 2017	28 Day
Conductivity (at 25°C) - Method: LTM-INO-4030	Melbourne	Oct 02, 2017	28 Day
Fluoride - Method: APHA-F-C	Melbourne	Oct 02, 2017	28 Day
Nitrate (as N) - Method: APHA 4500-NO3 Nitrate Nitrogen by FIA	Melbourne	Oct 02, 2017	7 Day
Nitrite (as N) - Method: APHA 4500-NO2 Nitrite Nitrogen by FIA	Melbourne	Oct 02, 2017	2 Day
pH - Method: LTM-GEN-7090 pH in water by ISE	Melbourne	Oct 02, 2017	0 Hours
Phenolics (total) - Method: APHA 5530B & D Phenols	Melbourne	Oct 02, 2017	7 Day
Sulphate (as SO4) - Method: LTM-INO-4110 Sulfate by Discrete Analyser	Melbourne	Oct 02, 2017	28 Day
Total Organic Carbon - Method: APHA 5310B Total Organic Carbon	Melbourne	Oct 02, 2017	28 Day
Alkalinity (speciated) - Method: APHA 2320 Alkalinity by Titration	Melbourne	Oct 02, 2017	14 Day
Heavy Metals - Method: LTM-MET-3040 Metals in Waters by ICP-MS	Melbourne	Oct 02, 2017	180 Day
Alkali Metals - Method: USEPA 6010 Alkali Metals	Melbourne	Oct 02, 2017	180 Day

Company Name: Wentworth Shire Council
Address: 26-28 Adelaide St
Wentworth
NSW 2648
Project Name: BURONGA LANDFILL BORE HOLE TESTS
Project ID: SEPT 2017

Order No.:
Report #: 565167
Phone: 03 5027 5027
Fax: 03 5027 5000

Received: Sep 27, 2017 9:30 AM
Due: Oct 5, 2017
Priority: 5 Day
Contact Name: Izzy Tunali

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Ammonia (as N)	Aspiric	Benzene	Calcium	Chloride	Conductivity (at 25°C)	Fluoride	Lead	Magnesium	Manganese	Nitrate (as N)	Nitrite (as N)	pH	Phenolics (total)	Potassium	Sodium	Sulphate (as SO ₄)	Total Alkalinity (as CaCO ₃)	Total Organic Carbon
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217																								
Brisbane Laboratory - NATA Site # 20794																								
Perth Laboratory - NATA Site # 23736																								
External Laboratory																								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID																			
1	BH2	Sep 25, 2017		Water	S17-Se32846	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	BH3	Sep 25, 2017		Water	S17-Se32847	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	BH4	Sep 25, 2017		Water	S17-Se32848	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Test Counts						3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram

ug/L: micrograms per litre

ppb: Parts per billion

org/100mL: Organisms per 100 millilitres

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

mg/L: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Nephelometric Turbidity Units

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Method Blank						
BTEX						
Benzene	mg/L	< 0.001		0.001	Pass	
Method Blank						
Ammonia (as N)	mg/L	< 0.01		0.01	Pass	
Chloride	mg/L	< 1		1	Pass	
Fluoride	mg/L	< 0.5		0.5	Pass	
Nitrate (as N)	mg/L	< 0.02		0.02	Pass	
Nitrite (as N)	mg/L	< 0.02		0.02	Pass	
Phenolics (total)	mg/L	< 0.05		0.05	Pass	
Sulphate (as SO ₄)	mg/L	< 5		5	Pass	
Total Organic Carbon	mg/L	< 5		5	Pass	
Method Blank						
Alkalinity (speciated)						
Total Alkalinity (as CaCO ₃)	mg/L	< 20		20	Pass	
Method Blank						
Heavy Metals						
Arsenic	mg/L	< 0.001		0.001	Pass	
Lead	mg/L	< 0.001		0.001	Pass	
Manganese	mg/L	< 0.005		0.005	Pass	
Method Blank						
Alkali Metals						
Calcium	mg/L	< 0.5		0.5	Pass	
Magnesium	mg/L	< 0.5		0.5	Pass	
Potassium	mg/L	< 0.5		0.5	Pass	
Sodium	mg/L	< 0.5		0.5	Pass	
LCS - % Recovery						
BTEX						
Benzene	%	106		70-130	Pass	
LCS - % Recovery						
Ammonia (as N)	%	96		70-130	Pass	
Chloride	%	126		70-130	Pass	
Fluoride	%	78		70-130	Pass	
Nitrate (as N)	%	91		70-130	Pass	
Nitrite (as N)	%	97		70-130	Pass	
Phenolics (total)	%	108		70-130	Pass	
Sulphate (as SO ₄)	%	110		70-130	Pass	
Total Organic Carbon	%	100		70-130	Pass	
LCS - % Recovery						
Alkalinity (speciated)						
Total Alkalinity (as CaCO ₃)	%	103		70-130	Pass	
LCS - % Recovery						
Heavy Metals						
Arsenic	%	103		80-120	Pass	
Lead	%	101		80-120	Pass	
Manganese	%	103		80-120	Pass	
LCS - % Recovery						
Alkali Metals						
Calcium	%	101		70-130	Pass	
Magnesium	%	104		70-130	Pass	
Potassium	%	95		70-130	Pass	
Sodium	%	114		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Ammonia (as N)	M17-Se35976	NCP	%	90			70-130	Pass	
Chloride	M17-Se34671	NCP	%	106			70-130	Pass	
Nitrate (as N)	M17-Se37180	NCP	%	94			70-130	Pass	
Nitrite (as N)	M17-Se35976	NCP	%	93			70-130	Pass	
Phenolics (total)	S17-Se35207	NCP	%	102			70-130	Pass	
Sulphate (as SO ₄)	M17-Se34659	NCP	%	114			70-130	Pass	
Spike - % Recovery									
Alkalinity (speciated)									
				Result 1					
Total Alkalinity (as CaCO ₃)	P17-Se36125	NCP	%	119			70-130	Pass	
Spike - % Recovery									
Heavy Metals									
				Result 1					
Arsenic	M17-Se32950	NCP	%	101			75-125	Pass	
Lead	M17-Se32950	NCP	%	80			75-125	Pass	
Manganese	M17-Se32950	NCP	%	95			75-125	Pass	
Spike - % Recovery									
Alkali Metals									
				Result 1					
Calcium	P17-Se36123	NCP	%	110			70-130	Pass	
Magnesium	P17-Se36123	NCP	%	106			70-130	Pass	
Potassium	P17-Se36123	NCP	%	102			70-130	Pass	
Sodium	M17-Se37094	NCP	%	126			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
BTEX									
				Result 1	Result 2	RPD			
Benzene	S17-Se32846	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Ammonia (as N)	M17-Se35976	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Conductivity (at 25°C)	S17-Se32846	CP	uS/cm	54000	55000	2.0	30%	Pass	
Fluoride	M17-Se31978	NCP	mg/L	34	30	12	30%	Pass	
Nitrate (as N)	M17-Se35976	NCP	mg/L	16	16	1.0	30%	Pass	
Nitrite (as N)	M17-Se35976	NCP	mg/L	0.14	0.13	5.0	30%	Pass	
pH	S17-Se32846	CP	pH Units	7.2	7.2	pass	30%	Pass	
Phenolics (total)	S17-Se35207	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Total Organic Carbon	S17-Se32846	CP	mg/L	< 5	< 5	<1	30%	Pass	
Duplicate									
Alkalinity (speciated)									
				Result 1	Result 2	RPD			
Total Alkalinity (as CaCO ₃)	S17-Se32846	CP	mg/L	200	210	6.0	30%	Pass	
Duplicate									
Heavy Metals									
				Result 1	Result 2	RPD			
Arsenic	M17-Se32950	NCP	mg/L	0.001	0.002	19	30%	Pass	
Lead	M17-Se32950	NCP	mg/L	0.094	0.087	8.0	30%	Pass	
Manganese	M17-Se32950	NCP	mg/L	0.028	0.029	4.0	30%	Pass	
Duplicate									
Alkali Metals									
				Result 1	Result 2	RPD			
Calcium	M17-Se32995	NCP	mg/L	0.6	0.5	8.0	30%	Pass	
Magnesium	M17-Se32995	NCP	mg/L	0.8	0.8	1.0	30%	Pass	
Potassium	M17-Se32995	NCP	mg/L	< 0.5	< 0.5	<1	30%	Pass	
Sodium	S17-Se33649	NCP	mg/L	6200	6600	7.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	S17-Se32847	CP	mg/L	23000	21000	8.0	30%	Pass	
Sulphate (as SO ₄)	S17-Se32847	CP	mg/L	2800	2900	3.4	30%	Pass	

Duplicate								
Conductivity (at 25°C)	S17-Se32848	CP	uS/cm	Result 1	Result 2	RPD		
pH	S17-Se32848	CP	pH Units	39000	42000	6.0	30%	Pass
Duplicate								
Alkalinity (speciated)				Result 1	Result 2	RPD		
Total Alkalinity (as CaCO ₃)	S17-Se32848	CP	mg/L	3.7	3.8	pass	30%	Pass
				< 20	< 20	<1	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised By

Andrew Black	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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