

**Manildra Group, Shoalhaven Starches Pty Ltd, Bomaderry
Emission Testing Report
Boiler 8
Report Number R013746-1**

Document Information

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Client Name: Manildra Group
Report Number: R013746-1
Date of Issue: 3 May 2023
Attention: John Studdert
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Bomaderry NSW 2541
Testing Laboratory: Ektimo Pty Ltd, ABN 86 600 381 413

Report Authorisation



Zoe Parker
Air Monitoring Consultant



NATA Accredited Laboratory
No. 14601



Aaron Davis
Ektimo Signatory

Accredited for compliance with ISO/IEC 17025 - Testing. NATA is a signatory to the ILAC mutual recognition arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports.

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1 Executive Summary

1.1 Background

Ektimo was engaged by Manildra Group to perform emission testing at their Bomaderry plant. Testing was carried out in accordance with Environment Protection Licence 883.

1.2 Project Objective

The objective of the project was to quantify emissions from one (1) discharge point to determine emission to atmosphere.

Monitoring was performed as follows:

Location	Test Date	Test Parameters*
Boiler 8	29 November 2022	Total solid particles Metals - type 1 & 2 substances in aggregate (Sb, As, Cd, Pb, Hg, Be, Cr, Co, Mn, Ni, Se, Sn, V) Polycyclic aromatic hydrocarbons (PAHs) Nitrogen dioxide (NO ₂), sulfur dioxide (SO ₂), carbon monoxide (CO), carbon dioxide (CO ₂), oxygen (O ₂) Volatile organic compounds (TOC)
	17 March 2023	Total solid particles, fine particulate matter <10µm (PM ₁₀), fine particulate matter <2.5µm (PM _{2.5}) Metals - type 1 & 2 substances in aggregate (Sb, As, Cd, Pb, Hg, Be, Cr, Co, Mn, Ni, Se, Sn, V) Polycyclic aromatic hydrocarbons (PAHs) Nitrogen dioxide (NO ₂), sulfur dioxide (SO ₂), carbon monoxide (CO), carbon dioxide (CO ₂), oxygen (O ₂) Volatile organic compounds (TOC)

* Flow rate, velocity, temperature, and moisture were also determined.

All results are reported on a dry basis at STP.

Plant operating conditions have been noted in the report.

Fine particulate matter <10µm (PM₁₀) and fine particulate matter <2.5µm (PM_{2.5}) could not be sampled on the 29th of November 2022. The sample ports could not be accessed due to the Elevated Work Platform size.

1.3 Results Summary

The limits in the results summary correspond to the Schedule 2 - Standards of Concentrations for Scheduled Premises – General Activities and Plant, Group 6 in the *Protection of the Environment Operations (Clean Air) Regulation, 2022*.

Location	Date	Pollutant	Units	Limit (corrected to 3% O ₂)	Detected values	Detected values (corrected to 3% O ₂)
Boiler 8	29-Nov-22	Solid particles	mg/m ³	50	<2	<2
		Nitrogen oxides (as NO ₂)	mg/m ³	350	180	210
		Volatile organic compounds (as n-propane equivalent)	mg/m ³	40	7.1	8.2
		Type 1 & 2 substances in aggregate	mg/m ³	1	≤0.03	≤0.035
		Cadmium	mg/m ³	0.2	<0.0004	<0.0005
		Mercury	mg/m ³	0.2	<0.0004	<0.0005
		Sulfur dioxide	mg/m ³	-	890	1000
		Carbon monoxide	mg/m ³	-	7.8	9.1
Boiler 8	17-Mar-23	PAHs (Upper bound)	mg/m ³	-	31	36
		Solid particles	ng/m ³	50	2.3	2.6
		Nitrogen oxides (as NO ₂)	mg/m ³	350	160	190
		Volatile organic compounds (as n-propane equivalent)	mg/m ³	40	4.2	4.9
		Type 1 & 2 substances in aggregate	mg/m ³	1	<0.02	<0.03
		Cadmium	mg/m ³	0.2	<0.0005	<0.0006
		Mercury	mg/m ³	0.2	<0.0005	<0.0006
		Fine particulates (PM ₁₀)	mg/m ³	-	<4	<4
		Fine particulates (PM _{2.5})	mg/m ³	-	<3	<3
		Sulfur dioxide	mg/m ³	-	350	420
		Carbon monoxide	mg/m ³	-	<2	<3
		PAHs (Upper bound)	ng/m ³	-	37	44

Refer to the Test Methods table for the measurement uncertainties.

2 Results

2.1 Boiler 8 – 29 November 2022

Date	29/11/2022	Client	Manildra Group
Report	R013746	Stack ID	Boiler 8
Licence No.	883	Location	Bomaderry
Ektimo Staff	Zoe Parker & Scott Woods	State	NSW
Process Conditions	Please refer to client records.		

221124

Sampling Plane Details

Sampling plane dimensions	1780 mm
Sampling plane area	2.49 m ²
Sampling port size, number & depth	4" Flange (x2), 100 mm
Access & height of ports	Elevated work platform 20 m
Duct orientation & shape	Vertical Circular
Downstream disturbance	Exit cone 3.5 D
Upstream disturbance	Junction 7 D
No. traverses & points sampled	2 16
Sample plane conformance to AS 4323.1	Ideal sampling plane

Stack Parameters

Moisture content, %v/v	13	
Gas molecular weight, g/g mole	28.4 (wet)	29.9 (dry)
Gas density at STP, kg/m ³	1.27 (wet)	1.33 (dry)
Gas density at discharge conditions, kg/m ³	0.73	
% Oxygen correction & Factor	3 %	1.16

Gas Flow Parameters

Flow measurement time(s) (hhmm)	1305 & 1440
Temperature, °C	202
Temperature, K	475
Velocity at sampling plane, m/s	11
Volumetric flow rate, actual, m ³ /s	27
Volumetric flow rate (wet STP), m ³ /s	15
Volumetric flow rate (dry STP), m ³ /s	13
Mass flow rate (wet basis), kg/hour	70000

Date	29/11/2022	Client	Manildra Group
Report	R013746	Stack ID	Boiler 8
Licence No.	883	Location	Bomaderry
Ektimo Staff	Zoe Parker & Scott Woods	State	NSW
Process Conditions	Please refer to client records.		

221124

Isokinetic Results	Sampling time	Results		
		1315-1437		
		Concentration mg/m ³	Corrected to 3% O ₂ mg/m ³	Mass Rate g/min
Solid Particles		<2	<2	<1
Antimony		<0.004	<0.005	<0.003
Arsenic		<0.002	<0.002	<0.001
Beryllium		<0.0005	<0.0006	<0.0004
Cadmium		<0.0004	<0.0005	<0.0003
Chromium		0.00098	0.0011	0.00079
Cobalt		<0.0006	<0.0007	<0.0005
Lead		0.0012	0.0014	0.00098
Manganese		<0.002	<0.002	<0.001
Mercury		<0.0004	<0.0005	<0.0003
Nickel		0.011	0.013	0.0092
Selenium		<0.004	<0.005	<0.003
Tin		<0.002	<0.002	<0.001
Vanadium		<0.001	<0.001	<0.0008
Type 1 & 2 Substances				
Upper Bound				
Total Type 1 Substances		≤0.008	≤0.0093	≤0.0065
Total Type 2 Substances		≤0.022	≤0.026	≤0.018
Total Type 1 & 2 Substances		≤0.03	≤0.035	≤0.024
Isokinetic Sampling Parameters				
Sampling time, min			80	
Isokinetic rate, %			98	
Gravimetric analysis date (total particulate)			05-12-2022	

Date	29/11/2022	Client	Manildra Group
Report	R013746	Stack ID	Boiler 8
Licence No.	883	Location	Bomaderry
Ektimo Staff	Zoe Parker & Scott Woods	State	NSW
Process Conditions	Please refer to client records.		221124

Sampling Plane Details	
Sampling plane dimensions	1780 mm
Sampling plane area	2.49 m ²
Sampling port size, number & depth	4" Flange (x2), 100 mm
Access & height of ports	Elevated work platform 20 m
Duct orientation & shape	Vertical Circular
Downstream disturbance	Exit cone 3.5 D
Upstream disturbance	Junction 7 D
No. traverses & points sampled	2 16
Sample plane conformance to AS 4323.1	Ideal sampling plane

Stack Parameters		
Moisture content, %v/v	13	
Gas molecular weight, g/g mole	28.3 (wet)	29.9 (dry)
Gas density at STP, kg/m³	1.26 (wet)	1.33 (dry)
Gas density at discharge conditions, kg/m³	0.73	
% Oxygen correction & Factor	3 %	1.16
Gas Flow Parameters		
Flow measurement time(s) (hhmm)	1115 & 1305	
Temperature, °C	201	
Temperature, K	474	
Velocity at sampling plane, m/s	11	
Volumetric flow rate, actual, m³/s	26	
Volumetric flow rate (wet STP), m³/s	15	
Volumetric flow rate (dry STP), m³/s	13	
Mass flow rate (wet basis), kg/hour	69000	

Gas Analyser Results	Sampling time	Average 1124 - 1247			Minimum 1124 - 1247			Maximum 1124 - 1247		
		Corrected			Corrected			Corrected		
		Concentration mg/m ³	to 3% O ₂ mg/m ³	Mass Rate g/min	Concentration mg/m ³	to 3% O ₂ mg/m ³	Mass Rate g/min	Concentration mg/m ³	to 3% O ₂ mg/m ³	Mass Rate g/min
Combustion Gases										
Nitrogen dioxide (as NO ₂)		<2	<2	<2	<2	<2	<2	15	17	12
Nitrogen oxides (as NO ₂)		180	210	140	70	81	55	190	220	150
Sulfur dioxide		890	1000	700	40	46	31	960	1100	760
Carbon monoxide		7.8	9.1	6.2	<2	<3	<2	14	16	11
		Concentration %v/v			Concentration %v/v			Concentration %v/v		
Carbon dioxide			9.5			5.3			9.7	
Oxygen			5.4			5.3			6	
		Corrected			Corrected			Corrected		
		Concentration mg/m ³	to 3% O ₂ mg/m ³	Mass Rate g/min	Concentration mg/m ³	to 3% O ₂ mg/m ³	Mass Rate g/min	Concentration mg/m ³	to 3% O ₂ mg/m ³	Mass Rate g/min
Total Organic Compounds (TOC)										
TOC (as Propane)		7.1	8.2	5.6	3.9	4.6	3.1	18	20	14

Date	29/11/2022	Client	Manildra Group
Report	R013746	Stack ID	Boiler 8
Licence No.	883	Location	Bomaderry
Ektimo Staff	Zoe Parker & Scott Woods	State	NSW
Process Conditions	Please refer to client records.		

221124

Polycyclic Aromatic Hydrocarbons (PAHs)		Results		
Sampling time		1124 - 1247		
		Corrected		
		Concentration ng/m ³	to 3% O ₂ ng/m ³	Mass Rate ng/min
	Naphthalene	1400	1600	1100000
	2-Methylnaphthalene	670	770	530000
	Acenaphthylene	<20	<20	<10000
	Acenaphthene	<20	<20	<10000
	Fluorene	700	810	550000
	Phenanthrene	810	930	630000
	Anthracene	34	39	27000
	Fluoranthene	290	340	230000
	Pyrene	<20	<20	<10000
	Benz(a)anthracene	<20	<20	<10000
	Chrysene	180	210	140000
	Benzo(b)fluoranthene	<20	<20	<10000
	Benzo(k)fluoranthene	<20	<20	<10000
	Benzo(e)pyrene	<20	<20	<10000
	Benzo(a)pyrene	<20	<20	<10000
	Perylene	<20	<20	<10000
	Indeno(1,2,3-cd)pyrene	<20	<20	<10000
	Dibenz(ah)anthracene	<20	<20	<10000
	Benzo(ghi)perylene	<20	<20	<10000
	Total 16 PAHs	3400	3900	2700000
	Total 19 PAHs	4000	4700	3200000
BaP-TEQ				
	Lower Bound	1.8	2.1	1400
	Middle Bound	16	19	13000
	Upper Bound	31	36	24000

Abbreviations and definitions

BaP-TEQ	Benzo(a)pyrene toxic equivalents.
Lower Bound	Defines values reported below detection as equal to zero.
Middle Bound	Defines values reported below detection are equal to half the detection limit.
Upper Bound	Defines values reported below detection are equal to the detection limit.

TEQs are calculated by multiplying the quantified result for each toxic compound by its corresponding toxic equivalency factor.

Isokinetic Sampling Parameters	Results
PAHs	
Sampling time, min	80
Isokinetic rate, %	99%

2.2 Boiler 8 – 17 March 2023

Date	17/03/2023	Client	Manildra Group
Report	R013746	Stack ID	Boiler 8
Licence No.	883	Location	Bomaderry
Ektimo Staff	Zoe Parker & Scott Woods	State	NSW
Process Conditions	Please refer to client records.		

2303 JB

Sampling Plane Details			
Sampling plane dimensions	1780 mm		
Sampling plane area	2.49 m ²		
Sampling port size, number & depth	4" Flange (x2), 100 mm		
Access & height of ports	Elevated work platform	20 m	
Duct orientation & shape	Vertical	Circular	
Downstream disturbance	Exit cone	3.5 D	
Upstream disturbance	Junction	7 D	
No. traverses & points sampled	2	16	
Sample plane conformance to AS 4323.1	Ideal sampling plane		

Stack Parameters			
Moisture content, %v/v	11		
Gas molecular weight, g/g mole	28.8 (wet)		30.1 (dry)
Gas density at STP, kg/m ³	1.28 (wet)		1.34 (dry)
Gas density at discharge conditions, kg/m ³	0.73		
% Oxygen correction & Factor	3 %		1.14
Gas Flow Parameters			
Flow measurement time(s) (hhmm)	1240 & 1445		
Temperature, °C	206		
Temperature, K	480		
Velocity at sampling plane, m/s	9.6		
Volumetric flow rate, actual, m ³ /s	24		
Volumetric flow rate (wet STP), m ³ /s	14		
Volumetric flow rate (dry STP), m ³ /s	12		
Mass flow rate (wet basis), kg/hour	63000		

Date	17/03/2023	Client	Manildra Group
Report	R013746	Stack ID	Boiler 8
Licence No.	883	Location	Bomaderry
Ektimo Staff	Zoe Parker & Scott Woods	State	NSW
Process Conditions	Please refer to client records.		

2303.16

Isokinetic Results	Sampling time	Results		
		1326-1443	1326-1443 (PM10&2.5)	
		Concentration mg/m ³	Corrected to 3% O ₂ mg/m ³	Mass Rate g/min
Solid Particles		2.3	2.6	1.6
Fine particulates (PM10)		<4	<4	<3
Fine particulates (PM2.5)		<3	<3	<2
D50 cut size, 10µm			10.4	
D50 cut size, 2.5µm			2.47	
Antimony		<0.005	<0.006	<0.004
Arsenic		<0.002	<0.003	<0.002
Beryllium		<0.0006	<0.0007	<0.0005
Cadmium		<0.0005	<0.0006	<0.0004
Chromium		<0.001	<0.001	<0.0007
Cobalt		<0.0008	<0.0009	<0.0006
Lead		<0.002	<0.002	<0.001
Manganese		<0.002	<0.002	<0.002
Mercury		<0.0005	<0.0006	<0.0004
Nickel		<0.002	<0.002	<0.001
Selenium		<0.005	<0.006	<0.004
Tin		<0.002	<0.003	<0.002
Vanadium		<0.001	<0.001	<0.0009
Type 1 & 2 Substances				
Upper Bound				
Total Type 1 Substances		<0.01	<0.01	<0.007
Total Type 2 Substances		<0.01	<0.02	<0.01
Total Type 1 & 2 Substances		<0.02	<0.03	<0.02
Isokinetic Sampling Parameters				
		Isokinetic		PM 10&2.5
Sampling time, min		80		80
Isokinetic rate, %		99		93
Gravimetric analysis date (total particulate)			21-03-2023	
Gravimetric analysis date (PM ₁₀ /PM _{2.5})			20-03-2023	

Date	17/03/2023	Client	Manildra Group
Report	R013746	Stack ID	Boiler 8
Licence No.	883	Location	Bomaderry
Ektimo Staff	Zoe Parker & Scott Woods	State	NSW
Process Conditions	Please refer to client records.		

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Sampling Plane Details

Sampling plane dimensions	1780 mm
Sampling plane area	2.49 m ²
Sampling port size, number & depth	4" Flange (x2), 100 mm
Access & height of ports	Elevated work platform 20 m
Duct orientation & shape	Vertical Circular
Downstream disturbance	Exit cone 3.5 D
Upstream disturbance	Junction 7 D
No. traverses & points sampled	2 16
Sample plane conformance to AS 4323.1	Ideal sampling plane

Stack Parameters

Moisture content, %v/v	14	
Gas molecular weight, g/g mole	28.3 (wet)	30.1 (dry)
Gas density at STP, kg/m ³	1.26 (wet)	1.34 (dry)
Gas density at discharge conditions, kg/m ³	0.73	
% Oxygen correction & Factor	3 %	1.18

Gas Flow Parameters

Flow measurement time(s) (hhmm)	1045 & 1240
Temperature, °C	204
Temperature, K	477
Velocity at sampling plane, m/s	9.4
Volumetric flow rate, actual, m ³ /s	23
Volumetric flow rate (wet STP), m ³ /s	13
Volumetric flow rate (dry STP), m ³ /s	12
Mass flow rate (wet basis), kg/hour	61000

Gas Analyser Results	Sampling time	Average			Minimum			Maximum		
		1113 - 1239			1113 - 1239			1113 - 1239		
Combustion Gases		Corrected to			Corrected to			Corrected to		
		Concentration	3% O ₂	Mass Rate	Concentration	3% O ₂	Mass Rate	Concentration	3% O ₂	Mass Rate
		mg/m ³	mg/m ³	g/min	mg/m ³	mg/m ³	g/min	mg/m ³	mg/m ³	g/min
Nitrogen dioxide (as NO ₂)		<2	<2	<1	<2	<2	<1	2.5	2.9	1.7
Nitrogen oxides (as NO ₂)		160	190	110	11	13	7.4	170	200	120
Sulfur dioxide		350	420	240	150	180	100	370	440	260
Carbon monoxide		<2	<3	<2	<2	<3	<2	<2	<3	<2
		Concentration			Concentration			Concentration		
		% v/v			% v/v			% v/v		
Carbon dioxide		10.6			10.4			10.7		
Oxygen		5.7			5.5			6.3		
Total Organic Compounds (TOC)		Corrected to			Corrected to			Corrected to		
		Concentration	3% O ₂	Mass Rate	Concentration	3% O ₂	Mass Rate	Concentration	3% O ₂	Mass Rate
		mg/m ³	mg/m ³	g/min	mg/m ³	mg/m ³	g/min	mg/m ³	mg/m ³	g/min
TOC (as Propane)		4.2	4.9	2.9	<4	<4	<3	16	19	11

Date	17/03/2023	Client	Manildra Group
Report	R013746	Stack ID	Boiler 8
Licence No.	883	Location	Bomaderry
Ektimo Staff	Zoe Parker & Scott Woods	State	NSW
Process Conditions	Please refer to client records.		

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Polycyclic Aromatic Hydrocarbons (PAHs)		Results		
Sampling time		1113 - 1239		
		Corrected		
		Concentration ng/m ³	to 3% O ₂ ng/m ³	Mass Rate ng/min
Naphthalene		3000	3500	2100000
2-Methylnaphthalene		270	320	190000
Acenaphthylene		<20	<20	<10000
Acenaphthene		<20	<20	<10000
Fluorene		<20	<20	<10000
Phenanthrene		640	750	440000
Anthracene		<20	<20	<10000
Fluoranthene		310	360	210000
Pyrene		<20	<20	<10000
Benz(a)anthracene		<20	<20	<10000
Chrysene		240	280	170000
Benzo(b)fluoranthene		<20	<20	<10000
Benzo(k)fluoranthene		<20	<20	<10000
Benzo(e)pyrene		<20	<20	<10000
Benzo(a)pyrene		<20	<20	<10000
Perylene		<20	<20	<10000
Indeno(1,2,3-cd)pyrene		<20	<20	<10000
Dibenz(ah)anthracene		<20	<20	<10000
Benzo(ghi)perylene		<20	<20	<10000
Total 16 PAHs		4200	4900	2900000
Total 19 PAHs		4400	5300	3100000
BaP-TEQ				
Lower Bound		2.4	2.8	1700
Middle Bound		20	23	14000
Upper Bound		37	44	26000

Abbreviations and definitions

BaP-TEQ	Benzo(a)pyrene toxic equivalents.
Lower Bound	Defines values reported below detection as equal to zero.
Middle Bound	Defines values reported below detection are equal to half the detection limit.
Upper Bound	Defines values reported below detection are equal to the detection limit.

TEQs are calculated by multiplying the quantified result for each toxic compound by its corresponding toxic equivalency factor.

Isokinetic Sampling Parameters	Results
PAHs	
Sampling time, min	80
Isokinetic rate, %	103%

3 Plant Operating Conditions

Plant operating conditions were supplied by Manildra Group personnel. See Manildra Group records for complete process conditions. From information received from the site operator, unless otherwise noted it is our understanding that samples were collected during normal plant operations. Unless otherwise noted all samples were collected in compliance with Ektimo's QA/QC standards.

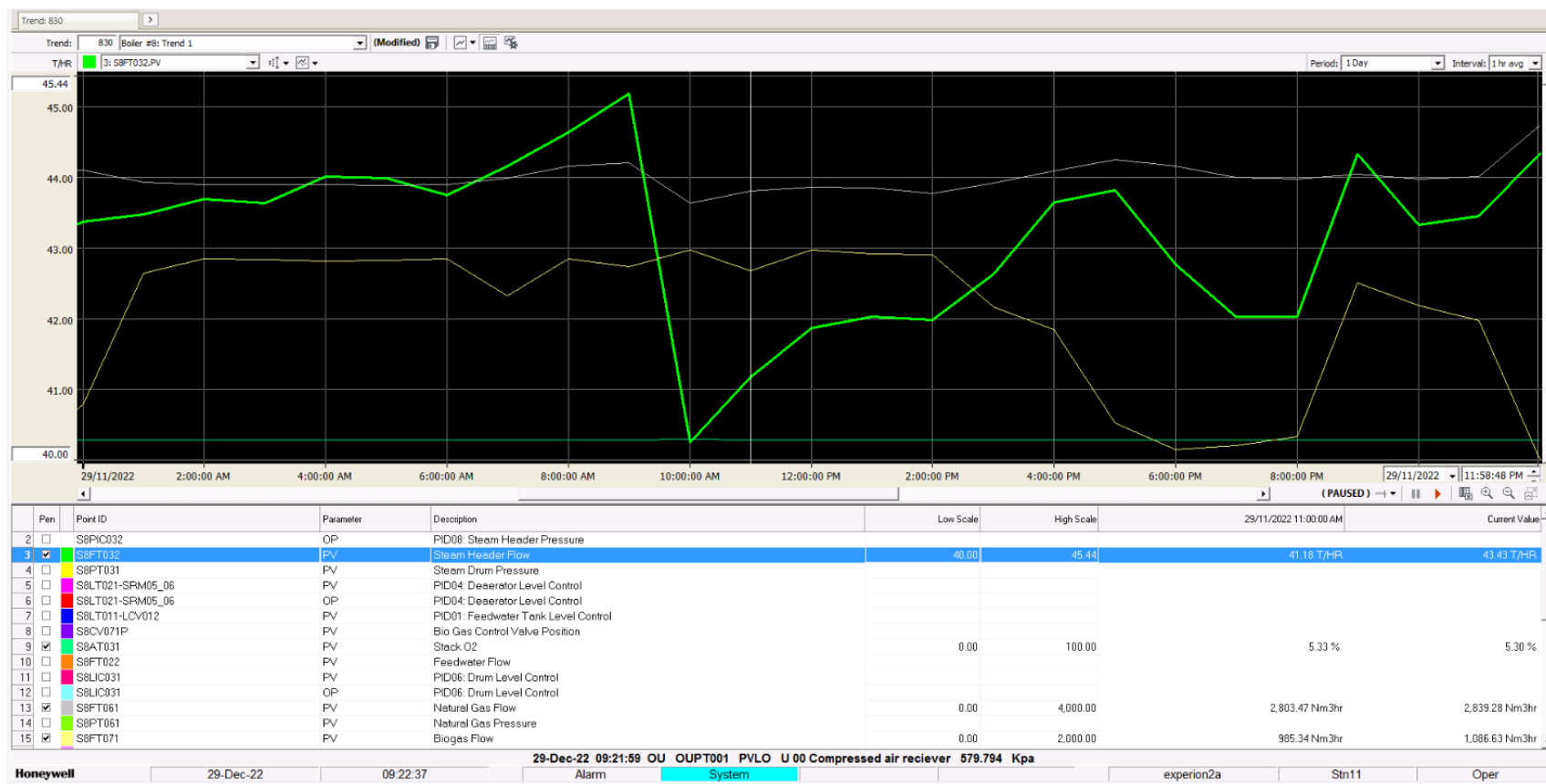


Figure 1. Plant Operating Conditions - 29 November 2022.

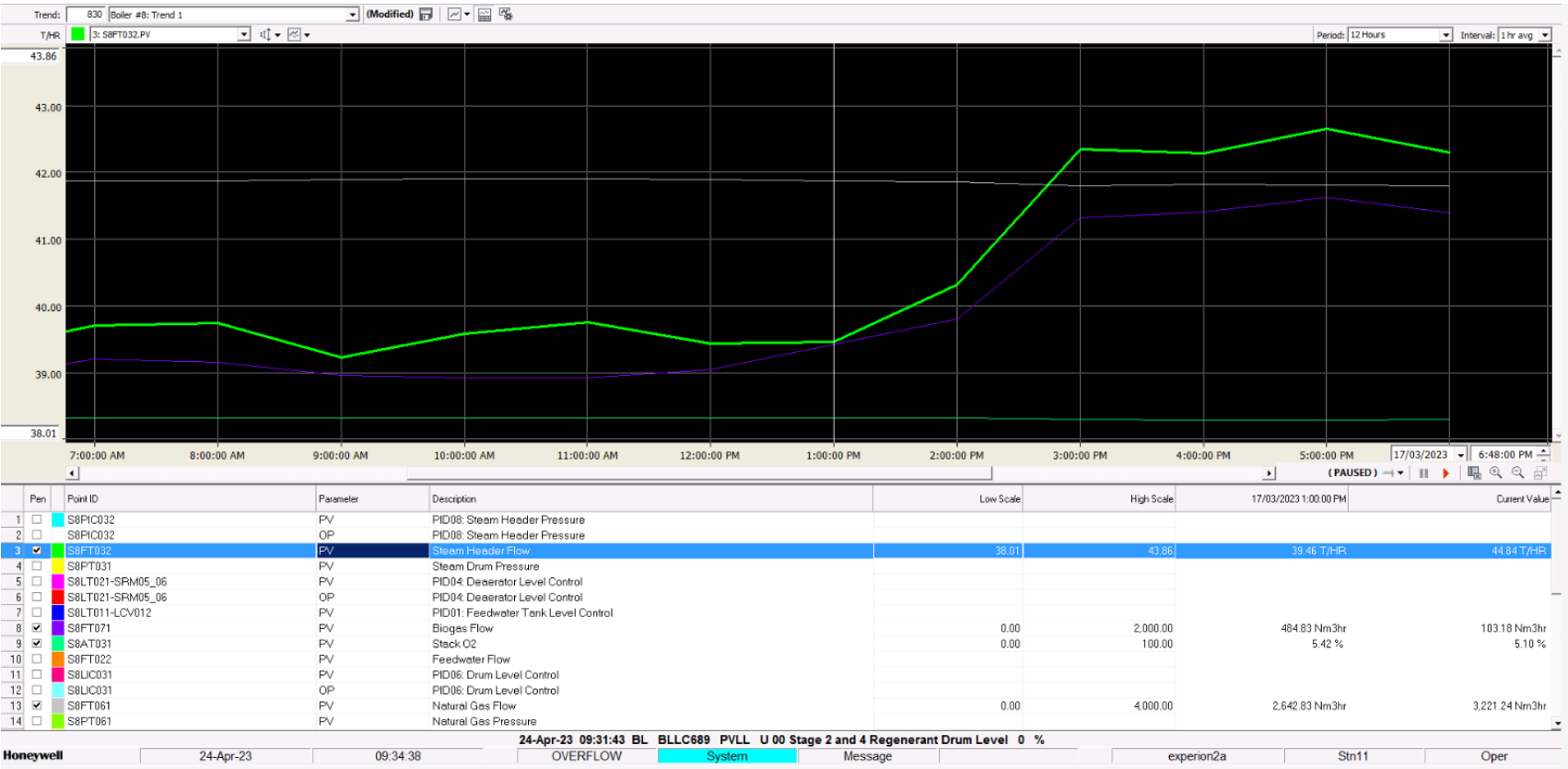


Figure 2. Plant Operating Conditions – 17 March 2023.

4 Test Methods

All sampling and analysis performed by Ektimo unless otherwise specified. Specific details of the methods are available upon request.

Parameter	Sampling method	Analysis method	Uncertainty*	NATA accredited	
				Sampling	Analysis
Sampling points - Selection	NSW EPA TM-1 (AS 4323.1)	NA	NA	✓	NA
Flow rate, temperature & velocity	NSW EPA TM-2 (USEPA Method 2)	NSW EPA TM-2 (USEPA Method 2)	8%, 2%, 7%	NA	✓
Moisture content	NSW EPA TM-22 (USEPA Method 4)	NSW EPA TM-22 (USEPA Method 4)	8%	✓	✓
Molecular weight	NA	NSW EPA TM-23 (USEPA Method 3)	not specified	NA	✓
Dry gas density	NA	NSW EPA TM-23 (USEPA Method 3)	not specified	NA	✓
Carbon dioxide	NSW EPA TM-24 (USEPA Method 3A)	NSW EPA TM-24 (USEPA Method 3A)	13%	✓	✓
Carbon monoxide	NSW EPA TM-32 (USEPA Method 10)	NSW EPA TM-32 (USEPA Method 10)	12%	✓	✓
Nitrogen oxides	NSW EPA TM-11 (USEPA Method 7E)	NSW EPA TM-11 (USEPA Method 7E)	12%	✓	✓
Oxygen	NSW EPA TM-25 (USEPA Method 3A)	NSW EPA TM-25 (USEPA Method 3A)	13%	✓	✓
Sulfur dioxide	NSW EPA TM-4 (USEPA Method 6C)	NSW EPA TM-4 (USEPA Method 6C)	12%	✓	✓
Total gaseous organic compounds	NSW EPA TM-34 (USEPA Method 25B)	NSW EPA TM-34 (USEPA Method 25B)	not specified	✓	✓
Particulate matter (PM ₁₀ & PM _{2.5})	NSW EPA OM-5 (USEPA Method 201A)	NSW EPA OM-5 (USEPA Method 201A)	6%	✓	✓ ^{††}
Solid particles (total)	NSW EPA TM-15 (AS 4323.2)	NSW EPA TM-15 (AS 4323.2)	3%	✓	✓ ^{††}
Total (gaseous & particulate) metals & metallic compounds	NSW EPA TM-12, NSW EPA TM-13, NSW EPA TM- 14 (USEPA Method 29)	Envirolab in-house methods Metals-006, Metals-022	15%	✓	✓ [‡]
Type 1 substances (As, Cd, Hg, Pb, Sb)	NSW EPA TM-12 (USEPA Method 29)	Envirolab in-house methods Metals-006, Metals-022	15%	✓	✓ [‡]
Type 2 substances (Be, Cr, Co, Mn, Ni, Se, Sn, V)	NSW EPA TM-13 (USEPA Method 29)	Envirolab in-house methods Metals-006, Metals-022	15%	✓	✓ [‡]
Polycyclic aromatic hydrocarbons (PAHs)	NSW EPA OM-6	NMI in-house method NGCMS 11.27	21%	✓	✓ [¶]

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* Uncertainties cited in this table are estimated using typical values and are calculated at the 95% confidence level (coverage factor = 2).

¶ Analysis performed by Australian Government National Measurement Institute, NATA accreditation number 198. Results were reported to Ektimo on:

30 January 2023 in report RN1380239.

19 April 2023 in report RN1389620.

†† Gravimetric analysis conducted at the Ektimo NSW laboratory.

‡ Analysis performed by Envirolab, NATA accreditation number 2901. Results were reported to Ektimo on:

12 January 2023 in report 313988.

29 March 2023 in report 319212.

5 Quality Assurance/Quality Control Information

Ektimo is accredited by the National Association of Testing Authorities (NATA) for the sampling and analysis of air pollutants from industrial sources. Unless otherwise stated test methods used are accredited with the National Association of Testing Authorities. For full details, search for Ektimo at NATA's website www.nata.com.au.

Ektimo is accredited by NATA to ISO/IEC 17025 - Testing. ISO/IEC 17025 - Testing requires that a laboratory have adequate equipment to perform the testing, as well as laboratory personnel with the competence to perform the testing. This quality assurance system is administered and maintained by the Quality Director.

NATA is a member of APAC (Asia Pacific Accreditation Co-operation) and of ILAC (International Laboratory Accreditation Co-operation). Through mutual recognition arrangements with these organisations, NATA accreditation is recognised worldwide.

6 Definitions

The following symbols and abbreviations may be used in this test report:

% v/v	Volume to volume ratio, dry or wet basis
~	Approximately
<	Less than
>	Greater than
≥	Greater than or equal to
AS	Australian Standard
D	Duct diameter or equivalent duct diameter for rectangular ducts
D ₅₀	'Cut size' of a cyclone is defined as the particle diameter at which the cyclone achieves a 50% collection efficiency i.e. half of the particles are retained by the cyclone and half pass through it. The D ₅₀ method simplifies the capture efficiency distribution by assuming that a given cyclone stage captures all of the particles with a diameter equal to or greater than the D ₅₀ of that cyclone and less than the D ₅₀ of the preceding cyclone.
DECC	Department of Environment & Climate Change (NSW)
Disturbance	A flow obstruction or instability in the direction of the flow which may impede accurate flow determination. This includes centrifugal fans, axial fans, partially closed or closed dampers, louvres, bends, connections, junctions, direction changes or changes in pipe diameter.
EPA	Environment Protection Authority
FTIR	Fourier transform infra-red
ISO	International Organisation for Standardisation
I-TEQ	International toxic equivalents
Lower bound	When an analyte is not present above the detection limit, the result is assumed to be equal to zero.
Medium bound	When an analyte is not present above the detection limit, the result is assumed to be equal to half of the detection limit.
NA	Not applicable
NATA	National Association of Testing Authorities
NIOSH	National Institute of Occupational Safety and Health
NT	Not tested or results not required
OM	Other approved method
PM ₁₀	Particulate matter having an equivalent aerodynamic diameter less than or equal to 10 microns (µm).
PM _{2.5}	Particulate matter having an equivalent aerodynamic diameter less than or equal to 2.5 microns (µm).
STP	Standard temperature and pressure. Gas volumes and concentrations are expressed on a dry basis at 0 °C, at discharge oxygen concentration and an absolute pressure of 101.325 kPa.
TM	Test method
TOC	Total organic carbon. This is the sum of all compounds of carbon which contain at least one carbon-to-carbon bond, plus methane and its derivatives.
USEPA	United States Environmental Protection Agency
Velocity difference	The percentage difference between the average of initial flows and after flows.
VOC	Volatile organic compound. A carbon-based chemical compound with a vapour pressure of at least 0.010 kPa at 25°C or having a corresponding volatility under the given conditions of use. VOCs may contain oxygen, nitrogen and other elements. VOCs do not include carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and carbonate salts.
WHO05-TEQ	World Health Organisation toxic equivalents
XRD	X-ray diffractometry
Upper bound	When an analyte is not present above the detection limit, the result is assumed to be equal to the detection limit.
95% confidence interval	Range of values that contains the true result with 95% certainty. This means there is a 5% risk that the true result is outside this range.

7 Appendices

7.1 Appendix 1: Laboratory Results

7.2 Appendix 2: Chain of Custody

Appendix 2: Laboratory Results



REPORT OF ANALYSIS

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Report No. RN1389620

Client : EKTIMO PTY LTD 52 COOPER ROAD COCKBURN CENTRAL WA 6164	Job No. : EKTIO1/230322/1 Quote No. : QT-02083 Order No. : W010889 Date Sampled : Date Received : 22-MAR-2023 Sampled By : CLIENT
Attention : ZOE PARKER Project Name : Your Client Services Manager : Tim Reddan	Phone : 03 9644 4854

Lab Reg No.	Sample Ref	Sample Description
N23/005501	AUT230314I	RESIN RINSE FILTER SAMPLE ID: N 17780 JOB NO. R013746

Lab Reg No.	Sample Reference	Units	N23/005501 AUT230314I	Method
PAH				
Naphthalene (91-20-3)	ng	3100		NGCMS_1127
2-Methylnaphthalene (91-57-6)	ng	280		NGCMS_1127
Acenaphthylene (208-96-8)	ng	< 20		NGCMS_1127
Acenaphthene (83-32-9)	ng	< 20		NGCMS_1127
Fluorene (86-73-7)	ng	< 20		NGCMS_1127
Phenanthrene (85-01-8)	ng	660		NGCMS_1127
Anthracene (120-12-7)	ng	< 20		NGCMS_1127
Fluoranthene (206-44-0)	ng	320		NGCMS_1127
Pyrene (129-00-0)	ng	< 20		NGCMS_1127
Benz(a)anthracene (56-55-3)	ng	< 20		NGCMS_1127
Chrysene (218-01-9)	ng	250		NGCMS_1127
Benzo(b)fluoranthene (205-99-2)	ng	< 20		NGCMS_1127
Benzo(k)fluoranthene (207-08-9)	ng	< 20		NGCMS_1127
Benzo(e)pyrene (192-97-2)	ng	< 20		NGCMS_1127
Benzo(a)pyrene (50-32-8)	ng	< 20		NGCMS_1127
Perylene (198-55-0)	ng	< 20		NGCMS_1127
Indeno(1,2,3-cd)pyrene (193-39-5)	ng	< 20		NGCMS_1127
Dibenz(ah)anthracene (53-70-3)	ng	< 20		NGCMS_1127
Benzo(ghi)perylene (50-32-8)	ng	< 20		NGCMS_1127
Field Surogate				
Surrogate: d14-Terphenyl	%	42		NGCMS_1127
Labelled Internal Recovery %				
d8-Naphthalene	%	20		NGCMS_1127
d8-Acenaphthylene	%	40		NGCMS_1127
d10-Acenaphthene	%	53		NGCMS_1127
d10-Fluorene	%	58		NGCMS_1127
d10-Phenanthrene	%	55		NGCMS_1127
d10-Fluoranthene	%	49		NGCMS_1127
d12-Benz(a)anthracene	%	47		NGCMS_1127

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105 Delhi Road, North Ryde NSW 2113 Tel: +61 2 9449 0111 Web: industry.gov.au/measurement

REPORT OF ANALYSIS

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Lab Reg No.		N23/005501		
Sample Reference		AUT230314I		
	Units			Method
Labelled Internal Recovery %				
d12-Chrysene	%	73		NGCMS_1127
d12-Benzo(b)fluoranthene	%	46		NGCMS_1127
d12-Benzo(k)fluoranthene	%	67		NGCMS_1127
d12-Benzo(a)pyrene	%	68		NGCMS_1127
d12-Indeno(1,2,3-c,d)pyrene	%	65		NGCMS_1127
d14-Dibenz(ah)anthracene	%	76		NGCMS_1127
d12-Benzo(ghi)perylene	%	64		NGCMS_1127
CARB - Benzo(a)pyrene Potency Equivalent Factors				
BaP-PEF Benz(a)anthracene		0.1		NGCMS_1127
BaP-PEF Chrysene		0.01		NGCMS_1127
BaP-PEF Benzo(b)fluoranthene		0.1		NGCMS_1127
BaP-PEF Benzo(k)fluoranthene		0.1		NGCMS_1127
BaP-PEF Benzo(a)pyrene		1		NGCMS_1127
BaP-PEF Indeno(1,2,3-cd)pyrene		0.1		NGCMS_1127
BaP-PEF Dibenz(ah)anthracene		0.4		NGCMS_1127
CARB - Benzo(a)pyrene Toxic Equivalent Summary				
BaP-TEQPAH Lower Bound [excl LOR]	ng	2.5		NGCMS_1127
BaP-TEQPAH Middle Bound [incl 1/2 LOR]	ng	21		NGCMS_1127
BaP-TEQPAH Upper Bound [incl LOR]	ng	39		NGCMS_1127
Dates				
Date extracted		29-MAR-2023 00:00		
Date analysed		6-APR-2023 00:00		

N23/005501

The standard Reporting Level for this analysis is 20 ng.

Standard acceptable recovery range is 50 to 150%.

Labelled Internal recovery (%) are lower than expected.

Results are acceptable as signal to noise is > 10.

BaP-PEF Factors are as below:

BaP-PEF Benz(a)anthracene: 0.1

BaP-PEF Chrysene: 0.01

BaP-PEF Benzo(b)fluoranthene: 0.1

BaP-PEF Benzo(k)fluoranthene: 0.1

BaP-PEF Benzo(a)pyrene: 1

BaP-PEF Indeno(1,2,3-cd)pyrene: 0.1

BaP-PEF Dibenz(ah)anthracene: 0.4

The PAH-BaP toxicity factors is as defined in "Benzo(a)pyrene as a Toxic Air Contaminant",

REPORT OF ANALYSIS

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CARB/OEHHA Executive Summary, July 1994.



Luke Baker, Analyst
Organics - NSW
Accreditation No. 198

18-APR-2023



WORLD RECOGNISED
ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing.
This report shall not be reproduced except in full.
Results relate only to the sample(s) as received and tested.

This Report supersedes reports: *RN1389619*

Measurement Uncertainty is available upon request.

Chemical Accreditation 198: 105 Delhi Road, North Ryde, NSW, 2113

CERTIFICATE OF ANALYSIS 319212

Client Details

Client	Ektimo (Unanderra)
Attention	Zoe Parker
Address	1/251 Princes Hwy, Unanderra, NSW, 2526

Sample Details

Your Reference	<u>R013746</u>
Number of Samples	2 Filter, 4 Liquid
Date samples received	22/03/2023
Date completed instructions received	22/03/2023

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	29/03/2023
Date of Issue	29/03/2023
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Hannah Nguyen, Metals Supervisor
Loren Bardwell, Development Chemist

Authorised By



Nancy Zhang, Laboratory Manager

Metals on filters			
Our Reference		319212-1	319212-2
Your Reference	UNITS	N17766	N17767
Type of sample		Filter	Filter
Date prepared	-	29/03/2023	29/03/2023
Date analysed	-	29/03/2023	29/03/2023
Antimony	µg/filter	<5	<5
Arsenic	µg/filter	<2	<2
Cadmium	µg/filter	<0.5	<0.5
Lead	µg/filter	<1	<1
Mercury	µg/filter	<0.2	<0.2
Beryllium	µg/filter	<0.5	<0.5
Chromium	µg/filter	<0.5	<0.5
Cobalt	µg/filter	<0.5	<0.5
Manganese	µg/filter	<0.5	<0.5
Nickel	µg/filter	<1	<1
Selenium	µg/filter	<5	<5
Vanadium	µg/filter	<1	<1
Tin	µg/filter	<2	<2

Metals in water - mass units					
Our Reference		319212-3	319212-4	319212-5	319212-6
Your Reference	UNITS	N17768	N17769	N17770	N17771
Type of sample		Liquid	Liquid	Liquid	Liquid
Volume	mL	160	343	239	178
Antimony	µg	<0.5	<0.5	[NA]	[NA]
Arsenic	µg	<0.5	<0.5	[NA]	[NA]
Cadmium	µg	<0.05	<0.05	[NA]	[NA]
Lead	µg	<0.5	0.5	[NA]	[NA]
Mercury	µg	<10	<10	<1	<1
Beryllium	µg	<0.5	<0.5	[NA]	[NA]
Chromium	µg	<0.5	0.5	[NA]	[NA]
Cobalt	µg	<0.5	<0.5	[NA]	[NA]
Manganese	µg	<3	<3	[NA]	[NA]
Nickel	µg	<0.5	0.7	[NA]	[NA]
Selenium	µg	<0.5	<0.5	[NA]	[NA]
Tin	µg	<0.5	<0.5	[NA]	[NA]
Vanadium	µg	<0.5	<0.5	[NA]	[NA]
Date prepared	-	28/03/2023	28/03/2023	28/03/2023	28/03/2023
Date analysed	-	28/03/2023	28/03/2023	28/03/2023	28/03/2023
Arsenic-Dissolved	µg/L	<1	<1	[NA]	[NA]
Beryllium-Dissolved	µg/L	<0.5	<0.5	[NA]	[NA]
Cadmium-Dissolved	µg/L	<0.1	<0.1	[NA]	[NA]
Cobalt-Dissolved	µg/L	<1	<1	[NA]	[NA]
Chromium-Dissolved	µg/L	1	2	[NA]	[NA]
Manganese-Dissolved	µg/L	<5	<5	[NA]	[NA]
Mercury-Dissolved	µg/L	<1	<1	<0.1	0.2
Nickel-Dissolved	µg/L	<1	2	[NA]	[NA]
Lead-Dissolved	µg/L	<1	2	[NA]	[NA]
Antimony-Dissolved	µg/L	<1	<1	[NA]	[NA]
Selenium-Dissolved	µg/L	<1	<1	[NA]	[NA]
Tin-Dissolved	µg/L	<1	<1	[NA]	[NA]
Vanadium-Dissolved	µg/L	<1	<1	[NA]	[NA]

Method ID	Methodology Summary
Metals-020/021/022	Determination of various metals on filters by ICP-AES/MS and or CV/AAS. Note - air volume measurements are not covered by Envirolab's NATA accreditation.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.

QUALITY CONTROL: Metals on filters					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			29/03/2023	[NT]	[NT]	[NT]	[NT]	29/03/2023	[NT]
Date analysed	-			29/03/2023	[NT]	[NT]	[NT]	[NT]	29/03/2023	[NT]
Antimony	µg/filter	5	Metals-020/021/022	<5	[NT]	[NT]	[NT]	[NT]	94	[NT]
Arsenic	µg/filter	2	Metals-020/021/022	<2	[NT]	[NT]	[NT]	[NT]	102	[NT]
Cadmium	µg/filter	0.5	Metals-020/021/022	<0.5	[NT]	[NT]	[NT]	[NT]	96	[NT]
Lead	µg/filter	1	Metals-020/021/022	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Mercury	µg/filter	0.2	Metals-020/021/022	<0.2	[NT]	[NT]	[NT]	[NT]	111	[NT]
Beryllium	µg/filter	0.5	Metals-020/021/022	<0.5	[NT]	[NT]	[NT]	[NT]	93	[NT]
Chromium	µg/filter	0.5	Metals-020/021/022	<0.5	[NT]	[NT]	[NT]	[NT]	99	[NT]
Cobalt	µg/filter	0.5	Metals-020/021/022	<0.5	[NT]	[NT]	[NT]	[NT]	99	[NT]
Manganese	µg/filter	0.5	Metals-020/021/022	<0.5	[NT]	[NT]	[NT]	[NT]	100	[NT]
Nickel	µg/filter	1	Metals-020/021/022	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Selenium	µg/filter	5	Metals-020/021/022	<5	[NT]	[NT]	[NT]	[NT]	95	[NT]
Vanadium	µg/filter	1	Metals-020/021/022	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Tin	µg/filter	2	Metals-020/021/022	<2	[NT]	[NT]	[NT]	[NT]	103	[NT]

QUALITY CONTROL: Metals in water - mass units					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Antimony	µg	0.5	Metals-022	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Arsenic	µg	0.5	Metals-022	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cadmium	µg	0.05	Metals-022	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Lead	µg	0.5	Metals-022	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mercury	µg	0.5	Metals-021	<0.5	5	<1	<1	0	[NT]	[NT]
Beryllium	µg	0.5	Metals-022	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chromium	µg	0.5	Metals-022	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cobalt	µg	0.5	Metals-022	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Manganese	µg	3	Metals-022	<3	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Nickel	µg	0.5	Metals-022	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Selenium	µg	0.5	Metals-022	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tin	µg	0.5	Metals-022	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vanadium	µg	0.5	Metals-022	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Date prepared	-			28/03/2023	5	28/03/2023	28/03/2023		28/03/2023	[NT]
Date analysed	-			28/03/2023	5	28/03/2023	28/03/2023		28/03/2023	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Beryllium-Dissolved	µg/L	0.5	Metals-022	<0.5	[NT]	[NT]	[NT]	[NT]	93	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	95	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	5	<0.1	<0.1	0	116	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Antimony-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	81	[NT]
Selenium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Tin-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Vanadium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Metals in water - mass units - The PQL has been raised due to the sample matrix requiring dilution.



REPORT OF ANALYSIS

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Report No. RN1380239

Client : EKTIMO PTY LTD 52 COOPER ROAD COCKBURN CENTRAL WA 6164	Job No. : EKTIO1/230105/2 Quote No. : QT-02083 Order No. : W010319 Date Sampled : Date Received : 05-JAN-2023 Sampled By : CLIENT
Attention : ZOE PARKER Project Name : Your Client Services Manager : Tim Reddan	Phone : 03 9644 4854

Lab Reg No.	Sample Ref	Sample Description
N23/000105	N 17373	RESIN RINSE FILTER JOB: R013746
N23/000106	N 17380	RESIN RINSE FILTER JOB: R013746

Lab Reg No.		N23/000105	N23/000106	
Sample Reference		N 17373	N 17380	
	Units			Method
PAH				
Naphthalene (91-20-3)	ng	1700	2500	NGCMS_1127
2-Methylnaphthalene (91-57-6)	ng	830	380	NGCMS_1127
Acenaphthylene (208-96-8)	ng	< 20	< 20	NGCMS_1127
Acenaphthene (83-32-9)	ng	< 20	60	NGCMS_1127
Fluorene (86-73-7)	ng	870	230	NGCMS_1127
Phenanthrene (85-01-8)	ng	1000	1000	NGCMS_1127
Anthracene (120-12-7)	ng	42	63	NGCMS_1127
Fluoranthene (206-44-0)	ng	360	220	NGCMS_1127
Pyrene (129-00-0)	ng	< 20	110	NGCMS_1127
Benz(a)anthracene (56-55-3)	ng	< 20	20	NGCMS_1127
Chrysene (218-01-9)	ng	220	190	NGCMS_1127
Benzo(b)fluoranthene (205-99-2)	ng	< 20	25	NGCMS_1127
Benzo(k)fluoranthene (207-08-9)	ng	< 20	< 20	NGCMS_1127
Benzo(e)pyrene (192-97-2)	ng	< 20	< 20	NGCMS_1127
Benzo(a)pyrene (50-32-8)	ng	< 20	< 20	NGCMS_1127
Perylene (198-55-0)	ng	< 20	< 20	NGCMS_1127
Indeno(1,2,3-cd)pyrene (193-39-5)	ng	< 20	< 20	NGCMS_1127
Dibenz(ah)anthracene (53-70-3)	ng	< 20	< 20	NGCMS_1127
Benzo(ghi)perylene (50-32-8)	ng	< 20	< 20	NGCMS_1127
Field Surogate				
Surrogate: d14-Terphenyl	%	98	109	NGCMS_1127
Labelled Internal Recovery %				
d8-Naphthalene	%	41	27	NGCMS_1127
d8-Acenaphthylene	%	71	41	NGCMS_1127
d10-Acenaphthene	%	94	61	NGCMS_1127
d10-Fluorene	%	56	55	NGCMS_1127
d10-Phenanthrene	%	52	47	NGCMS_1127
d10-Fluoranthene	%	54	45	NGCMS_1127
d12-Benz(a)anthracene	%	53	41	NGCMS_1127

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REPORT OF ANALYSIS

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Lab Reg No.		N23/000105	N23/000106	
Sample Reference		N 17373	N 17380	
	Units			Method
Labelled Internal Recovery %				
d12-Chrysene	%	70	58	NGCMS_1127
d12-Benzo(b)fluoranthene	%	52	42	NGCMS_1127
d12-Benzo(k)fluoranthene	%	67	45	NGCMS_1127
d12-Benzo(a)pyrene	%	65	54	NGCMS_1127
d12-Indeno(1,2,3-c,d)pyrene	%	61	49	NGCMS_1127
d14-Dibenz(ah)anthracene	%	66	51	NGCMS_1127
d12-Benzo(ghi)perylene	%	68	52	NGCMS_1127
CARB - Benzo(a)pyrene Toxic Equivalent Summary				
BaP-TEQPAH Lower Bound [excl LOR]	ng	2.2	6.4	NGCMS_1127
BaP-TEQPAH Middle Bound [incl 1/2 LOR]	ng	20	22	NGCMS_1127
BaP-TEQPAH Upper Bound [incl LOR]	ng	38	38	NGCMS_1127
Dates				
Date extracted		10-JAN-2023 00:00	10-JAN-2023 00:00	
Date analysed		25-JAN-2023 00:00	25-JAN-2023 00:00	

N23/000105

N23/000107

Standard acceptable recovery range is 50 to 150%.

Labelled Internal Standard % Recoveries are outside this range for samples

N23/000106 and N23/000107.

The samples were re-extracted and re-analysed and the low recoveries were confirmed.

Results are acceptable as signal to noise is > 10.



Luke Baker, Analyst

Organics - NSW

Accreditation No. 198

30-JAN-2023

REPORT OF ANALYSIS

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Report No. RN1380239

Client : EKTIMO PTY LTD 52 COOPER ROAD COCKBURN CENTRAL WA 6164	Job No. : EKTIO1/230105/2 Quote No. : QT-02083 Order No. : W010319 Date Sampled : Date Received : 05-JAN-2023 Sampled By : CLIENT
Attention : ZOE PARKER Project Name : Your Client Services Manager : Tim Reddan	Phone : 03 9644 4854

Lab Reg No.	Sample Ref	Sample Description
N23/000107	N 17381	RESIN RINSE FILTER JOB: R013746

Lab Reg No.		N23/000107		
Sample Reference		N 17381		
	Units			Method
PAH				
Naphthalene (91-20-3)	ng	3100		NGCMS_1127
2-Methylnaphthalene (91-57-6)	ng	380		NGCMS_1127
Acenaphthylene (208-96-8)	ng	<20		NGCMS_1127
Acenaphthene (83-32-9)	ng	150		NGCMS_1127
Fluorene (86-73-7)	ng	370		NGCMS_1127
Phenanthrene (85-01-8)	ng	1500		NGCMS_1127
Anthracene (120-12-7)	ng	84		NGCMS_1127
Fluoranthene (206-44-0)	ng	260		NGCMS_1127
Pyrene (129-00-0)	ng	200		NGCMS_1127
Benz(a)anthracene (56-55-3)	ng	26		NGCMS_1127
Chrysene (218-01-9)	ng	220		NGCMS_1127
Benzo(b)fluoranthene (205-99-2)	ng	20		NGCMS_1127
Benzo(k)fluoranthene (207-08-9)	ng	<20		NGCMS_1127
Benzo(e)pyrene (192-97-2)	ng	<20		NGCMS_1127
Benzo(a)pyrene (50-32-8)	ng	<20		NGCMS_1127
Perylene (198-55-0)	ng	<20		NGCMS_1127
Indeno(1,2,3-cd)pyrene (193-39-5)	ng	<20		NGCMS_1127
Dibenz(ah)anthracene (53-70-3)	ng	<20		NGCMS_1127
Benzo(ghi)perylene (50-32-8)	ng	<20		NGCMS_1127
Field Surogate				
Surrogate: d14-Terphenyl	%	58		NGCMS_1127
Labelled Internal Recovery %				
d8-Naphthalene	%	15		NGCMS_1127
d8-Acenaphthylene	%	35		NGCMS_1127
d10-Acenaphthene	%	45		NGCMS_1127
d10-Fluorene	%	41		NGCMS_1127
d10-Phenanthrene	%	35		NGCMS_1127
d10-Fluoranthene	%	33		NGCMS_1127
d12-Benz(a)anthracene	%	31		NGCMS_1127
d12-Chrysene	%	48		NGCMS_1127

REPORT OF ANALYSIS

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Lab Reg No.		N23/000107		
Sample Reference		N 17381		
	Units			Method
Labelled Internal Recovery %				
d12-Benzo(b)fluoranthene	%	24		NGCMS_1127
d12-Benzo(k)fluoranthene	%	36		NGCMS_1127
d12-Benzo(a)pyrene	%	41		NGCMS_1127
d12-Indeno(1,2,3-c,d)pyrene	%	37		NGCMS_1127
d14-Dibenz(ah)anthracene	%	43		NGCMS_1127
d12-Benzo(ghi)perylene	%	38		NGCMS_1127
CARB - Benzo(a)pyrene Toxic Equivalent Summary				
BaP-TEQPAH Lower Bound [excl LOR]	ng	6.8		NGCMS_1127
BaP-TEQPAH Middle Bound [incl 1/2 LOR]	ng	23		NGCMS_1127
BaP-TEQPAH Upper Bound [incl LOR]	ng	39		NGCMS_1127
Dates				
Date extracted		10-JAN-2023 00:00		
Date analysed		25-JAN-2023 00:00		



Luke Baker, Analyst
Organics - NSW
Accreditation No. 198

30-JAN-2023



WORLD RECOGNISED
ACCREDITATION

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This report shall not be reproduced except in full.
Results relate only to the sample(s) as received and tested.

This Report supersedes reports: *RN1380228*

Measurement Uncertainty is available upon request.

Chemical Accreditation 198: 105 Delhi Road, North Ryde, NSW, 2113

CERTIFICATE OF ANALYSIS 313988

Client Details

Client	Ektimo (Unanderra)
Attention	Zoe Parker
Address	1/251 Princes Hwy, Unanderra, NSW, 2526

Sample Details

Your Reference	<u>R013746</u>
Number of Samples	4 Filter, 8 Liquid
Date samples received	05/01/2023
Date completed instructions received	05/01/2023

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	12/01/2023
Date of Issue	12/01/2023
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Results Approved By

Hannah Nguyen, Metals Supervisor
Loren Bardwell, Development Chemist

Authorised By



Nancy Zhang, Laboratory Manager

Metals on filters					
Our Reference		313988-1	313988-4	313988-7	313988-10
Your Reference	UNITS	N 17370	N 17374	N 17377	N 17382
Type of sample		Filter	Filter	Filter	Filter
Date prepared	-	09/01/2023	09/01/2023	09/01/2023	09/01/2023
Date analysed	-	10/01/2023	10/01/2023	10/01/2023	10/01/2023
Antimony	µg/filter	<5	<5	<5	<5
Arsenic	µg/filter	<2	<2	<2	<2
Cadmium	µg/filter	<0.5	<0.5	<0.5	<0.5
Lead	µg/filter	<1	<1	<1	<1
Mercury	µg/filter	<0.2	<0.2	<0.2	<0.2
Beryllium	µg/filter	<0.5	<0.5	<0.5	<0.5
Chromium	µg/filter	<0.5	0.7	0.6	0.9
Cobalt	µg/filter	<0.5	<0.5	<0.5	<0.5
Manganese	µg/filter	<0.5	<0.5	<0.5	<0.5
Nickel	µg/filter	<1	1	<1	<1
Selenium	µg/filter	<5	<5	<5	<5
Vanadium	µg/filter	<1	<1	<1	<1
Tin	µg/filter	<2	<2	<2	<2

Metals in water - mass units						
Our Reference		313988-2	313988-3	313988-5	313988-6	313988-8
Your Reference	UNITS	N 17371	N 17372	N 17375	N 17376	N 17378
Type of sample		Liquid	Liquid	Liquid	Liquid	Liquid
Volume	mL	139	207	313	185	295
Antimony	µg	<0.5	[NA]	<0.5	[NA]	<0.5
Arsenic	µg	<0.5	[NA]	<0.5	[NA]	<0.5
Cadmium	µg	<0.05	[NA]	0.07	[NA]	0.2
Lead	µg	<0.5	[NA]	2	[NA]	0.9
Mercury	µg	<10	<1	<10	<1	<10
Beryllium	µg	<0.5	[NA]	<0.5	[NA]	<0.5
Chromium	µg	0.7	[NA]	1	[NA]	1
Cobalt	µg	<0.5	[NA]	<0.5	[NA]	<0.5
Manganese	µg	<3	[NA]	<3	[NA]	7
Nickel	µg	<0.5	[NA]	14	[NA]	0.7
Selenium	µg	<0.5	[NA]	<0.5	[NA]	<0.5
Vanadium	µg	<0.5	[NA]	<0.5	[NA]	<0.5
Tin	µg	<0.5	[NA]	<0.5	[NA]	<0.5
Date prepared	-	10/01/2023	10/01/2023	10/01/2023	10/01/2023	10/01/2023
Date analysed	-	10/01/2023	10/01/2023	10/01/2023	10/01/2023	10/01/2023
Antimony-Dissolved	µg/L	<1	[NA]	<1	[NA]	<1
Arsenic-Dissolved	µg/L	<1	[NA]	<1	[NA]	<1
Cadmium-Dissolved	µg/L	0.2	[NA]	0.2	[NA]	0.7
Lead-Dissolved	µg/L	<1	[NA]	5	[NA]	3
Mercury-Dissolved	µg/L	<1	<0.1	<1	0.2	<1
Beryllium-Dissolved	µg/L	<0.5	[NA]	<0.5	[NA]	<0.5
Chromium-Dissolved	µg/L	5	[NA]	4	[NA]	4
Cobalt-Dissolved	µg/L	<1	[NA]	<1	[NA]	<1
Manganese-Dissolved	µg/L	<5	[NA]	<5	[NA]	25
Nickel-Dissolved	µg/L	1	[NA]	44	[NA]	3
Selenium-Dissolved	µg/L	<1	[NA]	1	[NA]	<1
Vanadium-Dissolved	µg/L	<1	[NA]	<1	[NA]	<1
Tin-Dissolved	µg/L	3	[NA]	1	[NA]	<1

Metals in water - mass units				
Our Reference		313988-9	313988-11	313988-12
Your Reference	UNITS	N 17379	N 17383	N 17384
Type of sample		Liquid	Liquid	Liquid
Volume	mL	210	348	207
Antimony	µg	[NA]	<0.5	[NA]
Arsenic	µg	[NA]	<0.5	[NA]
Cadmium	µg	[NA]	0.2	[NA]
Lead	µg	[NA]	0.6	[NA]
Mercury	µg	<1	<10	<1
Beryllium	µg	[NA]	<0.5	[NA]
Chromium	µg	[NA]	1	[NA]
Cobalt	µg	[NA]	<0.5	[NA]
Manganese	µg	[NA]	8	[NA]
Nickel	µg	[NA]	0.6	[NA]
Selenium	µg	[NA]	<0.5	[NA]
Vanadium	µg	[NA]	<0.5	[NA]
Tin	µg	[NA]	<0.5	[NA]
Date prepared	-	10/01/2023	10/01/2023	10/01/2023
Date analysed	-	10/01/2023	10/01/2023	10/01/2023
Antimony-Dissolved	µg/L	[NA]	<1	[NA]
Arsenic-Dissolved	µg/L	[NA]	<1	[NA]
Cadmium-Dissolved	µg/L	[NA]	0.6	[NA]
Lead-Dissolved	µg/L	[NA]	2	[NA]
Mercury-Dissolved	µg/L	<0.1	<1	<0.1
Beryllium-Dissolved	µg/L	[NA]	<0.5	[NA]
Chromium-Dissolved	µg/L	[NA]	3	[NA]
Cobalt-Dissolved	µg/L	[NA]	<1	[NA]
Manganese-Dissolved	µg/L	[NA]	23	[NA]
Nickel-Dissolved	µg/L	[NA]	2	[NA]
Selenium-Dissolved	µg/L	[NA]	<1	[NA]
Vanadium-Dissolved	µg/L	[NA]	<1	[NA]
Tin-Dissolved	µg/L	[NA]	1	[NA]

Method ID	Methodology Summary
Metals-020/021/022	Determination of various metals on filters by ICP-AES/MS and or CV/AAS. Note - air volume measurements are not covered by Envirolab's NATA accreditation.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.

QUALITY CONTROL: Metals on filters					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			09/01/2023	[NT]	[NT]	[NT]	[NT]	09/01/2023	[NT]
Date analysed	-			10/01/2023	[NT]	[NT]	[NT]	[NT]	10/01/2023	[NT]
Antimony	µg/filter	5	Metals-020/021/022	<5	[NT]	[NT]	[NT]	[NT]	105	[NT]
Arsenic	µg/filter	2	Metals-020/021/022	<2	[NT]	[NT]	[NT]	[NT]	98	[NT]
Cadmium	µg/filter	0.5	Metals-020/021/022	<0.5	[NT]	[NT]	[NT]	[NT]	108	[NT]
Lead	µg/filter	1	Metals-020/021/022	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Mercury	µg/filter	0.2	Metals-020/021/022	<0.2	[NT]	[NT]	[NT]	[NT]	94	[NT]
Beryllium	µg/filter	0.5	Metals-020/021/022	<0.5	[NT]	[NT]	[NT]	[NT]	105	[NT]
Chromium	µg/filter	0.5	Metals-020/021/022	<0.5	[NT]	[NT]	[NT]	[NT]	100	[NT]
Cobalt	µg/filter	0.5	Metals-020/021/022	<0.5	[NT]	[NT]	[NT]	[NT]	103	[NT]
Manganese	µg/filter	0.5	Metals-020/021/022	<0.5	[NT]	[NT]	[NT]	[NT]	107	[NT]
Nickel	µg/filter	1	Metals-020/021/022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Selenium	µg/filter	5	Metals-020/021/022	<5	[NT]	[NT]	[NT]	[NT]	107	[NT]
Vanadium	µg/filter	1	Metals-020/021/022	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Tin	µg/filter	2	Metals-020/021/022	<2	[NT]	[NT]	[NT]	[NT]	115	[NT]

QUALITY CONTROL: Metals in water - mass units					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	313988-8
Antimony	µg	0.5	Metals-022	<0.5	5	<0.5	<0.5	0	[NT]	[NT]
Arsenic	µg	0.5	Metals-022	<0.5	5	<0.5	<0.5	0	[NT]	[NT]
Cadmium	µg	0.05	Metals-022	<0.05	5	0.07	0.06	15	[NT]	[NT]
Lead	µg	0.5	Metals-022	<0.5	5	2	2	0	[NT]	[NT]
Mercury	µg	0.5	Metals-021	<0.5	5	<10	<10	0	[NT]	[NT]
Beryllium	µg	0.5	Metals-022	<0.5	5	<0.5	<0.5	0	[NT]	[NT]
Chromium	µg	0.5	Metals-022	<0.5	5	1	1	0	[NT]	[NT]
Cobalt	µg	0.5	Metals-022	<0.5	5	<0.5	<0.5	0	[NT]	[NT]
Manganese	µg	3	Metals-022	<3	5	<3	<3	0	[NT]	[NT]
Nickel	µg	0.5	Metals-022	<0.5	5	14	14	0	[NT]	[NT]
Selenium	µg	0.5	Metals-022	<0.5	5	<0.5	<0.5	0	[NT]	[NT]
Vanadium	µg	0.5	Metals-022	<0.5	5	<0.5	<0.5	0	[NT]	[NT]
Tin	µg	0.5	Metals-022	<0.5	5	<0.5	<0.5	0	[NT]	[NT]
Date prepared	-			10/01/2023	5	10/01/2023	10/01/2023		10/01/2023	10/01/2023
Date analysed	-			10/01/2023	5	10/01/2023	10/01/2023		10/01/2023	10/01/2023
Antimony-Dissolved	µg/L	1	Metals-022	<1	5	<1	<1	0	108	100
Arsenic-Dissolved	µg/L	1	Metals-022	<1	5	<1	<1	0	88	91
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	5	0.2	0.2	0	100	101
Lead-Dissolved	µg/L	1	Metals-022	<1	5	5	5	0	95	98
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	5	<1	<1	0	97	[NT]
Beryllium-Dissolved	µg/L	0.5	Metals-022	<0.5	5	<0.5	<0.5	0	97	107
Chromium-Dissolved	µg/L	1	Metals-022	<1	5	4	4	0	89	94
Cobalt-Dissolved	µg/L	1	Metals-022	<1	5	<1	<1	0	93	97
Manganese-Dissolved	µg/L	5	Metals-022	<5	5	<5	<5	0	98	103
Nickel-Dissolved	µg/L	1	Metals-022	<1	5	44	45	2	86	91
Selenium-Dissolved	µg/L	1	Metals-022	<1	5	1	1	0	98	96
Vanadium-Dissolved	µg/L	1	Metals-022	<1	5	<1	<1	0	96	101
Tin-Dissolved	µg/L	1	Metals-022	<1	5	1	1	0	102	103

QUALITY CONTROL: Metals in water - mass units						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	313988-9
Mercury	µg	0.5	Metals-021	[NT]	6	<1	<1	0	[NT]	[NT]
Date prepared	-			[NT]	6	10/01/2023	10/01/2023		[NT]	10/01/2023
Date analysed	-			[NT]	6	10/01/2023	10/01/2023		[NT]	10/01/2023
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	6	0.2	0.2	0	[NT]	88

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Metals in water - mass units - The PQL has been raised for Hg due to the sample matrix requiring dilution.

Ektimo

Checked at Ektimo Dispatch by: 46 21/3

Signature

Sample ID	Job No.	Analysis Required	Units Required	Analytical Lab	Purchase Order No.	Ektimo Contact	Notes	TAT Required (days)
N 17765	R013746	Metals - Type 1 & 2 substances (Sb, As, Cd, Pb, Hg, Be, Cr, Co, Mn, Al, Se, V, Sn)	ug/sample	EnviroLab	W010887	Zoo Partner	Blank Filter	
N 17766	R013746	Metals - Type 1 & 2 substances (Sb, As, Cd, Pb, Hg, Be, Cr, Co, Mn, Al, Se, V, Sn)	ug/sample	EnviroLab	W010887	Zoo Partner	Filter A	
N 17767	R013746	Metals - Type 1 & 2 substances (Sb, As, Cd, Pb, Hg, Be, Cr, Co, Mn, Al, Se, V, Sn)	ug/sample	EnviroLab	W010887	Zoo Partner	Blank Solution	
N 17768	R013746	Metals - Type 1 & 2 substances (Sb, As, Cd, Pb, Hg, Be, Cr, Co, Mn, Al, Se, V, Sn)	ug/sample	EnviroLab	W010887	Zoo Partner	Blank A48	
N 17769	R013746	Metals - Type 1 & 2 substances (Sb, As, Cd, Pb, Hg, Be, Cr, Co, Mn, Al, Se, V, Sn)	ug/sample	EnviroLab	W010887	Zoo Partner	Blank Solution	
N 17770	R013746	Metals - Type 1 & 2 substances (Sb, As, Cd, Pb, Hg, Be, Cr, Co, Mn, Al, Se, V, Sn)	ug/sample	EnviroLab	W010887	Zoo Partner	Imp A48	
N 17771	R013746	Metals - Type 1 & 2 substances (Sb, As, Cd, Pb, Hg, Be, Cr, Co, Mn, Al, Se, V, Sn)	ug/sample	EnviroLab	W010887	Zoo Partner		

EnviroLab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9510 6200

8/02/22
2/3
1/00

Time Received:
Received By: CM
Temp: Cool/Ambient
Cooling: Ice/Impact
Sensitivity: 1000/10000

Prepared for: Manildra Group

Ektimo

Ektimo		Checked at Ektimo Dispatch by: <u>KK 213</u>		Samples received in good order:	
Sample ID	Job No.	Analysis Required	Units Required	Purchase Order	Notes
N 17760	RD13746	PA17s	sup/sample	No. WO10889	Resin, Primer & Filler
 N23/0000001		Analytical Lab		Ektimo Contact	
		Mail		Zoe Parker	
				TAT Required (days)	
				Sign/Date	

RECEIVED

22 MAR 2023

BY: AO 1200 C

EKT101/230322/1 AO

Due: 14/4/23





Ektimo

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