CERTIFICATE OF ANALYSIS

Work Order	: **EW2401939**	Page	: 1 of 18
Client	: **WINGECARRIBEE SHIRE COUNCIL**	Laboratory	: Environmental Division NSW South Coast
Contact	: Resource	Contact	: Aneta Prosaroski
Address	: PO BOX 141 MOSSVALE NSW AUSTRALIA	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 NSW Australia
Telephone	: ----	Telephone	: +61 2 4225 3125
Project	: Biannual Surface & Gound Water	Date Samples Received	: 29-Apr-2024 16:14
Order number	: ----	Date Analysis Commenced	: 29-Apr-2024
C-O-C number	: ----	Issue Date	: 08-May-2024 14:01
Sampler	: Michael Santos, Robert DaLio		
Site	: ----		
Quote number	: EW23WINSHI0001		
No. of samples received	: 17		
No. of samples analysed	: 16		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Robert DaLio	Sampler	Laboratory - Wollongong, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- **Analytical work for this work order will be conducted at ALS Sydney.**
- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EG035: Positive Mercury result EW2401939 #1 has been confirmed by reanalysis.
- TDS by method EA-015 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- pH performed by ALS Wollongong via in-house method EA005FD and EN67 PK.
- Electrical conductivity performed by ALS Wollongong via in-house method EA010FD and EN67 PK.
- Sampling and groundwater depth measurements completed by ALS Wollongong via inhouse sampling method EN/67.11 Groundwater Sampling Via Bailer Method.
- Sampling completed by ALS Wollongong in accordance with in-house sampling method EN/67.6 Rivers and Streams.
- Dissolved oxygen (DO) performed by ALS Wollongong via in-house method EP025FD and EN67 PK.
- Sample collection of Ground Waters by in-house EN67 where the “surface layer of the aquifer was sampled”.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	Point 1 WELM-01	Point 2 WELM-02	Point 3 WELM-04	Point 4 WELM-05	Point 6 WELM-06S
				Sampling date / time	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00
					EW2401939-001	EW2401939-002	EW2401939-003	EW2401939-004	EW2401939-006
					Result	Result	Result	Result	Result
EA005FD: Field pH									
pH	----	0.1	pH Unit		**5.9**	**6.5**	**6.9**	**5.2**	**4.7**
EA010FD: Field Conductivity									
Electrical Conductivity (Non Compensated)	----	1	µS/cm		**168**	**2100**	**1780**	**537**	**1770**
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		**92**	**1240**	**964**	**352**	**1190**
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**55**	**454**	**565**	**11**	**1**
Total Alkalinity as CaCO3	----	1	mg/L		**55**	**454**	**565**	**11**	**1**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**15**	**395**	**120**	**206**	**330**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**6**	**203**	**190**	**38**	**260**
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**22**	**184**	**162**	**37**	**75**
Magnesium	7439-95-4	1	mg/L		**2**	**47**	**39**	**15**	**41**
Sodium	7440-23-5	1	mg/L		**6**	**188**	**160**	**36**	**198**
Potassium	7440-09-7	1	mg/L		<1	**64**	**65**	**20**	**42**
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		**0.004**	**0.001**	**0.002**	**0.002**	**0.003**
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	**0.0001**	**0.0001**
Chromium	7440-47-3	0.001	mg/L		**0.002**	<0.001	**0.004**	**0.003**	**0.002**
Nickel	7440-02-0	0.001	mg/L		**0.007**	**0.005**	**0.015**	**0.003**	**0.003**
Lead	7439-92-1	0.001	mg/L		**0.005**	**0.010**	**0.005**	**0.027**	**0.007**
Zinc	7440-66-6	0.005	mg/L		**0.129**	**0.026**	**0.014**	**1.53**	**0.024**
Iron	7439-89-6	0.05	mg/L		**10.2**	**1.67**	**0.50**	**2.11**	**1.90**

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					EW2401939-001	EW2401939-002	EW2401939-003	EW2401939-004	EW2401939-006
					Result	Result	Result	Result	Result
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		**0.0003**	<0.0001	<0.0001	<0.0001	**0.0006**
EK040P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L		**0.1**	<0.1	<0.1	**0.1**	**0.2**
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.03**	**1.45**	**0.01**	**0.03**	**0.24**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		<0.01	**0.18**	**1.76**	**0.21**	**34.1**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**1.1**	**2.2**	**3.1**	**6.6**	**6.2**
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**1.58**	**23.0**	**19.1**	**5.58**	**14.2**
ø Total Cations	----	0.01	meq/L		**1.52**	**22.9**	**19.9**	**5.16**	**16.8**
ø Ionic Balance	----	0.01	%		**----**	**0.34**	**1.97**	**3.93**	**8.31**
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		**10**	**13**	**21**	**21**	**11**
EP035G: Total Phenol by Discrete Analyser									
Phenols (Total)	----	0.05	mg/L		<0.05	<0.05	<0.05	<0.05	<0.05
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
beta-BHC	319-85-7	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
gamma-BHC	58-89-9	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
delta-BHC	319-86-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor	76-44-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Aldrin	309-00-2	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor epoxide	1024-57-3	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
trans-Chlordane	5103-74-2	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

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Compound	CAS Number	LOR	Unit	Sample ID	Point 1 WELM-01	Point 2 WELM-02	Point 3 WELM-04	Point 4 WELM-05	Point 6 WELM-06S
				Sampling date / time	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00
					EW2401939-001	EW2401939-002	EW2401939-003	EW2401939-004	EW2401939-006
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
alpha-Endosulfan	959-98-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
cis-Chlordane	5103-71-9	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Dieldrin	60-57-1	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
4.4`-DDE	72-55-9	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Endrin	72-20-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
beta-Endosulfan	33213-65-9	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
4.4`-DDD	72-54-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Endrin aldehyde	7421-93-4	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Endosulfan sulfate	1031-07-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
4.4`-DDT	50-29-3	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Endrin ketone	53494-70-5	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Methoxychlor	72-43-5	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
^ **Total Chlordane (sum)**	----	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Demeton-S-methyl	919-86-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Monocrotophos	6923-22-4	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Dimethoate	60-51-5	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon	333-41-5	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Parathion-methyl	298-00-0	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Malathion	121-75-5	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Fenthion	55-38-9	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos	2921-88-2	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Point 1 WELM-01	Point 2 WELM-02	Point 3 WELM-04	Point 4 WELM-05	Point 6 WELM-06S
				Sampling date / time	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		EW2401939-001	EW2401939-002	EW2401939-003	EW2401939-004	EW2401939-006
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Parathion	56-38-2	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Pirimphos-ethyl	23505-41-1	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Chlorfenvinphos	470-90-6	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Bromophos-ethyl	4824-78-6	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Fenamiphos	22224-92-6	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Prothiofos	34643-46-4	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	563-12-2	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Carbophenothion	786-19-6	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Azinphos Methyl	86-50-0	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Point 1 WELM-01	Point 2 WELM-02	Point 3 WELM-04	Point 4 WELM-05	Point 6 WELM-06S
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Compound	CAS Number	LOR	Unit		EW2401939-001	EW2401939-002	EW2401939-003	EW2401939-004	EW2401939-006
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	<100	<100	<100
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L		<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
FWI-EN/001: Groundwater Sampling - Depth									

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Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Point 1 WELM-01	Point 2 WELM-02	Point 3 WELM-04	Point 4 WELM-05	Point 6 WELM-06S
				Sampling date / time	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		EW2401939-001	EW2401939-002	EW2401939-003	EW2401939-004	EW2401939-006
					Result	Result	Result	Result	Result
FWI-EN/001: Groundwater Sampling - Depth - Continued									
Depth	----	0.01	m		1.72	2.73	1.48	7.64	6.89
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%		115	83.9	84.8	79.7	91.2
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%		114	86.2	83.2	78.0	88.7
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		32.5	25.4	26.7	25.2	29.5
2-Chlorophenol-D4	93951-73-6	1.0	%		61.7	51.1	52.3	48.9	57.5
2.4.6-Tribromophenol	118-79-6	1.0	%		76.0	53.6	54.1	46.0	61.4
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		59.6	53.9	53.7	49.2	61.3
Anthracene-d10	1719-06-8	1.0	%		88.7	66.8	67.0	61.0	72.1
4-Terphenyl-d14	1718-51-0	1.0	%		95.5	72.9	75.6	71.6	80.5
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		106	102	107	114	122
Toluene-D8	2037-26-5	2	%		101	107	99.0	103	106
4-Bromofluorobenzene	460-00-4	2	%		97.1	100	98.1	104	109

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	Point 7 WELM-07D	Point 8 WELM-07S	Point 9 WELM LEACH-01	Point 10 WELMSW-01	Point 11 WELMSW-02
				Sampling date / time	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00
					EW2401939-007	EW2401939-008	EW2401939-009	EW2401939-010	EW2401939-011
					Result	Result	Result	Result	Result
EA005FD: Field pH									
pH	----	0.1	pH Unit		----	----	**6.8**	**7.6**	----
EA010FD: Field Conductivity									
Electrical Conductivity (Non Compensated)	----	1	µS/cm		----	----	**3310**	**422**	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		----	----	**2200**	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L		----	----	----	<5	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		----	----	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		----	----	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		----	----	**1530**	----	----
Total Alkalinity as CaCO3	----	1	mg/L		----	----	**1530**	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		----	----	**341**	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		----	----	**88**	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		----	----	**413**	----	----
Magnesium	7439-95-4	1	mg/L		----	----	**94**	----	----
Sodium	7440-23-5	1	mg/L		----	----	**100**	----	----
Potassium	7440-09-7	1	mg/L		----	----	**183**	----	----
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		----	----	**0.002**	----	----
Cadmium	7440-43-9	0.0001	mg/L		----	----	**0.0002**	----	----
Chromium	7440-47-3	0.001	mg/L		----	----	**0.003**	----	----
Nickel	7440-02-0	0.001	mg/L		----	----	**0.007**	----	----
Lead	7439-92-1	0.001	mg/L		----	----	**0.014**	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	Point 7 WELM-07D	Point 8 WELM-07S	Point 9 WELM LEACH-01	Point 10 WELMSW-01	Point 11 WELMSW-02
				Sampling date / time	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00
					EW2401939-007	EW2401939-008	EW2401939-009	EW2401939-010	EW2401939-011
					Result	Result	Result	Result	Result
EG020T: Total Metals by ICP-MS - Continued									
Zinc	7440-66-6	0.005	mg/L		----	----	**0.146**	----	----
Iron	7439-89-6	0.05	mg/L		----	----	**3.06**	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		----	----	<0.0001	----	----
EK040P: Fluoride by PC Titrator									
Fluoride	16984-48-8	0.1	mg/L		----	----	**0.2**	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		----	----	**39.2**	**0.12**	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		----	----	**0.08**	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		----	----	**68.9**	----	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		----	----	**40.2**	----	----
ø Total Cations	----	0.01	meq/L		----	----	**37.4**	----	----
ø Ionic Balance	----	0.01	%		----	----	**3.58**	----	----
EN67 PK: Field Tests									
Field Observations	----	0.01	--		**DRY**	**NO ACCESS**	----	----	**NO ACCESS**
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		----	----	**92**	----	----
EP025FD: Field Dissolved Oxygen									
Dissolved Oxygen	----	0.01	mg/L		----	----	----	**10.0**	----
EP030: Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand	----	2	mg/L		----	----	----	**5**	----
EP035G: Total Phenol by Discrete Analyser									
Phenols (Total)	----	0.05	mg/L		----	----	<0.05	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.5	µg/L		----	----	<0.5	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	Point 7 WELM-07D	Point 8 WELM-07S	Point 9 WELM LEACH-01	Point 10 WELMSW-01	Point 11 WELMSW-02
				Sampling date / time	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00
					EW2401939-007	EW2401939-008	EW2401939-009	EW2401939-010	EW2401939-011
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L		----	----	<0.5	----	----
beta-BHC	319-85-7	0.5	µg/L		----	----	<0.5	----	----
gamma-BHC	58-89-9	0.5	µg/L		----	----	<0.5	----	----
delta-BHC	319-86-8	0.5	µg/L		----	----	<0.5	----	----
Heptachlor	76-44-8	0.5	µg/L		----	----	<0.5	----	----
Aldrin	309-00-2	0.5	µg/L		----	----	<0.5	----	----
Heptachlor epoxide	1024-57-3	0.5	µg/L		----	----	<0.5	----	----
trans-Chlordane	5103-74-2	0.5	µg/L		----	----	<0.5	----	----
alpha-Endosulfan	959-98-8	0.5	µg/L		----	----	<0.5	----	----
cis-Chlordane	5103-71-9	0.5	µg/L		----	----	<0.5	----	----
Dieldrin	60-57-1	0.5	µg/L		----	----	<0.5	----	----
4.4`-DDE	72-55-9	0.5	µg/L		----	----	<0.5	----	----
Endrin	72-20-8	0.5	µg/L		----	----	<0.5	----	----
beta-Endosulfan	33213-65-9	0.5	µg/L		----	----	<0.5	----	----
4.4`-DDD	72-54-8	0.5	µg/L		----	----	<0.5	----	----
Endrin aldehyde	7421-93-4	0.5	µg/L		----	----	<0.5	----	----
Endosulfan sulfate	1031-07-8	0.5	µg/L		----	----	<0.5	----	----
4.4`-DDT	50-29-3	2.0	µg/L		----	----	<2.0	----	----
Endrin ketone	53494-70-5	0.5	µg/L		----	----	<0.5	----	----
Methoxychlor	72-43-5	2.0	µg/L		----	----	<2.0	----	----
^ **Total Chlordane (sum)**	----	0.5	µg/L		----	----	<0.5	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.5	µg/L		----	----	<0.5	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.5	µg/L		----	----	<0.5	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L		----	----	<0.5	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L		----	----	<0.5	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	Point 7 WELM-07D	Point 8 WELM-07S	Point 9 WELM LEACH-01	Point 10 WELMSW-01	Point 11 WELMSW-02
				Sampling date / time	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00
					EW2401939-007	EW2401939-008	EW2401939-009	EW2401939-010	EW2401939-011
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Monocrotophos	6923-22-4	2.0	µg/L		----	----	<2.0	----	----
Dimethoate	60-51-5	0.5	µg/L		----	----	<0.5	----	----
Diazinon	333-41-5	0.5	µg/L		----	----	<0.5	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L		----	----	<0.5	----	----
Parathion-methyl	298-00-0	2.0	µg/L		----	----	<2.0	----	----
Malathion	121-75-5	0.5	µg/L		----	----	<0.5	----	----
Fenthion	55-38-9	0.5	µg/L		----	----	<0.5	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L		----	----	<0.5	----	----
Parathion	56-38-2	2.0	µg/L		----	----	<2.0	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L		----	----	<0.5	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L		----	----	<0.5	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L		----	----	<0.5	----	----
Fenamiphos	22224-92-6	0.5	µg/L		----	----	<0.5	----	----
Prothiofos	34643-46-4	0.5	µg/L		----	----	<0.5	----	----
Ethion	563-12-2	0.5	µg/L		----	----	<0.5	----	----
Carbophenothion	786-19-6	0.5	µg/L		----	----	<0.5	----	----
Azinphos Methyl	86-50-0	0.5	µg/L		----	----	<0.5	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		----	----	<1.0	----	----
Acenaphthylene	208-96-8	1.0	µg/L		----	----	<1.0	----	----
Acenaphthene	83-32-9	1.0	µg/L		----	----	<1.0	----	----
Fluorene	86-73-7	1.0	µg/L		----	----	<1.0	----	----
Phenanthrene	85-01-8	1.0	µg/L		----	----	<1.0	----	----
Anthracene	120-12-7	1.0	µg/L		----	----	<1.0	----	----
Fluoranthene	206-44-0	1.0	µg/L		----	----	<1.0	----	----
Pyrene	129-00-0	1.0	µg/L		----	----	<1.0	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	Point 7 WELM-07D	Point 8 WELM-07S	Point 9 WELM LEACH-01	Point 10 WELMSW-01	Point 11 WELMSW-02
				Sampling date / time	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00
					EW2401939-007	EW2401939-008	EW2401939-009	EW2401939-010	EW2401939-011
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benz(a)anthracene	56-55-3	1.0	µg/L		----	----	<1.0	----	----
Chrysene	218-01-9	1.0	µg/L		----	----	<1.0	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		----	----	<1.0	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		----	----	<1.0	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		----	----	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		----	----	<1.0	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		----	----	<1.0	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		----	----	<1.0	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	µg/L		----	----	<0.5	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	µg/L		----	----	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		----	----	<20	----	----
C10 - C14 Fraction	----	50	µg/L		----	----	**80**	----	----
C15 - C28 Fraction	----	100	µg/L		----	----	**900**	----	----
C29 - C36 Fraction	----	50	µg/L		----	----	**1300**	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		----	----	**2280**	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		----	----	<20	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		----	----	<20	----	----
>C10 - C16 Fraction	----	100	µg/L		----	----	**110**	----	----
>C16 - C34 Fraction	----	100	µg/L		----	----	**1740**	----	----
>C34 - C40 Fraction	----	100	µg/L		----	----	**860**	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		----	----	**2710**	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		----	----	**110**	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		----	----	**1**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Point 7 WELM-07D	Point 8 WELM-07S	Point 9 WELM LEACH-01	Point 10 WELMSW-01	Point 11 WELMSW-02
				Sampling date / time	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00
Compound	CAS Number	LOR	Unit		EW2401939-007	EW2401939-008	EW2401939-009	EW2401939-010	EW2401939-011
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
Toluene	108-88-3	2	µg/L		----	----	<2	----	----
Ethylbenzene	100-41-4	2	µg/L		----	----	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	----	<2	----	----
ortho-Xylene	95-47-6	2	µg/L		----	----	<2	----	----
^ Total Xylenes	----	2	µg/L		----	----	<2	----	----
^ Sum of BTEX	----	1	µg/L		----	----	**1**	----	----
Naphthalene	91-20-3	5	µg/L		----	----	<5	----	----
FWI-EN/001: Groundwater Sampling - Depth									
Depth	----	0.01	m		----	----	**7.54**	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%		----	----	**80.6**	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%		----	----	**90.7**	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		----	----	**26.4**	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		----	----	**50.5**	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		----	----	**66.6**	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		----	----	**60.3**	----	----
Anthracene-d10	1719-06-8	1.0	%		----	----	**65.5**	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		----	----	**67.6**	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		----	----	**120**	----	----
Toluene-D8	2037-26-5	2	%		----	----	**106**	----	----
4-Bromofluorobenzene	460-00-4	2	%		----	----	**101**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Point 12 DAM 1	Point 13 DAM 2	Point 14 DAM 3	Point 15 DAM 4	Point 16 DAM 5
			Sampling date / time	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00	29-Apr-2024 00:00
Compound	CAS Number	LOR	Unit	EW2401939-012	EW2401939-013	EW2401939-014	EW2401939-015	EW2401939-016
				Result	Result	Result	Result	Result
EA005FD: Field pH								
pH	----	0.1	pH Unit	**7.5**	**----**	**----**	**----**	**7.8**
EA010FD: Field Conductivity								
Electrical Conductivity (Non Compensated)	----	1	µS/cm	**914**	**----**	**----**	**----**	**1520**
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	<5	**----**	**----**	**----**	**8**
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.06**	**----**	**----**	**----**	**0.04**
EN67 PK: Field Tests								
Field Observations	----	0.01	--	**----**	**NO ACCESS**	**NO ACCESS**	**DRY**	**----**
EP025FD: Field Dissolved Oxygen								
Dissolved Oxygen	----	0.01	mg/L	**6.17**	**----**	**----**	**----**	**8.38**
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	**13**	**----**	**----**	**----**	**4**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Point 17 DAM 6	----	----	----	----
			Sampling date / time	29-Apr-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EW2401939-017	--------	--------	--------	--------
				Result	----	----	----	----
EA005FD: Field pH								
pH	----	0.1	pH Unit	**7.6**	**----**	**----**	**----**	**----**
EA010FD: Field Conductivity								
Electrical Conductivity (Non Compensated)	----	1	µS/cm	**1200**	**----**	**----**	**----**	**----**
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	<5	**----**	**----**	**----**	**----**
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.03**	**----**	**----**	**----**	**----**
EP025FD: Field Dissolved Oxygen								
Dissolved Oxygen	----	0.01	mg/L	**11.6**	**----**	**----**	**----**	**----**
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	**11**	**----**	**----**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50	150
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	50	150
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry) 14913 (Biology).

(WATER) EP075(SIM)S: Phenolic Compound Surrogates
(WATER) EP068A: Organochlorine Pesticides (OC)
(WATER) EP068B: Organophosphorus Pesticides (OP)
(WATER) EP068S: Organochlorine Pesticide Surrogate
(WATER) EP068T: Organophosphorus Pesticide Surrogate
(WATER) EN055: Ionic Balance
(WATER) EG035T: Total Recoverable Mercury by FIMS
(WATER) EP005: Total Organic Carbon (TOC)
(WATER) EP035G: Total Phenol by Discrete Analyser
(WATER) EK061G: Total Kjeldahl Nitrogen By Discrete Analyser
(WATER) EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser
(WATER) EK055G: Ammonia as N by Discrete Analyser
(WATER) EG020T: Total Metals by ICP-MS
(WATER) ED093F: Dissolved Major Cations
(WATER) EA015: Total Dissolved Solids dried at 180 ± 5 °C
(WATER) ED045G: Chloride by Discrete Analyser
(WATER) ED037P: Alkalinity by PC Titrator
(WATER) EK040P: Fluoride by PC Titrator
(WATER) ED041G: Sulfate (Turbidimetric) as SO4 2- by DA
(WATER) EP080/071: Total Petroleum Hydrocarbons
(WATER) EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions
(WATER) EP080: BTEXN
(WATER) EP080S: TPH(V)/BTEX Surrogates
(WATER) EP075(SIM)B: Polynuclear Aromatic Hydrocarbons
(WATER) EP075(SIM)T: PAH Surrogates
(WATER) EP030: Biochemical Oxygen Demand (BOD)
(WATER) EA025: Total Suspended Solids dried at 104 ± 2°C