



CERTIFICATE OF ANALYSIS

Work Order	: ES2313497	Page	: 1 of 6
Client	: DEPARTMENT OF PLANNING AND ENVIRONMENT (NSW-DPE)	Laboratory	: Environmental Division Sydney
Contact	: OEH	Contact	: Customer Services ES
Address	: [REDACTED] Lidcombe 2141	Address	: [REDACTED]
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: 20230130	Date Samples Received	: 26-Apr-2023 10:05
Order number	: 4500806025	Date Analysis Commenced	: 26-Apr-2023
C-O-C number	: ----	Issue Date	: 03-May-2023 18:14
Sampler	: ----		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 12		
No. of samples analysed	: 12		



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
[REDACTED]	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
[REDACTED]	LCMS Coordinator	Sydney Organics, Smithfield, NSW
[REDACTED]	Microbiologist	Sydney Microbiology, Smithfield, NSW
[REDACTED]	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.

- CFU = colony forming unit
- MF = membrane filtration
- Microbiological Comment: HPC results are reported an approximate (~) when the count of colonies on the plate is outside the range of 10 - 300cfu, in accordance with ALS work instruction QWI-MIC/MW002.
- Microbiological Comment: In accordance with ALS work instruction QWI-MIC/04, membrane filtration result is reported an approximate (~) when the count of colonies on the filtered membrane is outside the range of 10 - 100cfu.
- MW006 is ALS's internal code and is equivalent to AS4276.5.
- MW023 is ALS's internal code and is equivalent to AS4276.9.
- MW002 is ALS's internal code and is equivalent to AS4276.3.



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	232598 SW1	232599 SW2	232600 SW3	232601 SW4	232606 SW1
Sampling date / time				24-Apr-2023 00:00	24-Apr-2023 00:00				
Compound	CAS Number	LOR	Unit	ES2313497-001 Result	ES2313497-002 Result	ES2313497-003 Result	ES2313497-004 Result	ES2313497-005 Result	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.02	0.03	0.03	---	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	---	0.01	mg/L	<0.01	0.01	0.02	0.01	---	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	---	0.1	mg/L	1.4	1.5	1.6	1.5	---	
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	---	0.1	mg/L	1.4	1.5	1.6	1.5	---	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	---	0.01	mg/L	0.17	0.18	0.20	0.20	---	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	0.02	0.01	0.01	---	
EP030: Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand	---	2	mg/L	<2	<2	<2	<2	---	
MW002: Heterotrophic Plate Count									
Heterotrophic Plate Count (22°C)	---	1	CFU/mL	---	---	---	---	~13000	
Heterotrophic Plate Count (36°C)	---	1	CFU/mL	---	---	---	---	~12000	
MW006: Faecal Coliforms & E.coli by MF									
Faecal Coliforms	---	1	CFU/100mL	---	---	---	---	~64	
<i>Escherichia coli</i>	---	1	CFU/100mL	---	---	---	---	~64	
MW023: Enterococci by Membrane Filtration									
Enterococci	---	1	CFU/100mL	---	---	---	---	12	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	232607 SW2	232608 SW3	232609 SW4	232618 SW1	232619 SW2
Sampling date / time				24-Apr-2023 00:00					
Compound	CAS Number	LOR	Unit	ES2313497-006 Result	ES2313497-007 Result	ES2313497-008 Result	ES2313497-009 Result	ES2313497-010 Result	
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	----	----	----	<10	<10	
2,4-DB	94-82-6	10	µg/L	----	----	----	<10	<10	
Dicamba	1918-00-9	10	µg/L	----	----	----	<10	<10	
Mecoprop	93-65-2	10	µg/L	----	----	----	<10	<10	
MCPA	94-74-6	10	µg/L	----	----	----	<10	<10	
2,4-DP	120-36-5	10	µg/L	----	----	----	<10	<10	
2,4-D	94-75-7	10	µg/L	----	----	----	<10	<10	
Triclopyr	55335-06-3	10	µg/L	----	----	----	<10	<10	
Silvex (2,4,5-TP/Fenoprop)	93-72-1	10	µg/L	----	----	----	<10	<10	
2,4,5-T	93-76-5	10	µg/L	----	----	----	<10	<10	
MCPB	94-81-5	10	µg/L	----	----	----	<10	<10	
Picloram	1918-02-1	10	µg/L	----	----	----	<10	<10	
Clopyralid	1702-17-6	10	µg/L	----	----	----	<10	<10	
Fluroxypyr	69377-81-7	10	µg/L	----	----	----	<10	<10	
2,6-D	575-90-6	10	µg/L	----	----	----	<10	<10	
2,4,6-T	575-89-3	10	µg/L	----	----	----	<10	<10	
EP204: Glyphosate and AMPA									
Glyphosate	1071-83-6	10	µg/L	----	----	----	<10	<10	
AMPA	1066-51-9	10	µg/L	----	----	----	<10	<10	
MW002: Heterotrophic Plate Count									
Heterotrophic Plate Count (22°C)	----	1	CFU/mL	~29000	~33000	~40000	----	----	
Heterotrophic Plate Count (36°C)	----	1	CFU/mL	~44000	~>57000	~>57000	----	----	
MW006: Faecal Coliforms & E.coli by MF									
Faecal Coliforms	----	1	CFU/100mL	800	130	840	----	----	
<i>Escherichia coli</i>	----	1	CFU/100mL	470	120	320	----	----	
MW023: Enterococci by Membrane Filtration									
Enterococci	----	1	CFU/100mL	30	25	35	----	----	
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2,4-Dichlorophenyl Acetic Acid	19719-28-9	10	%	----	----	----	111	117	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	232620 SW3	232621 SW4	----	----	----
Sampling date / time				24-Apr-2023 00:00	24-Apr-2023 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES2313497-011	ES2313497-012	-----	-----	-----	
				Result	Result	---	---	---	
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	----	----	----	
2,4-DB	94-82-6	10	µg/L	<10	<10	----	----	----	
Dicamba	1918-00-9	10	µg/L	<10	<10	----	----	----	
Mecoprop	93-65-2	10	µg/L	<10	<10	----	----	----	
MCPA	94-74-6	10	µg/L	<10	<10	----	----	----	
2,4-DP	120-36-5	10	µg/L	<10	<10	----	----	----	
2,4-D	94-75-7	10	µg/L	<10	<10	----	----	----	
Triclopyr	55335-06-3	10	µg/L	<10	<10	----	----	----	
Silvex (2,4,5-TP/Fenoprop)	93-72-1	10	µg/L	<10	<10	----	----	----	
2,4,5-T	93-76-5	10	µg/L	<10	<10	----	----	----	
MCPB	94-81-5	10	µg/L	<10	<10	----	----	----	
Picloram	1918-02-1	10	µg/L	<10	<10	----	----	----	
Clopyralid	1702-17-6	10	µg/L	<10	<10	----	----	----	
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	----	----	----	
2,6-D	575-90-6	10	µg/L	<10	<10	----	----	----	
2,4,6-T	575-89-3	10	µg/L	<10	<10	----	----	----	
EP204: Glyphosate and AMPA									
Glyphosate	1071-83-6	10	µg/L	<10	<10	----	----	----	
AMPA	1066-51-9	10	µg/L	<10	<10	----	----	----	
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2,4-Dichlorophenyl Acetic Acid	19719-28-9	10	%	113	112	----	----	----	



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2,4-Dichlorophenyl Acetic Acid	19719-28-9	64	140