



## CERTIFICATE OF ANALYSIS

Work Order	: ES2317065	Page	: 1 of 7
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	: 20230175	Date Samples Received	: 23-May-2023 13:10
Order number	: 4500806025	Date Analysis Commenced	: 23-May-2023
C-O-C number	: ----	Issue Date	: 30-May-2023 16:08
Sampler	: ----		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 20		
No. of samples analysed	: 20		



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



## 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.

- EP202: Poor matrix spike recoveries for Picloram and Clopyralid due to matrix effects.
- EP204: Matrix spike could not be recovered due to matrix interferences.



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	233898	233899	233900	233901	233902
Sampling date / time					18-May-2023 00:00	18-May-2023 00:00	18-May-2023 00:00	18-May-2023 00:00	18-May-2023 00:00
Compound	CAS Number	LOR	Unit	ES2317065-001	ES2317065-002	ES2317065-003	ES2317065-004	ES2317065-005	
				Result	Result	Result	Result	Result	
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>									
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	<10	<10	<10	
2,4-DB	94-82-6	10	µg/L	<10	<10	<10	<10	<10	
Dicamba	1918-00-9	10	µg/L	<10	<10	<10	<10	<10	
Mecoprop	93-65-2	10	µg/L	<10	<10	<10	<10	<10	
MCPA	94-74-6	10	µg/L	<10	<10	<10	<10	<10	
2,4-DP	120-36-5	10	µg/L	<10	<10	<10	<10	<10	
2,4-D	94-75-7	10	µg/L	<10	<10	<10	<10	<10	
Triclopyr	55335-06-3	10	µg/L	<10	<10	<10	<10	<10	
Silvex (2,4,5-TP/Fenoprop)	93-72-1	10	µg/L	<10	<10	<10	<10	<10	
2,4,5-T	93-76-5	10	µg/L	<10	<10	<10	<10	<10	
MCPB	94-81-5	10	µg/L	<10	<10	<10	<10	<10	
Picloram	1918-02-1	10	µg/L	<10	<10	<10	<10	<10	
Clopyralid	1702-17-6	10	µg/L	<10	<10	<10	<10	<10	
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	<10	<10	<10	
2,6-D	575-90-6	10	µg/L	<10	<10	<10	<10	<10	
2,4,6-T	575-89-3	10	µg/L	<10	<10	<10	<10	<10	
<b>EP204: Glyphosate and AMPA</b>									
Glyphosate	1071-83-6	10	µg/L	<10	<10	<10	<10	<10	
AMPA	1066-51-9	10	µg/L	<10	<10	<10	<10	<10	
<b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b>									
2,4-Dichlorophenyl Acetic Acid	19719-28-9	10	%	98.5	103	108	109	100.0	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	233928	233929	233930	233931	233932
Sampling date / time			18-May-2023 00:00	18-May-2023 00:00	18-May-2023 00:00	18-May-2023 00:00	18-May-2023 00:00	18-May-2023 00:00
Compound	CAS Number	LOR	Unit	ES2317065-006	ES2317065-007	ES2317065-008	ES2317065-009	ES2317065-010
				Result	Result	Result	Result	Result
<b>EK055G: Ammonia as N by Discrete Analyser</b>								
Ammonia as N	7664-41-7	0.01	mg/L	0.03	----	----	0.04	----
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>								
Nitrite + Nitrate as N	----	0.01	mg/L	0.06	0.06	0.06	0.09	0.12
<b>EK061F: Filtered Total Kjeldahl Nitrogen as N (TKN)</b>								
Dissolved TKN as N	----	0.1	mg/L	----	0.9	----	----	0.8
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	----	1.3	----	----
<b>EK062F: Filtered Total Nitrogen as N</b>								
^ Filtered Total Nitrogen as N	----	0.1	mg/L	----	1.0	----	----	0.9
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>								
^ Total Nitrogen as N	----	0.1	mg/L	----	----	1.4	----	----
<b>EK067FG: Filtered Total Phosphorus as P by Discrete Analyser</b>								
Filtered Total Phosphorus as P	----	0.01	mg/L	----	0.14	----	----	0.13
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>								
Total Phosphorus as P	----	0.01	mg/L	----	----	0.24	----	----
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.13	----	----	0.12	----



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	233933	233934	233935	233936	233937
Sampling date / time			18-May-2023 00:00	18-May-2023 00:00	18-May-2023 00:00	18-May-2023 00:00	18-May-2023 00:00	18-May-2023 00:00
Compound	CAS Number	LOR	Unit	ES2317065-011	ES2317065-012	ES2317065-013	ES2317065-014	ES2317065-015
				Result	Result	Result	Result	Result
<b>EK055G: Ammonia as N by Discrete Analyser</b>								
Ammonia as N	7664-41-7	0.01	mg/L	----	0.03	----	----	0.01
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>								
Nitrite + Nitrate as N	----	0.01	mg/L	0.08	0.11	0.11	0.10	0.05
<b>EK061F: Filtered Total Kjeldahl Nitrogen as N (TKN)</b>								
Dissolved TKN as N	----	0.1	mg/L	----	----	0.8	----	----
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.4	----	----	1.6	----
<b>EK062F: Filtered Total Nitrogen as N</b>								
^ Filtered Total Nitrogen as N	----	0.1	mg/L	----	----	0.9	----	----
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>								
^ Total Nitrogen as N	----	0.1	mg/L	1.5	----	----	1.7	----
<b>EK067FG: Filtered Total Phosphorus as P by Discrete Analyser</b>								
Filtered Total Phosphorus as P	----	0.01	mg/L	----	----	0.14	----	----
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>								
Total Phosphorus as P	----	0.01	mg/L	0.29	----	----	0.29	----
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	0.13	----	----	0.10



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	233938	233939	233940	233941	233942
Sampling date / time			18-May-2023 00:00	18-May-2023 00:00	18-May-2023 00:00	18-May-2023 00:00	18-May-2023 00:00	18-May-2023 00:00
Compound	CAS Number	LOR	Unit	ES2317065-016	ES2317065-017	ES2317065-018	ES2317065-019	ES2317065-020
				Result	Result	Result	Result	Result
<b>EK055G: Ammonia as N by Discrete Analyser</b>								
Ammonia as N	7664-41-7	0.01	mg/L	----	----	0.01	----	----
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>								
Nitrite + Nitrate as N	----	0.01	mg/L	0.06	0.04	0.10	0.10	0.09
<b>EK061F: Filtered Total Kjeldahl Nitrogen as N (TKN)</b>								
Dissolved TKN as N	----	0.1	mg/L	0.8	----	----	0.8	----
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	1.6	----	----	1.5
<b>EK062F: Filtered Total Nitrogen as N</b>								
^ Filtered Total Nitrogen as N	----	0.1	mg/L	0.9	----	----	0.9	----
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>								
^ Total Nitrogen as N	----	0.1	mg/L	----	1.6	----	----	1.6
<b>EK067FG: Filtered Total Phosphorus as P by Discrete Analyser</b>								
Filtered Total Phosphorus as P	----	0.01	mg/L	0.12	----	----	0.12	----
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>								
Total Phosphorus as P	----	0.01	mg/L	----	0.29	----	----	0.25
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	----	0.10	----	----



### Surrogate Control Limits

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