



## CERTIFICATE OF ANALYSIS

Work Order	: ES2316256	Page	: 1 of 9
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	: 20230158	Date Samples Received	: 16-May-2023 16:05
Order number	: 4500806025	Date Analysis Commenced	: 17-May-2023
C-O-C number	: ----	Issue Date	: 24-May-2023 14:23
Sampler	: ----		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 28		
No. of samples analysed	: 28		



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



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## 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.

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## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	233223	233227	233228	233229	233230
Sampling date / time				10-May-2023 00:00	10-May-2023 00:00	10-May-2023 00:00	10-May-2023 00:00	10-May-2023 00:00	
Compound	CAS Number	LOR	Unit	ES2316256-001	ES2316256-002	ES2316256-003	ES2316256-004	ES2316256-005	
				Result	Result	Result	Result	Result	
<b>EK055G: Ammonia as N by Discrete Analyser</b>									
Ammonia as N	7664-41-7	0.01	mg/L	----	1.01	----	----	----	
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>									
Nitrite + Nitrate as N	----	0.01	mg/L	----	0.02	0.05	0.09	----	
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	----	1.0	1.2	----	
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>									
^ Total Nitrogen as N	----	0.1	mg/L	----	----	1.0	1.3	----	
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>									
Total Phosphorus as P	----	0.01	mg/L	----	----	0.25	0.30	----	
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	0.18	----	----	----	
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>									
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	
<b>EP204: Glyphosate and AMPA</b>									
Glyphosate	1071-83-6	10	µg/L	<10	----	----	----	<10	
AMPA	1066-51-9	10	µg/L	<10	----	----	----	<10	
<b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b>									
2,4-Dichlorophenyl Acetic Acid	19719-28-9	10	%	96.3	----	----	----	101	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	233234	233235	233236	233237	233241
Sampling date / time				10-May-2023 00:00	10-May-2023 00:00	10-May-2023 00:00	10-May-2023 00:00	10-May-2023 00:00	
Compound	CAS Number	LOR	Unit	ES2316256-006	ES2316256-007	ES2316256-008	ES2316256-009	ES2316256-010	
				Result	Result	Result	Result	Result	
<b>EK055G: Ammonia as N by Discrete Analyser</b>									
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	----	----	----	<b>0.04</b>	
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>									
Nitrite + Nitrate as N	----	0.01	mg/L	<b>0.01</b>	<b>0.04</b>	<b>0.06</b>	----	<b>0.01</b>	
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	<b>0.6</b>	<b>0.7</b>	----	----	
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>									
^ Total Nitrogen as N	----	0.1	mg/L	----	<b>0.6</b>	<b>0.8</b>	----	----	
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>									
Total Phosphorus as P	----	0.01	mg/L	----	<b>0.26</b>	<b>0.32</b>	----	----	
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<b>0.23</b>	----	----	----	<b>0.17</b>	
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>									
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	----	----	----	<10	----	
2,4-DB	94-82-6	10	µg/L	----	----	----	<10	----	
Dicamba	1918-00-9	10	µg/L	----	----	----	<10	----	
Mecoprop	93-65-2	10	µg/L	----	----	----	<10	----	
MCPA	94-74-6	10	µg/L	----	----	----	<10	----	
2,4-DP	120-36-5	10	µg/L	----	----	----	<10	----	
2,4-D	94-75-7	10	µg/L	----	----	----	<10	----	
Triclopyr	55335-06-3	10	µg/L	----	----	----	<10	----	
Silvex (2,4,5-TP/Fenoprop)	93-72-1	10	µg/L	----	----	----	<10	----	
2,4,5-T	93-76-5	10	µg/L	----	----	----	<10	----	
MCPB	94-81-5	10	µg/L	----	----	----	<10	----	
Picloram	1918-02-1	10	µg/L	----	----	----	<10	----	
Clopyralid	1702-17-6	10	µg/L	----	----	----	<10	----	
Fluroxypyr	69377-81-7	10	µg/L	----	----	----	<10	----	
2,6-D	575-90-6	10	µg/L	----	----	----	<10	----	
2,4,6-T	575-89-3	10	µg/L	----	----	----	<10	----	
<b>EP204: Glyphosate and AMPA</b>									
Glyphosate	1071-83-6	10	µg/L	----	----	----	<10	----	
AMPA	1066-51-9	10	µg/L	----	----	----	<10	----	
<b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b>									
2,4-Dichlorophenyl Acetic Acid	19719-28-9	10	%	----	----	----	<b>104</b>	----	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	233242	233243	233244	233248	233249
Sampling date / time				10-May-2023 00:00	10-May-2023 00:00	10-May-2023 00:00	10-May-2023 00:00	10-May-2023 00:00	
Compound	CAS Number	LOR	Unit	ES2316256-011	ES2316256-012	ES2316256-013	ES2316256-014	ES2316256-015	
				Result	Result	Result	Result	Result	
<b>EK055G: Ammonia as N by Discrete Analyser</b>									
Ammonia as N	7664-41-7	0.01	mg/L	----	----	----	0.06	----	
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>									
Nitrite + Nitrate as N	----	0.01	mg/L	0.09	0.05	----	0.04	0.08	
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.7	1.3	----	----	0.7	
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>									
^ Total Nitrogen as N	----	0.1	mg/L	0.8	1.4	----	----	0.8	
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>									
Total Phosphorus as P	----	0.01	mg/L	0.21	0.36	----	----	0.17	
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	----	----	0.13	----	
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>									
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	----	----	<10	----	----	
2,4-DB	94-82-6	10	µg/L	----	----	<10	----	----	
Dicamba	1918-00-9	10	µg/L	----	----	<10	----	----	
Mecoprop	93-65-2	10	µg/L	----	----	<10	----	----	
MCPA	94-74-6	10	µg/L	----	----	<10	----	----	
2,4-DP	120-36-5	10	µg/L	----	----	<10	----	----	
2,4-D	94-75-7	10	µg/L	----	----	<10	----	----	
Triclopyr	55335-06-3	10	µg/L	----	----	<10	----	----	
Silvex (2,4,5-TP/Fenoprop)	93-72-1	10	µg/L	----	----	<10	----	----	
2,4,5-T	93-76-5	10	µg/L	----	----	<10	----	----	
MCPB	94-81-5	10	µg/L	----	----	<10	----	----	
Picloram	1918-02-1	10	µg/L	----	----	<10	----	----	
Clopyralid	1702-17-6	10	µg/L	----	----	<10	----	----	
Fluroxypyr	69377-81-7	10	µg/L	----	----	<10	----	----	
2,6-D	575-90-6	10	µg/L	----	----	<10	----	----	
2,4,6-T	575-89-3	10	µg/L	----	----	<10	----	----	
<b>EP204: Glyphosate and AMPA</b>									
Glyphosate	1071-83-6	10	µg/L	----	----	<10	----	----	
AMPA	1066-51-9	10	µg/L	----	----	<10	----	----	
<b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b>									
2,4-Dichlorophenyl Acetic Acid	19719-28-9	10	%	----	----	98.0	----	----	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	233250	233251	233255	233256	233257
Sampling date / time				10-May-2023 00:00	10-May-2023 00:00	10-May-2023 00:00	10-May-2023 00:00	10-May-2023 00:00	
Compound	CAS Number	LOR	Unit	ES2316256-016	ES2316256-017	ES2316256-018	ES2316256-019	ES2316256-020	
				Result	Result	Result	Result	Result	
<b>EK055G: Ammonia as N by Discrete Analyser</b>									
Ammonia as N	7664-41-7	0.01	mg/L	----	----	0.05	----	----	
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>									
Nitrite + Nitrate as N	----	0.01	mg/L	0.10	----	0.04	0.14	0.09	
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.0	----	----	0.7	1.3	
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>									
^ Total Nitrogen as N	----	0.1	mg/L	1.1	----	----	0.8	1.4	
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>									
Total Phosphorus as P	----	0.01	mg/L	0.29	----	----	0.17	0.29	
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	----	0.12	----	----	
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>									
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	----	<10	----	----	----	
2,4-DB	94-82-6	10	µg/L	----	<10	----	----	----	
Dicamba	1918-00-9	10	µg/L	----	<10	----	----	----	
Mecoprop	93-65-2	10	µg/L	----	<10	----	----	----	
MCPA	94-74-6	10	µg/L	----	<10	----	----	----	
2,4-DP	120-36-5	10	µg/L	----	<10	----	----	----	
2,4-D	94-75-7	10	µg/L	----	<10	----	----	----	
Triclopyr	55335-06-3	10	µg/L	----	<10	----	----	----	
Silvex (2,4,5-TP/Fenoprop)	93-72-1	10	µg/L	----	<10	----	----	----	
2,4,5-T	93-76-5	10	µg/L	----	<10	----	----	----	
MCPB	94-81-5	10	µg/L	----	<10	----	----	----	
Picloram	1918-02-1	10	µg/L	----	<10	----	----	----	
Clopyralid	1702-17-6	10	µg/L	----	<10	----	----	----	
Fluroxypyr	69377-81-7	10	µg/L	----	<10	----	----	----	
2,6-D	575-90-6	10	µg/L	----	<10	----	----	----	
2,4,6-T	575-89-3	10	µg/L	----	<10	----	----	----	
<b>EP204: Glyphosate and AMPA</b>									
Glyphosate	1071-83-6	10	µg/L	----	<10	----	----	----	
AMPA	1066-51-9	10	µg/L	----	<10	----	----	----	
<b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b>									
2,4-Dichlorophenyl Acetic Acid	19719-28-9	10	%	----	93.9	----	----	----	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	233258	233262	233263	233264	233265
Sampling date / time				10-May-2023 00:00	10-May-2023 00:00	10-May-2023 00:00	10-May-2023 00:00	10-May-2023 00:00	
Compound	CAS Number	LOR	Unit	ES2316256-021	ES2316256-022	ES2316256-023	ES2316256-024	ES2316256-025	
				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	----	0.05	0.08	0.08	----	
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	----	0.9	1.4	----	
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>									
^ Total Nitrogen as N	----	0.1	mg/L	----	----	1.0	1.5	----	
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>									
Total Phosphorus as P	----	0.01	mg/L	----	----	0.12	0.28	----	
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	0.08	----	----	----	
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>									
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	
<b>EP204: Glyphosate and AMPA</b>									
Glyphosate	1071-83-6	10	µg/L	<10	----	----	----	<10	
AMPA	1066-51-9	10	µg/L	<10	----	----	----	<10	
<b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b>									
2,4-Dichlorophenyl Acetic Acid	19719-28-9	10	%	98.0	----	----	----	95.5	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	233269	233270	233271	----	----
Sampling date / time				10-May-2023 00:00	10-May-2023 00:00	10-May-2023 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2316256-026	ES2316256-027	ES2316256-028	-----	-----	
				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	<0.01	0.05	0.04	----	----	
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	0.6	0.7	----	----	
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>									
^ Total Nitrogen as N	----	0.1	mg/L	----	0.6	0.7	----	----	
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>									
Total Phosphorus as P	----	0.01	mg/L	----	0.28	0.32	----	----	
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.23	----	----	----	----	





### 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