

CERTIFICATE OF ANALYSIS Page Work Order : ES2316869 : 1 of 14 Amendment :1 Client Laboratory : DEPARTMENT OF PLANNING AND ENVIRONMENT (NSW-DPE) : Environmental Division Sydney : Customer Services ES Contact : OEH Contact Address Address Lidcombe 2141 Telephone Telephone : +61-2-8784 8555 : -----Project : 20230170 **Date Samples Received** : 19-May-2023 15:40 Order number : 4500806025 Date Analysis Commenced : 19-May-2023 C-O-C number Issue Date · ____ : 08-Jun-2023 14:54 Sampler : -----Site · ____ : EN/222 Quote number "uhiliw

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.

Accreditation No. 825

Accredited for compliance with ISO/IEC 17025 - Testing

This Certificate of Analysis contains the following information:

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- 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

No. of samples received

No. of samples analysed

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
	Senior Chemist - Inorganics LCMS Coordinator	Sydney Inorganics, Smithfield, NSW 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 Clopyralid due to matrix effects.
- Amendment (08/06/2023): This report has been amended as a result of misinterpretation of sample identification numbers (IDs) for samples 47. All analysis results are as per the previous report.

Page : 3 of 14 Work Order : ES2316869 Amendment 1 Client : DEPARTMENT OF PLANNING AND ENVIRONMENT (NSW-DPE) Project : 20230170



Sub-Matrix: WATER (Matrix: WATER)			Sample ID	233617	233618	233619	233620	233621
		Samplii	ng date / time	12-May-2023 00:00				
Compound	CAS Number	LOR	Unit	ES2316869-001	ES2316869-002	ES2316869-003	ES2316869-004	ES2316869-005
				Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides	by LCMS							
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
Месоргор	93-65-2	10	µg/L	<10	<10	<10	<10	<10
МСРА	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
МСРВ	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
EP204: Glyphosate and AMPA								
Glyphosate	1071-83-6	10	µg/L	<10	<10	<10	<10	<10
АМРА	1066-51-9	10	µg/L	<10	<10	<10	<10	<10
EP202S: Phenoxyacetic Acid Herbicide S	urrogate							
2.4-Dichlorophenyl Acetic Acid	19719-28-9	10	%	116	113	108	105	97.8



Sub-Matrix: WATER (Matrix: WATER)			Sample ID	233622	233623	233624	233625	233626
		Sampli	ng date / time	12-May-2023 00:00				
Compound	CAS Number	LOR	Unit	ES2316869-006	ES2316869-007	ES2316869-008	ES2316869-009	ES2316869-010
				Result	Result	Result	Result	Result
EK055G: Ammonia as N by Discrete	Analyser							
Ammonia as N	7664-41-7	0.01	mg/L				0.04	
EK059G: Nitrite plus Nitrate as N (NC	() () () () () () () () () () () () () (lyser						
Nitrite + Nitrate as N		0.01	mg/L				0.02	0.05
EK061F: Filtered Total Kjeldahl Nitroo	gen as N (TKN)							
Dissolved TKN as N		0.1	mg/L					0.8
EK062F: Filtered Total Nitrogen as N								
^ Filtered Total Nitrogen as N		0.1	mg/L					0.8
EK067FG: Filtered Total Phosphorus	as P by Discrete Ar	nalvser						
Filtered Total Phosphorus as P		0.01	mg/L					0.08
EK071G: Reactive Phosphorus as P t	ov discrete analyser							
Reactive Phosphorus as P	14265-44-2	0.01	mg/L				0.05	
EP202A: Phenoxyacetic Acid Herbici	des by LCMS							
4-Chlorophenoxy acetic acid	122-88-3	10	µg/L	<10	<10	<10		
2.4-DB	94-82-6	10	µg/L	<10	<10	<10		
Dicamba	1918-00-9	10	µg/L	<10	<10	<10		
Месоргор	93-65-2	10	µg/L	<10	<10	<10		
МСРА	94-74-6	10	µg/L	<10	<10	<10		
2.4-DP	120-36-5	10	µg/L	<10	<10	<10		
2.4-D	94-75-7	10	µg/L	<10	<10	<10		
Triclopyr	55335-06-3	10	µg/L	<10	<10	<10		
Silvex (2.4.5-TP/Fenoprop)	93-72-1	10	µg/L	<10	<10	<10		
2.4.5-T	93-76-5	10	µg/L	<10	<10	<10		
МСРВ	94-81-5	10	µg/L	<10	<10	<10		
Picloram	1918-02-1	10	µg/L	<10	<10	<10		
Clopyralid	1702-17-6	10	µg/L	<10	<10	<10		
Fluroxypyr	69377-81-7	10	µg/L	<10	<10	<10		
2.6-D	575-90-6	10	µg/L	<10	<10	<10		
2.4.0-1	575-89-3	10	µg/L	<10	<10	<10		
EP204: Glyphosate and AMPA		40		-10	:10	:10		
Glyphosate	1071-83-6	10	µg/L	<10	<10	<10		
	1066-51-9	10	µg/L	<10	<10	<10		
EP202S: Phenoxyacetic Acid Herbicio	de Surrogate							
2.4-Dichlorophenyl Acetic Acid	19719-28-9	10	%	97.6	99.1	110		



Sub-Matrix: WATER (Matrix: WATER)			Sample ID	233627	233628	233629	233630	233631
		Sampli	ng date / time	12-May-2023 00:00				
Compound	CAS Number	LOR	Unit	ES2316869-011	ES2316869-012	ES2316869-013	ES2316869-014	ES2316869-015
				Result	Result	Result	Result	Result
EK055G: Ammonia as N by Discrete Ana	lyser							
Ammonia as N	7664-41-7	0.01	mg/L		<0.01			0.01
EK059G: Nitrite plus Nitrate as N (NOx)	by Discrete Ana	lyser						
Nitrite + Nitrate as N		0.01	mg/L	0.03	0.02	<0.01	<0.01	0.02
EK061F: Filtered Total Kjeldahl Nitrogen	as N (TKN)							
Dissolved TKN as N		0.1	mg/L			0.6		
EK061G: Total Kjeldahl Nitrogen By Disc	crete Analyser							
Total Kjeldahl Nitrogen as N		0.1	mg/L	1.1			0.7	
EK062F: Filtered Total Nitrogen as N								
^ Filtered Total Nitrogen as N		0.1	mg/L			0.6		
EK062G: Total Nitrogen as N (TKN + NO	k) by Discrete A	nalyser						
^ Total Nitrogen as N		0.1	mg/L	1.1			0.7	
EK067FG: Filtered Total Phosphorus as	P by Discrete A	nalyser						
Filtered Total Phosphorus as P		0.01	mg/L			0.26		
EK067G: Total Phosphorus as P by Disc	rete Analyser							
Total Phosphorus as P		0.01	mg/L	0.16			0.31	
EK071G: Reactive Phosphorus as P by c	liscrete analyse	•						
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		0.22			0.08



Sub-Matrix: WATER (Matrix: WATER)			Sample ID	233632	233633	233634	233635	233636
		Sampli	ng date / time	12-May-2023 00:00				
Compound	CAS Number	LOR	Unit	ES2316869-016	ES2316869-017	ES2316869-018	ES2316869-019	ES2316869-020
				Result	Result	Result	Result	Result
EK055G: Ammonia as N by Discrete Ana	alyser							
Ammonia as N	7664-41-7	0.01	mg/L			0.03		
EK059G: Nitrite plus Nitrate as N (NOx)	by Discrete Ana	lyser						
Nitrite + Nitrate as N		0.01	mg/L	0.01	0.02	0.02	0.02	0.02
EK061F: Filtered Total Kjeldahl Nitroger	n as N (TKN)							
Dissolved TKN as N		0.1	mg/L	0.7			0.7	
EK061G: Total Kjeldahl Nitrogen By Dis	crete Analyser							
Total Kjeldahl Nitrogen as N		0.1	mg/L		1.3			1.2
EK062F: Filtered Total Nitrogen as N								
^ Filtered Total Nitrogen as N		0.1	mg/L	0.7			0.7	
EK062G: Total Nitrogen as N (TKN + NO	x) by Discrete Ar	nalyser						
^ Total Nitrogen as N		0.1	mg/L		1.3			1.2
EK067FG: Filtered Total Phosphorus as	P by Discrete Ar	nalyser						
Filtered Total Phosphorus as P		0.01	mg/L	0.11			0.08	
EK067G: Total Phosphorus as P by Disc	crete Analyser							
Total Phosphorus as P		0.01	mg/L		0.20			0.15
EK071G: Reactive Phosphorus as P by	discrete analyse							
Reactive Phosphorus as P	14265-44-2	0.01	mg/L			0.05		



Sub-Matrix: WATER (Matrix: WATER)			Sample ID	233637	233638	233639	233640	233641
		Sampli	ng date / time	12-May-2023 00:00				
Compound	CAS Number	LOR	Unit	ES2316869-021	ES2316869-022	ES2316869-023	ES2316869-024	ES2316869-025
				Result	Result	Result	Result	Result
EK055G: Ammonia as N by Discrete An	alyser							
Ammonia as N	7664-41-7	0.01	mg/L	0.06			0.10	
EK059G: Nitrite plus Nitrate as N (NOx)	by Discrete Ana	lyser						
Nitrite + Nitrate as N		0.01	mg/L	0.04	0.04	0.04	0.05	0.05
EK061F: Filtered Total Kjeldahl Nitroger	n as N (TKN)							
Dissolved TKN as N		0.1	mg/L		0.7			0.9
EK061G: Total Kjeldahl Nitrogen By Dis	crete Analyser							
Total Kjeldahl Nitrogen as N		0.1	mg/L			1.1		
EK062F: Filtered Total Nitrogen as N								
^ Filtered Total Nitrogen as N		0.1	mg/L		0.7			1.0
EK062G: Total Nitrogen as N (TKN + NO	() () by Discrete Ar	nalyser						
^ Total Nitrogen as N		0.1	mg/L			1.1		
EK067FG: Filtered Total Phosphorus as	P by Discrete Ar	nalyser						
Filtered Total Phosphorus as P		0.01	mg/L		0.06			0.08
EK067G: Total Phosphorus as P by Disc	crete Analyser							
Total Phosphorus as P		0.01	mg/L			0.15		
EK071G: Reactive Phosphorus as P by	discrete analyse							
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.04			0.04	



Sub-Matrix: WATER (Matrix: WATER)			Sample ID	233642	233643	233644	233645	233651
		Sampli	ng date / time	12-May-2023 00:00				
Compound	CAS Number	LOR	Unit	ES2316869-026	ES2316869-027	ES2316869-028	ES2316869-029	ES2316869-030
				Result	Result	Result	Result	Result
EK055G: Ammonia as N by Discrete Ana	lyser							
Ammonia as N	7664-41-7	0.01	mg/L		0.03			<0.01
EK059G: Nitrite plus Nitrate as N (NOx)	by Discrete Ana	lyser						
Nitrite + Nitrate as N		0.01	mg/L	0.05	0.03	0.03	0.04	<0.01
EK061F: Filtered Total Kjeldahl Nitrogen	as N (TKN)							
Dissolved TKN as N		0.1	mg/L			0.7		
EK061G: Total Kjeldahl Nitrogen By Disc	rete Analyser							
Total Kjeldahl Nitrogen as N		0.1	mg/L	1.2			0.9	
EK062F: Filtered Total Nitrogen as N								
^ Filtered Total Nitrogen as N		0.1	mg/L			0.7		
EK062G: Total Nitrogen as N (TKN + NOx	() by Discrete Ar	nalyser						
^ Total Nitrogen as N		0.1	mg/L	1.2			0.9	
EK067FG: Filtered Total Phosphorus as I	P by Discrete Ar	nalyser						
Filtered Total Phosphorus as P		0.01	mg/L			0.14		
EK067G: Total Phosphorus as P by Disc	rete Analyser							
Total Phosphorus as P		0.01	mg/L	0.17			0.23	
EK071G: Reactive Phosphorus as P by d	liscrete analyser	r						
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		0.13			<0.01



Sub-Matrix: WATER (Matrix: WATER)			Sample ID	233652	233653	233659	233660	233661
		Sampli	ng date / time	12-May-2023 00:00				
Compound	CAS Number	LOR	Unit	ES2316869-031	ES2316869-032	ES2316869-033	ES2316869-034	ES2316869-035
				Result	Result	Result	Result	Result
EK055G: Ammonia as N by Discrete Ana	lyser							
Ammonia as N	7664-41-7	0.01	mg/L			0.04		
EK059G: Nitrite plus Nitrate as N (NOx)	by Discrete Ana	lyser						
Nitrite + Nitrate as N		0.01	mg/L	0.02	0.01	0.02	<0.01	0.01
EK061F: Filtered Total Kjeldahl Nitrogen	as N (TKN)							
Dissolved TKN as N		0.1	mg/L	0.6			0.8	
EK061G: Total Kjeldahl Nitrogen By Disc	rete Analyser							
Total Kjeldahl Nitrogen as N		0.1	mg/L		1.2			0.8
EK062F: Filtered Total Nitrogen as N								
^ Filtered Total Nitrogen as N		0.1	mg/L	0.6			0.8	
EK062G: Total Nitrogen as N (TKN + NO)	() by Discrete Ar	nalyser						
^ Total Nitrogen as N		0.1	mg/L		1.2			0.8
EK067FG: Filtered Total Phosphorus as	P by Discrete Ar	nalyser						
Filtered Total Phosphorus as P		0.01	mg/L	0.05			0.11	
EK067G: Total Phosphorus as P by Disc	rete Analyser							
Total Phosphorus as P		0.01	mg/L		0.09			0.10
EK071G: Reactive Phosphorus as P by d	liscrete analyser							
Reactive Phosphorus as P	14265-44-2	0.01	mg/L			0.08		



Sub-Matrix: WATER (Matrix: WATER)			Sample ID	233667	233668	233669	233675	233676
		Sampli	ng date / time	12-May-2023 00:00				
Compound	CAS Number	LOR	Unit	ES2316869-036	ES2316869-037	ES2316869-038	ES2316869-039	ES2316869-040
				Result	Result	Result	Result	Result
EK055G: Ammonia as N by Discrete Ana	llyser							
Ammonia as N	7664-41-7	0.01	mg/L	0.03			<0.01	
EK059G: Nitrite plus Nitrate as N (NOx)	by Discrete Ana	lyser						
Nitrite + Nitrate as N		0.01	mg/L	<0.01	<0.01	<0.01	0.01	0.01
EK061F: Filtered Total Kjeldahl Nitrogen	as N (TKN)							
Dissolved TKN as N		0.1	mg/L		0.5			0.7
EK061G: Total Kjeldahl Nitrogen By Disc	crete Analyser							
Total Kjeldahl Nitrogen as N		0.1	mg/L			0.8		
EK062F: Filtered Total Nitrogen as N								
^ Filtered Total Nitrogen as N		0.1	mg/L		0.5			0.7
EK062G: Total Nitrogen as N (TKN + NO	x) by Discrete Ar	nalyser						
^ Total Nitrogen as N		0.1	mg/L			0.8		
EK067FG: Filtered Total Phosphorus as	P by Discrete Ar	nalyser						
Filtered Total Phosphorus as P		0.01	mg/L		0.29			0.09
EK067G: Total Phosphorus as P by Disc	rete Analyser							
Total Phosphorus as P		0.01	mg/L			0.30		
EK071G: Reactive Phosphorus as P by c	discrete analyse	r						
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.22			0.07	



Sub-Matrix: WATER (Matrix: WATER)			Sample ID	233677	233683	233684	233685	233691
		Sampli	ng date / time	12-May-2023 00:00				
Compound	CAS Number	LOR	Unit	ES2316869-041	ES2316869-042	ES2316869-043	ES2316869-044	ES2316869-045
				Result	Result	Result	Result	Result
EK055G: Ammonia as N by Discrete Ana	lyser							
Ammonia as N	7664-41-7	0.01	mg/L		0.02			0.04
EK059G: Nitrite plus Nitrate as N (NOx)	by Discrete Ana	lyser						
Nitrite + Nitrate as N		0.01	mg/L	0.01	0.02	0.02	0.02	0.04
EK061F: Filtered Total Kjeldahl Nitrogen	as N (TKN)							
Dissolved TKN as N		0.1	mg/L			0.7		
EK061G: Total Kjeldahl Nitrogen By Disc	crete Analyser							
Total Kjeldahl Nitrogen as N		0.1	mg/L	1.1			1.0	
EK062F: Filtered Total Nitrogen as N								
^ Filtered Total Nitrogen as N		0.1	mg/L			0.7		
EK062G: Total Nitrogen as N (TKN + NO)	k) by Discrete Ar	nalyser						
^ Total Nitrogen as N		0.1	mg/L	1.1			1.0	
EK067FG: Filtered Total Phosphorus as	P by Discrete Ar	nalyser						
Filtered Total Phosphorus as P		0.01	mg/L			0.09		
EK067G: Total Phosphorus as P by Disc	rete Analyser							
Total Phosphorus as P		0.01	mg/L	0.18			0.15	
EK071G: Reactive Phosphorus as P by c	liscrete analyse	•						
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		0.06			0.04



Sub-Matrix: WATER (Matrix: WATER)			Sample ID	233692	233693	233699	233700	233701
		Sampli	ng date / time	12-May-2023 00:00				
Compound	CAS Number	LOR	Unit	ES2316869-046	ES2316869-047	ES2316869-048	ES2316869-049	ES2316869-050
				Result	Result	Result	Result	Result
EK055G: Ammonia as N by Discrete Ana	alyser							
Ammonia as N	7664-41-7	0.01	mg/L			0.07		
EK059G: Nitrite plus Nitrate as N (NOx)	by Discrete Ana	lyser						
Nitrite + Nitrate as N		0.01	mg/L	0.04	0.04	0.05	0.05	0.04
EK061F: Filtered Total Kjeldahl Nitroger	as N (TKN)							
Dissolved TKN as N		0.1	mg/L	0.7			0.9	
EK061G: Total Kjeldahl Nitrogen By Dis	crete Analyser							
Total Kjeldahl Nitrogen as N		0.1	mg/L		1.1			1.2
EK062F: Filtered Total Nitrogen as N								
^ Filtered Total Nitrogen as N		0.1	mg/L	0.7			1.0	
EK062G: Total Nitrogen as N (TKN + NO	x) by Discrete Ar	nalyser						
^ Total Nitrogen as N		0.1	mg/L		1.1			1.2
EK067FG: Filtered Total Phosphorus as	P by Discrete Ar	nalyser						
Filtered Total Phosphorus as P		0.01	mg/L	0.06			0.06	
EK067G: Total Phosphorus as P by Disc	rete Analyser							
Total Phosphorus as P		0.01	mg/L		0.17			0.20
EK071G: Reactive Phosphorus as P by o	discrete analyse	r						
Reactive Phosphorus as P	14265-44-2	0.01	mg/L			0.04		



Sub-Matrix: WATER (Matrix: WATER)			Sample ID	233707	233708	233709	
		Sampli	ng date / time	12-May-2023 00:00	12-May-2023 00:00	12-May-2023 00:00	
Compound	CAS Number	LOR	Unit	ES2316869-051	ES2316869-052	ES2316869-053	
				Result	Result	Result	
EK055G: Ammonia as N by Discrete Ar	alyser						
Ammonia as N	7664-41-7	0.01	mg/L	0.02			
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ana	llyser					
Nitrite + Nitrate as N		0.01	mg/L	0.03	0.03	0.04	
EK061F: Filtered Total Kjeldahl Nitroge	n as N (TKN)						
Dissolved TKN as N		0.1	mg/L		0.6		
EK061G: Total Kjeldahl Nitrogen By Dis	screte Analyser						
Total Kjeldahl Nitrogen as N		0.1	mg/L			1.1	
EK062F: Filtered Total Nitrogen as N							
^ Filtered Total Nitrogen as N		0.1	mg/L		0.6		
EK062G: Total Nitrogen as N (TKN + N	Dx) by Discrete Ar	nalyser					
^ Total Nitrogen as N		0.1	mg/L			1.1	
EK067FG: Filtered Total Phosphorus as	s P by Discrete Ar	nalyser					
Filtered Total Phosphorus as P		0.01	mg/L		0.16		
EK067G: Total Phosphorus as P by Dis	crete Analyser						
Total Phosphorus as P		0.01	mg/L			0.26	
EK071G: Reactive Phosphorus as P by	discrete analyse	r					
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.14			

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Client	: DEPARTMENT OF PLANNING AND ENVIRONMENT (NSW-DPE)
Project	20230170



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	