



CERTIFICATE OF ANALYSIS

Work Order	: ES2427142	Page	: 1 of 6
Client	: Department of Climate Change, Energy, the Environment and Water	Laboratory	: Environmental Division Sydney
Contact	: [REDACTED]	Contact	: [REDACTED]
Address	: [REDACTED]	Address	: [REDACTED]
Telephone	: [REDACTED]	Telephone	: [REDACTED]
Project	: Darling Baaka River Health Program	Date Samples Received	: 19-Aug-2024 11:30
Order number	: [REDACTED]	Date Analysis Commenced	: 20-Aug-2024
C-Q-C number	: [REDACTED]	Issue Date	: 26-Aug-2024 20:11
Sampler	: [REDACTED]		
Site	: [REDACTED]		
Quote number	: ES24DEPENWAT0001		
No. of samples received	: 17		
No. of samples analysed	: 17		



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

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

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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.

- EK271A-CM: Samples for Ultra-Trace Reactive Phosphorus by FIA should be frozen upon sampling. If not, low-level results (below 0.01 mg/L) may bias low.
- EK255A-CM: Spike failed for Ammonia, insufficient sample volume for further repeat analysis.
- EK262G: It has been noted that Dissolved TN is greater than TN for sample nos.8 and 16, however this difference is within the limits of experimental variation.



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	S1	S2	S9	S10	S11
Sampling date / time				01-Aug-2024 00:00	01-Aug-2024 00:00	30-Jul-2024 00:00	23-Jul-2024 00:00	30-Jul-2024 00:00	
Compound	CAS Number	LOR	Unit	ES2427142-001	ES2427142-002	ES2427142-003	ES2427142-004	ES2427142-005	
				Result	Result	Result	Result	Result	
ED040F: Dissolved Major Anions									
Sulfate as SO4 2-	14808-79-8	1	mg/L	----	----	----	17	14	
Sulfur as S	63705-05-5	1	mg/L	----	----	----	6	5	
Silicon as SiO2	14464-46-1	0.1	mg/L	----	----	----	15.9	17.6	
Silicon	7440-21-3	0.05	mg/L	----	----	----	7.41	8.23	
EK255A: Ammonia									
Ammonia as N	7664-41-7	0.005	mg/L	<0.005	----	0.006	0.040	0.009	
EK257A: Nitrite									
Nitrite as N	14797-65-0	0.002	mg/L	<0.002	0.002	0.003	0.003	0.002	
EK258A: Nitrate									
Nitrate as N	14797-55-8	0.002	mg/L	0.512	0.643	0.629	0.505	0.605	
EK259A: Nitrite and Nitrate (NOx)									
Nitrite + Nitrate as N	----	0.002	mg/L	0.512	0.645	0.632	0.508	0.607	
EK261A: Total Kjeldahl Nitrogen									
Total Kjeldahl Nitrogen as N	----	0.01	mg/L	0.39	0.54	0.61	----	0.64	
EK262A: Total Nitrogen									
Dissolved Total Nitrogen as N	----	0.01	mg/L	0.88	1.08	1.23	1.08	1.15	
Total Nitrogen as N	----	0.01	mg/L	0.90	1.18	1.24	----	1.25	
EK267A: Total Phosphorus (Persulfate Digestion)									
Dissolved Total Phosphorus as P	----	0.005	mg/L	0.158	0.157	0.185	0.153	0.176	
Total Phosphorus as P	----	0.005	mg/L	0.316	0.358	0.380	----	0.322	
EK271A: Reactive Phosphorus									
Reactive Phosphorus as P	14265-44-2	0.001	mg/L	0.140	0.154	0.174	0.144	0.165	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	S12	S13	S14	S16	S18
Sampling date / time					30-Jul-2024 00:00	26-Jul-2024 00:00	26-Jul-2024 00:00	23-Jul-2024 00:00	23-Jul-2024 00:00
Compound	CAS Number	LOR	Unit	ES2427142-006	ES2427142-007	ES2427142-008	ES2427142-009	ES2427142-010	
				Result	Result	Result	Result	Result	
ED040F: Dissolved Major Anions									
Sulfate as SO4 2-	14808-79-8	1	mg/L	12	----	17	15	----	
Sulfur as S	63705-05-5	1	mg/L	4	----	6	5	----	
Silicon as SiO2	14464-46-1	0.1	mg/L	18.0	----	11.8	12.6	----	
Silicon	7440-21-3	0.05	mg/L	8.39	----	5.49	5.88	----	
EK255A: Ammonia									
Ammonia as N	7664-41-7	0.005	mg/L	0.010	0.011	0.344	0.514	0.008	
EK257A: Nitrite									
Nitrite as N	14797-65-0	0.002	mg/L	0.002	<0.002	0.045	0.012	0.003	
EK258A: Nitrate									
Nitrate as N	14797-55-8	0.002	mg/L	0.718	0.720	0.451	0.471	0.722	
EK259A: Nitrite and Nitrate (NOx)									
Nitrite + Nitrate as N	----	0.002	mg/L	0.720	0.720	0.496	0.483	0.725	
EK261A: Total Kjeldahl Nitrogen									
Total Kjeldahl Nitrogen as N	----	0.01	mg/L	0.66	0.64	1.19	1.46	0.70	
EK262A: Total Nitrogen									
Dissolved Total Nitrogen as N	----	0.01	mg/L	1.29	1.23	1.77	1.80	1.22	
Total Nitrogen as N	----	0.01	mg/L	1.38	1.36	1.69	1.94	1.42	
EK267A: Total Phosphorus (Persulfate Digestion)									
Dissolved Total Phosphorus as P	----	0.005	mg/L	0.163	0.233	0.145	0.167	0.162	
Total Phosphorus as P	----	0.005	mg/L	0.400	0.391	0.247	0.306	0.410	
EK271A: Reactive Phosphorus									
Reactive Phosphorus as P	14265-44-2	0.001	mg/L	0.154	0.176	0.126	0.146	0.152	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	S21	S23	S24	S25	B1
Sampling date / time				24-Jul-2024 00:00	24-Jul-2024 00:00	31-Jul-2024 00:00	24-Jul-2024 00:00	23-Jul-2024 00:00	
Compound	CAS Number	LOR	Unit	ES2427142-011	ES2427142-012	ES2427142-013	ES2427142-014	ES2427142-015	
				Result	Result	Result	Result	Result	
ED040F: Dissolved Major Anions									
Sulfate as SO4 2-	14808-79-8	1	mg/L	13	12	15	15	14	
Sulfur as S	63705-05-5	1	mg/L	4	4	5	5	4	
Silicon as SiO2	14464-46-1	0.1	mg/L	17.2	17.4	<0.1	0.2	16.1	
Silicon	7440-21-3	0.05	mg/L	8.03	8.11	<0.05	0.10	7.53	
EK255A: Ammonia									
Ammonia as N	7664-41-7	0.005	mg/L	0.006	0.050	<0.005	0.007	<0.005	
EK257A: Nitrite									
Nitrite as N	14797-65-0	0.002	mg/L	<0.002	0.004	<0.002	<0.002	0.003	
EK258A: Nitrate									
Nitrate as N	14797-55-8	0.002	mg/L	0.963	0.984	<0.002	<0.002	0.376	
EK259A: Nitrite and Nitrate (NOx)									
Nitrite + Nitrate as N	----	0.002	mg/L	0.963	0.988	<0.002	<0.002	0.379	
EK261A: Total Kjeldahl Nitrogen									
Total Kjeldahl Nitrogen as N	----	0.01	mg/L	0.86	0.75	1.37	1.28	2.77	
EK262A: Total Nitrogen									
Dissolved Total Nitrogen as N	----	0.01	mg/L	1.51	1.58	0.84	0.84	0.91	
Total Nitrogen as N	----	0.01	mg/L	1.82	1.74	1.37	1.28	3.15	
EK267A: Total Phosphorus (Persulfate Digestion)									
Dissolved Total Phosphorus as P	----	0.005	mg/L	0.169	0.159	0.024	0.028	0.140	
Total Phosphorus as P	----	0.005	mg/L	0.518	0.366	0.152	0.127	0.456	
EK271A: Reactive Phosphorus									
Reactive Phosphorus as P	14265-44-2	0.001	mg/L	0.162	0.155	0.002	0.003	0.127	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	B2	B3	---	---	---
Sampling date / time					23-Jul-2024 00:00	26-Jul-2024 00:00	---	---	---
Compound	CAS Number	LOR	Unit	ES2427142-016	ES2427142-017	-----	-----	-----	
				Result	Result	---	---	---	
ED040F: Dissolved Major Anions									
Sulfate as SO4 2-	14808-79-8	1	mg/L	14	18	---	---	---	
Sulfur as S	63705-05-5	1	mg/L	4	6	---	---	---	
Silicon as SiO2	14464-46-1	0.1	mg/L	16.4	11.4	---	---	---	
Silicon	7440-21-3	0.05	mg/L	7.64	5.31	---	---	---	
EK255A: Ammonia									
Ammonia as N	7664-41-7	0.005	mg/L	0.024	0.340	---	---	---	
EK257A: Nitrite									
Nitrite as N	14797-65-0	0.002	mg/L	<0.002	0.048	---	---	---	
EK258A: Nitrate									
Nitrate as N	14797-55-8	0.002	mg/L	0.439	0.443	---	---	---	
EK259A: Nitrite and Nitrate (NOx)									
Nitrite + Nitrate as N	----	0.002	mg/L	0.439	0.491	---	---	---	
EK261A: Total Kjeldahl Nitrogen									
Total Kjeldahl Nitrogen as N	----	0.01	mg/L	0.41	1.31	---	---	---	
EK262A: Total Nitrogen									
Dissolved Total Nitrogen as N	----	0.01	mg/L	0.96	1.77	---	---	---	
Total Nitrogen as N	----	0.01	mg/L	0.85	1.80	---	---	---	
EK267A: Total Phosphorus (Persulfate Digestion)									
Dissolved Total Phosphorus as P	----	0.005	mg/L	0.153	0.139	---	---	---	
Total Phosphorus as P	----	0.005	mg/L	0.266	0.233	---	---	---	
EK271A: Reactive Phosphorus									
Reactive Phosphorus as P	14265-44-2	0.001	mg/L	0.139	0.119	---	---	---	