



CERTIFICATE OF ANALYSIS

Work Order	: ES2404422	Page	: 1 of 8
Client	: DEPARTMENT OF PLANNING AND ENVIRONMENT (NSW-DPE)	Laboratory	: Environmental Division Sydney
Contact	[REDACTED]	Contact	: Customer Services ES
Address	[REDACTED]	Address	[REDACTED]
Telephone	: ----	Telephone	[REDACTED]
Project	: DARLING BARKARIVER HEALTH PROJECT	Date Samples Received	: 12-Feb-2024 17:30
Order number	: ----	Date Analysis Commenced	: 13-Feb-2024
C-O-C number	: ----	Issue Date	: 19-Feb-2024 12:09
Sampler	: ----		
Site	: ----		
Quote number	: ES23DEPENVPLA0006		
No. of samples received	: 29		
No. of samples analysed	: 29		



Accreditation No. 925
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
∅ = 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.
- EK262PA-CM/EK262PA-F-CM: It is recognised that Total Nitrogen is less than Dissolved Total Nitrogen for sample 1. However, the difference is confirmed from their respective bottles.
- EK257A-CM/EK259A-CM: It has been noted that Nitrite is greater than NOx on various samples, however this difference is confirmed by re-analysis.

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Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	E15_19122023	B4_20122023	E6_20122023	E6.5_19122023	E7_19122023
Sampling date / time				19-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00	19-Dec-2023 00:00	19-Dec-2023 00:00	
Compound	CAS Number	LOR	Unit	ES2404422-001	ES2404422-002	ES2404422-003	ES2404422-004	ES2404422-005	
				Result	Result	Result	Result	Result	
EK255A: Ammonia									
Ammonia as N	7664-41-7	0.005	mg/L	0.015	<0.005	<0.005	<0.005	<0.005	
EK257A: Nitrite									
Nitrite as N	14797-65-0	0.002	mg/L	0.028	0.002	0.003	0.007	0.015	
EK258A: Nitrate									
Nitrate as N	14797-55-8	0.002	mg/L	<0.002	0.003	<0.002	<0.002	<0.002	
EK259A: Nitrite and Nitrate (NOx)									
Nitrite + Nitrate as N	----	0.002	mg/L	0.028	0.005	0.003	0.008	0.016	
EK261A: Total Kjeldahl Nitrogen									
Total Kjeldahl Nitrogen as N	----	0.01	mg/L	0.78	1.02	0.74	0.79	1.16	
EK262A: Total Nitrogen									
Dissolved Total Nitrogen as N	----	0.01	mg/L	0.93	0.80	0.67	0.45	0.85	
Total Nitrogen as N	----	0.01	mg/L	0.81	1.03	0.74	0.80	1.18	
EK267A: Total Phosphorus (Persulfate Digestion)									
Dissolved Total Phosphorus as P	----	0.005	mg/L	0.221	0.072	0.065	0.037	0.037	
Total Phosphorus as P	----	0.005	mg/L	0.254	0.158	0.170	0.059	0.074	
EK271A: Reactive Phosphorus									
Reactive Phosphorus as P	14265-44-2	0.001	mg/L	0.136	0.022	0.022	0.016	0.014	

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Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	E11_19122023	E13_19122023	E14_19122023	E12_21122023	B2_20122023
Sampling date / time				19-Dec-2023 00:00	19-Dec-2023 00:00	19-Dec-2023 00:00	21-Dec-2023 00:00	20-Dec-2023 00:00	
Compound	CAS Number	LOR	Unit	ES2404422-006	ES2404422-007	ES2404422-008	ES2404422-009	ES2404422-010	
				Result	Result	Result	Result	Result	
EK255A: Ammonia									
Ammonia as N	7664-41-7	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	0.013	
EK257A: Nitrite									
Nitrite as N	14797-65-0	0.002	mg/L	0.007	<0.002	0.002	0.002	0.006	
EK258A: Nitrate									
Nitrate as N	14797-55-8	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	0.002	
EK259A: Nitrite and Nitrate (NOx)									
Nitrite + Nitrate as N	----	0.002	mg/L	0.006	<0.002	<0.002	<0.002	0.008	
EK261A: Total Kjeldahl Nitrogen									
Total Kjeldahl Nitrogen as N	----	0.01	mg/L	0.92	1.27	1.22	1.32	1.18	
EK262A: Total Nitrogen									
Dissolved Total Nitrogen as N	----	0.01	mg/L	0.90	0.83	0.85	0.87	0.72	
Total Nitrogen as N	----	0.01	mg/L	0.93	1.27	1.22	1.32	1.19	
EK267A: Total Phosphorus (Persulfate Digestion)									
Dissolved Total Phosphorus as P	----	0.005	mg/L	0.123	0.171	0.202	0.113	0.070	
Total Phosphorus as P	----	0.005	mg/L	0.128	0.361	0.343	0.271	0.224	
EK271A: Reactive Phosphorus									
Reactive Phosphorus as P	14265-44-2	0.001	mg/L	0.064	0.130	0.158	0.058	0.025	

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Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	B1_20122023	B3_20122023	E8_20122023	E9_20122023	E10_20122023
Sampling date / time				20-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00	20-Dec-2023 00:00	
Compound	CAS Number	LOR	Unit	ES2404422-011	ES2404422-012	ES2404422-013	ES2404422-014	ES2404422-015	
				Result	Result	Result	Result	Result	
EK255A: Ammonia									
Ammonia as N	7664-41-7	0.005	mg/L	<0.005	0.029	<0.005	0.006	0.010	
EK257A: Nitrite									
Nitrite as N	14797-65-0	0.002	mg/L	0.002	0.004	0.004	0.004	0.010	
EK258A: Nitrate									
Nitrate as N	14797-55-8	0.002	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	
EK259A: Nitrite and Nitrate (NOx)									
Nitrite + Nitrate as N	----	0.002	mg/L	<0.002	0.004	0.002	0.005	0.010	
EK261A: Total Kjeldahl Nitrogen									
Total Kjeldahl Nitrogen as N	----	0.01	mg/L	1.29	1.20	1.12	1.24	1.04	
EK262A: Total Nitrogen									
Dissolved Total Nitrogen as N	----	0.01	mg/L	0.94	0.96	0.87	0.66	0.87	
Total Nitrogen as N	----	0.01	mg/L	1.29	1.20	1.12	1.25	1.05	
EK267A: Total Phosphorus (Persulfate Digestion)									
Dissolved Total Phosphorus as P	----	0.005	mg/L	0.053	0.204	0.155	0.172	0.135	
Total Phosphorus as P	----	0.005	mg/L	0.193	0.408	0.275	0.360	0.272	
EK271A: Reactive Phosphorus									
Reactive Phosphorus as P	14265-44-2	0.001	mg/L	0.020	0.129	0.117	0.126	0.116	