



CERTIFICATE OF ANALYSIS

Work Order	: ES2320684	Page	: 1 of 10
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	: [REDACTED]
Project	: 20230191	Date Samples Received	: 21-Jun-2023 16:00
Order number	: 4500806025	Date Analysis Commenced	: 23-Jun-2023
C-O-C number	: ----	Issue Date	: 28-Jun-2023 16:49
Sampler	: ----		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 39		
No. of samples analysed	: 39		



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



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.



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	E1 Filtered 1 235341	E1 Filtered 2 235342	E1 Unfiltered 235343	E2 Filtered 1 235344	E2 Filtered 2 235345
Sampling date / time				30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00
Compound	CAS Number	LOR	Unit	ES2320684-001	ES2320684-002	ES2320684-003	ES2320684-004	ES2320684-005	
				Result	Result	Result	Result	Result	
EK255A: Ammonia									
Ammonia as N	7664-41-7	0.005	mg/L	0.018	----	----	0.066	----	
EK259A: Nitrite and Nitrate (NOx)									
Nitrite + Nitrate as N	----	0.002	mg/L	0.013	0.008	0.010	0.023	0.016	
EK261A: Total Kjeldahl Nitrogen									
Total Kjeldahl Nitrogen as N	----	0.01	mg/L	----	0.77	1.06	----	0.78	
EK262A: Total Nitrogen									
Total Nitrogen as N	----	0.01	mg/L	----	0.78	1.07	----	0.80	
EK267A: Total Phosphorus (Persulfate Digestion)									
Total Phosphorus as P	----	0.005	mg/L	----	0.122	0.135	----	0.181	
EK271A: Reactive Phosphorus									
Reactive Phosphate	14625-44-2	0.001	mg/L	0.191	----	----	0.198	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	E2 Unfiltered 235346	E3 Filtered 1 235347	E3 Filtered 2 235348	E3 Unfiltered 235349	E4 Filtered 1 235350
Sampling date / time				30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00
Compound	CAS Number	LOR	Unit	ES2320684-006	ES2320684-007	ES2320684-008	ES2320684-009	ES2320684-010	
				Result	Result	Result	Result	Result	
EK255A: Ammonia									
Ammonia as N	7664-41-7	0.005	mg/L	----	0.058	----	----	0.054	
EK259A: Nitrite and Nitrate (NOx)									
Nitrite + Nitrate as N	----	0.002	mg/L	0.020	0.040	0.034	0.037	0.042	
EK261A: Total Kjeldahl Nitrogen									
Total Kjeldahl Nitrogen as N	----	0.01	mg/L	1.10	----	0.77	1.07	----	
EK262A: Total Nitrogen									
Total Nitrogen as N	----	0.01	mg/L	1.12	----	0.80	1.11	----	
EK267A: Total Phosphorus (Persulfate Digestion)									
Total Phosphorus as P	----	0.005	mg/L	0.170	----	0.116	0.210	----	
EK271A: Reactive Phosphorus									
Reactive Phosphate	14625-44-2	0.001	mg/L	----	0.177	----	----	0.170	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	E4 Filtered 2 235351	E4 Unfiltered 235352	E5 Filtered 1 235353	E5 Filtered 2 235354	E5 Unfiltered 235355
Sampling date / time				30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00
Compound	CAS Number	LOR	Unit	ES2320684-011	ES2320684-012	ES2320684-013	ES2320684-014	ES2320684-015	
				Result	Result	Result	Result	Result	
EK255A: Ammonia									
Ammonia as N	7664-41-7	0.005	mg/L	----	----	0.159	----	----	
EK259A: Nitrite and Nitrate (NOx)									
Nitrite + Nitrate as N	----	0.002	mg/L	0.038	0.041	0.038	0.031	0.032	
EK261A: Total Kjeldahl Nitrogen									
Total Kjeldahl Nitrogen as N	----	0.01	mg/L	0.78	1.22	----	0.71	1.00	
EK262A: Total Nitrogen									
Total Nitrogen as N	----	0.01	mg/L	0.82	1.26	----	0.74	1.03	
EK267A: Total Phosphorus (Persulfate Digestion)									
Total Phosphorus as P	----	0.005	mg/L	0.100	0.216	----	0.169	0.266	
EK271A: Reactive Phosphorus									
Reactive Phosphate	14625-44-2	0.001	mg/L	----	----	0.251	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	B1 Filtered 1 235356	B1 Filtered 2 235357	B1 Unfiltered 235358	B2 Filtered 1 235359	B2 Filtered 2 235360
Sampling date / time				30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00
Compound	CAS Number	LOR	Unit	ES2320684-016	ES2320684-017	ES2320684-018	ES2320684-019	ES2320684-020	
				Result	Result	Result	Result	Result	
EK255A: Ammonia									
Ammonia as N	7664-41-7	0.005	mg/L	<0.005	----	----	0.059	----	
EK259A: Nitrite and Nitrate (NOx)									
Nitrite + Nitrate as N	----	0.002	mg/L	0.004	0.002	0.003	0.006	0.006	
EK261A: Total Kjeldahl Nitrogen									
Total Kjeldahl Nitrogen as N	----	0.01	mg/L	----	0.70	1.20	----	0.78	
EK262A: Total Nitrogen									
Total Nitrogen as N	----	0.01	mg/L	----	0.70	1.20	----	0.79	
EK267A: Total Phosphorus (Persulfate Digestion)									
Total Phosphorus as P	----	0.005	mg/L	----	0.023	0.091	----	0.099	
EK271A: Reactive Phosphorus									
Reactive Phosphate	14625-44-2	0.001	mg/L	0.009	----	----	0.182	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	B2 Unfiltered 235362	B3 Filtered 1 235363	B3 Filtered 2 235364	B3 Unfiltered 235365	BW-E1 Filtered 1 235366
Sampling date / time				30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00
Compound	CAS Number	LOR	Unit	ES2320684-021	ES2320684-022	ES2320684-023	ES2320684-024	ES2320684-025	ES2320684-025
				Result	Result	Result	Result	Result	Result
EK255A: Ammonia									
Ammonia as N	7664-41-7	0.005	mg/L	----	0.009	----	----	0.038	0.038
EK259A: Nitrite and Nitrate (NOx)									
Nitrite + Nitrate as N	----	0.002	mg/L	0.008	0.004	0.002	0.004	0.015	0.015
EK261A: Total Kjeldahl Nitrogen									
Total Kjeldahl Nitrogen as N	----	0.01	mg/L	1.13	----	0.58	0.90	----	----
EK262A: Total Nitrogen									
Total Nitrogen as N	----	0.01	mg/L	1.14	----	0.58	0.90	----	----
EK267A: Total Phosphorus (Persulfate Digestion)									
Total Phosphorus as P	----	0.005	mg/L	0.185	----	0.278	0.324	----	----
EK271A: Reactive Phosphorus									
Reactive Phosphate	14625-44-2	0.001	mg/L	----	0.718	----	----	0.218	0.218



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BW-E1 Filtered 2 235367	BW-E1 Unfiltered 235368	BW-E2 Filtered 1 235369	BW-E2 Filtered 2 235370	BW-E2 Unfiltered 235371
Sampling date / time				30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00
Compound	CAS Number	LOR	Unit	ES2320684-026	ES2320684-027	ES2320684-028	ES2320684-029	ES2320684-030	
				Result	Result	Result	Result	Result	
EK255A: Ammonia									
Ammonia as N	7664-41-7	0.005	mg/L	----	----	0.089	----	----	
EK259A: Nitrite and Nitrate (NOx)									
Nitrite + Nitrate as N	----	0.002	mg/L	0.011	0.011	0.023	0.020	0.022	
EK261A: Total Kjeldahl Nitrogen									
Total Kjeldahl Nitrogen as N	----	0.01	mg/L	0.74	1.10	----	0.78	1.18	
EK262A: Total Nitrogen									
Total Nitrogen as N	----	0.01	mg/L	0.75	1.11	----	0.80	1.20	
EK267A: Total Phosphorus (Persulfate Digestion)									
Total Phosphorus as P	----	0.005	mg/L	0.100	0.197	----	0.111	0.224	
EK271A: Reactive Phosphorus									
Reactive Phosphate	14625-44-2	0.001	mg/L	----	----	0.206	----	----	



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				BW-E3 Filtered 1 235372	BW-E3 Filtered 2 235373	BW-E3 Unfiltered 235374	BW-E4 Filtered 1 235375	BW-E4 Filtered 2 235376
Sampling date / time				30-May-2023 00:00				
Compound	CAS Number	LOR	Unit	ES2320684-031	ES2320684-032	ES2320684-033	ES2320684-034	ES2320684-035
				Result	Result	Result	Result	Result
EK255A: Ammonia								
Ammonia as N	7664-41-7	0.005	mg/L	0.095	----	----	0.112	----
EK259A: Nitrite and Nitrate (NOx)								
Nitrite + Nitrate as N	----	0.002	mg/L	0.036	0.033	0.035	0.040	0.040
EK261A: Total Kjeldahl Nitrogen								
Total Kjeldahl Nitrogen as N	----	0.01	mg/L	----	0.88	1.20	----	0.88
EK262A: Total Nitrogen								
Total Nitrogen as N	----	0.01	mg/L	----	0.91	1.24	----	0.92
EK267A: Total Phosphorus (Persulfate Digestion)								
Total Phosphorus as P	----	0.005	mg/L	----	0.118	0.201	----	0.142
EK271A: Reactive Phosphorus								
Reactive Phosphate	14625-44-2	0.001	mg/L	0.184	----	----	0.185	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	BW-E4 Unfiltered 235377	BW-E5 Filtered 1 235378	BW-E5 Filtered 2 235379	BW-E5 Unfiltered 235380	----
Sampling date / time			30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	30-May-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2320684-036	ES2320684-037	ES2320684-038	ES2320684-039	-----
				Result	Result	Result	Result	----
EK255A: Ammonia								
Ammonia as N	7664-41-7	0.005	mg/L	----	0.067	----	----	----
EK259A: Nitrite and Nitrate (NOx)								
Nitrite + Nitrate as N	----	0.002	mg/L	0.040	0.035	0.030	0.033	----
EK261A: Total Kjeldahl Nitrogen								
Total Kjeldahl Nitrogen as N	----	0.01	mg/L	1.15	----	0.77	1.30	----
EK262A: Total Nitrogen								
Total Nitrogen as N	----	0.01	mg/L	1.19	----	0.80	1.33	----
EK267A: Total Phosphorus (Persulfate Digestion)								
Total Phosphorus as P	----	0.005	mg/L	0.169	----	0.172	0.356	----
EK271A: Reactive Phosphorus								
Reactive Phosphate	14625-44-2	0.001	mg/L	----	0.385	----	----	----