



CERTIFICATE OF ANALYSIS

Work Order : **ES2320461**
Client : **DEPARTMENT OF PLANNING AND ENVIRONMENT (NSW-DPE)**
Contact : **OEH**
Address : **[REDACTED]**
Telephone : **[REDACTED]**
Project : **20230212**
Order number : **4500806025**
C-O-C number : **[REDACTED]**
Sampler : **[REDACTED]**
Site : **[REDACTED]**
Quote number : **EN/222**
No. of samples received : **39**
No. of samples analysed : **39**

Page : 1 of 10
Laboratory : Environmental Division Sydney
Contact : Customer Services ES
Address : **[REDACTED]**
Telephone : **[REDACTED]**
Date Samples Received : 20-Jun-2023 16:20
Date Analysis Commenced : 21-Jun-2023
Issue Date : 27-Jun-2023 17:26



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.



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	235246	235247	235248	235249	235250
Sampling date / time				13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	
Compound	CAS Number	LOR	Unit	ES2320461-001	ES2320461-002	ES2320461-003	ES2320461-004	ES2320461-005	
				Result	Result	Result	Result	Result	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	----	<0.01	----	----	0.02	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L	0.04	0.02	<0.01	0.01	0.02	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.4	----	0.8	1.3	----	
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L	1.4	----	0.8	1.3	----	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	0.15	----	0.04	0.16	----	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	<0.01	----	----	0.01	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	235251	235252	235253	235254	235255
Sampling date / time				13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	
Compound	CAS Number	LOR	Unit	ES2320461-006	ES2320461-007	ES2320461-008	ES2320461-009	ES2320461-010	
				Result	Result	Result	Result	Result	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	----	----	<0.01	----	----	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L	0.01	0.02	0.02	0.01	0.01	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.9	1.0	----	0.6	1.3	
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L	0.9	1.0	----	0.6	1.3	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	0.07	0.33	----	0.26	0.17	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	----	0.12	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	235256	235257	235258	235259	235260
Sampling date / time				13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	
Compound	CAS Number	LOR	Unit	ES2320461-011	ES2320461-012	ES2320461-013	ES2320461-014	ES2320461-015	
				Result	Result	Result	Result	Result	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	----	----	<0.01	----	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L	0.03	<0.01	0.01	0.03	<0.01	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	0.8	1.3	----	0.8	
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L	----	0.8	1.3	----	0.8	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	----	0.07	0.17	----	0.08	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	----	----	0.02	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	235261	235262	235263	235264	235265
Sampling date / time				13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	
Compound	CAS Number	LOR	Unit	ES2320461-016	ES2320461-017	ES2320461-018	ES2320461-019	ES2320461-020	
				Result	Result	Result	Result	Result	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	----	0.07	----	----	0.09	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L	0.04	0.07	0.04	0.05	0.08	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.4	----	0.9	1.4	----	
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L	1.4	----	0.9	1.4	----	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	0.21	----	0.13	0.21	----	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	0.04	----	----	0.03	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	235266	235267	235268	235269	235270
Sampling date / time				13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	
Compound	CAS Number	LOR	Unit	ES2320461-021	ES2320461-022	ES2320461-023	ES2320461-024	ES2320461-025	
				Result	Result	Result	Result	Result	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	----	----	0.14	----	----	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L	0.04	0.11	0.14	0.09	0.09	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.9	1.4	----	0.9	1.3	
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L	0.9	1.5	----	1.0	1.4	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	0.14	0.23	----	0.13	0.24	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	----	0.02	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	235271	235272	235273	235274	235275
Sampling date / time				13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	
Compound	CAS Number	LOR	Unit	ES2320461-026	ES2320461-027	ES2320461-028	ES2320461-029	ES2320461-030	
				Result	Result	Result	Result	Result	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	0.20	----	----	0.13	----	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L	0.11	0.09	0.10	0.16	0.10	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	0.9	1.3	----	0.9	
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L	----	1.0	1.4	----	1.0	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	----	0.13	0.24	----	0.14	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.04	----	----	0.02	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	235276	235277	235278	235279	235280
Sampling date / time				13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	
Compound	CAS Number	LOR	Unit	ES2320461-031	ES2320461-032	ES2320461-033	ES2320461-034	ES2320461-035	
				Result	Result	Result	Result	Result	
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L	----	0.16	----	----	0.10	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L	0.10	0.15	0.07	0.08	0.12	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.4	----	1.2	1.3	----	
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L	1.5	----	1.3	1.4	----	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	0.24	----	0.11	0.25	----	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	0.04	----	----	0.06	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	235281	235282	235283	235284	----
Sampling date / time			13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	13-Jun-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2320461-036	ES2320461-037	ES2320461-038	ES2320461-039	-----
				Result	Result	Result	Result	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	----	0.11	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	0.08	0.07	0.11	0.09	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.9	1.0	----	0.9	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	1.0	1.1	----	1.0	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.16	0.20	----	0.17	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	----	0.07	----	----