



## CERTIFICATE OF ANALYSIS

Work Order	: ES2321880	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	: 20230217	Date Samples Received	: 30-Jun-2023 14:45
Order number	: 4500806025	Date Analysis Commenced	: 03-Jul-2023
C-O-C number	: ----	Issue Date	: 07-Jul-2023 17:14
Sampler	: ----		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 38		
No. of samples analysed	: 38		



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.
- EK267PA-CM/EK267PA-F-CM: It is recognised that Total Phosphorus is less than Dissolved Total Phosphorus for sample 38. However, the difference is within experimental variation of the methods.



### Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	235841	235842	235843	235844	235845
Sampling date / time				20-Jun-2023 00:00					
Compound	CAS Number	LOR	Unit	ES2321880-001	ES2321880-002	ES2321880-003	ES2321880-004	ES2321880-005	
				Result	Result	Result	Result	Result	
<b>EK255A: Ammonia</b>									
Ammonia as N	7664-41-7	0.005	mg/L	0.005	0.103	0.008	0.006	0.033	
<b>EK259A: Nitrite and Nitrate (NOx)</b>									
Nitrite + Nitrate as N	----	0.002	mg/L	0.014	0.012	0.012	0.008	0.026	
<b>EK271A: Reactive Phosphorus</b>									
Reactive Phosphorus as P	14265-44-2	0.001	mg/L	0.005	0.014	0.258	0.021	0.061	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	235846	235847	235848	235849	235850
Sampling date / time				20-Jun-2023 00:00					
Compound	CAS Number	LOR	Unit	ES2321880-006	ES2321880-007	ES2321880-008	ES2321880-009	ES2321880-010	
				Result	Result	Result	Result	Result	
<b>EK255A: Ammonia</b>									
Ammonia as N	7664-41-7	0.005	mg/L	0.056	0.131	0.041	----	----	
<b>EK259A: Nitrite and Nitrate (NOx)</b>									
Nitrite + Nitrate as N	----	0.002	mg/L	0.055	0.102	0.084	----	----	
<b>EK262A: Total Nitrogen</b>									
Dissolved Total Nitrogen as N	----	0.01	mg/L	----	----	----	0.68	0.88	
<b>EK267A: Total Phosphorus (Persulfate Digestion)</b>									
Dissolved Total Phosphorus as P	----	0.005	mg/L	----	----	----	0.013	0.031	
<b>EK271A: Reactive Phosphorus</b>									
Reactive Phosphorus as P	14265-44-2	0.001	mg/L	0.056	0.089	0.152	----	----	



### Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	235851	235852	235853	235854	235855
Sampling date / time				20-Jun-2023 00:00					
Compound	CAS Number	LOR	Unit	ES2321880-011	ES2321880-012	ES2321880-013	ES2321880-014	ES2321880-015	
				Result	Result	Result	Result	Result	
<b>EK262A: Total Nitrogen</b>									
Dissolved Total Nitrogen as N	----	0.01	mg/L	<b>0.65</b>	<b>0.76</b>	<b>0.81</b>	<b>0.87</b>	<b>0.99</b>	
<b>EK267A: Total Phosphorus (Persulfate Digestion)</b>									
Dissolved Total Phosphorus as P	----	0.005	mg/L	<b>0.268</b>	<b>0.036</b>	<b>0.075</b>	<b>0.081</b>	<b>0.071</b>	



### Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	235856	235857	235858	235859	235860
Sampling date / time				20-Jun-2023 00:00					
Compound	CAS Number	LOR	Unit	ES2321880-016	ES2321880-017	ES2321880-018	ES2321880-019	ES2321880-020	
				Result	Result	Result	Result	Result	
<b>EK262A: Total Nitrogen</b>									
Dissolved Total Nitrogen as N	----	0.01	mg/L	<b>0.83</b>	----	----	----	----	----
Total Nitrogen as N	----	0.01	mg/L	----	<b>0.77</b>	<b>0.90</b>	<b>0.70</b>	<b>0.82</b>	
<b>EK267A: Total Phosphorus (Persulfate Digestion)</b>									
Dissolved Total Phosphorus as P	----	0.005	mg/L	<b>0.170</b>	----	----	----	----	
Total Phosphorus as P	----	0.005	mg/L	----	<b>0.038</b>	<b>0.043</b>	<b>0.270</b>	<b>0.054</b>	



### Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	235861	235862	235863	235864	236032
Sampling date / time				20-Jun-2023 00:00					
Compound	CAS Number	LOR	Unit	ES2321880-021	ES2321880-022	ES2321880-023	ES2321880-024	ES2321880-025	
				Result	Result	Result	Result	Result	
<b>EK262A: Total Nitrogen</b>									
Total Nitrogen as N	----	0.01	mg/L	<b>0.77</b>	<b>0.89</b>	<b>1.26</b>	<b>0.88</b>	<b>0.83</b>	
<b>EK267A: Total Phosphorus (Persulfate Digestion)</b>									
Total Phosphorus as P	----	0.005	mg/L	<b>0.096</b>	<b>0.089</b>	<b>0.140</b>	<b>0.186</b>	<b>0.045</b>	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID		236033	236034	236035	236036	236037
Sampling date / time			20-Jun-2023 00:00		20-Jun-2023 00:00				
Compound	CAS Number	LOR	Unit	ES2321880-026	ES2321880-027	ES2321880-028	ES2321880-029	ES2321880-030	
				Result	Result	Result	Result	Result	
<b>EK255A: Ammonia</b>									
Ammonia as N	7664-41-7	0.005	mg/L	----	----	----	0.005	0.043	
<b>EK259A: Nitrite and Nitrate (NOx)</b>									
Nitrite + Nitrate as N	----	0.002	mg/L	----	----	----	0.011	0.013	
<b>EK262A: Total Nitrogen</b>									
Total Nitrogen as N	----	0.01	mg/L	0.88	1.10	0.86	----	----	
<b>EK267A: Total Phosphorus (Persulfate Digestion)</b>									
Total Phosphorus as P	----	0.005	mg/L	0.087	0.122	0.181	----	----	
<b>EK271A: Reactive Phosphorus</b>									
Reactive Phosphorus as P	14265-44-2	0.001	mg/L	----	----	----	0.020	0.070	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	236038	236039	236040	236041	236042
Sampling date / time				20-Jun-2023 00:00					
Compound	CAS Number	LOR	Unit	ES2321880-031	ES2321880-032	ES2321880-033	ES2321880-034	ES2321880-035	
				Result	Result	Result	Result	Result	
<b>EK255A: Ammonia</b>									
Ammonia as N	7664-41-7	0.005	mg/L	0.075	0.143	0.040	----	----	
<b>EK259A: Nitrite and Nitrate (NOx)</b>									
Nitrite + Nitrate as N	----	0.002	mg/L	0.057	0.101	0.077	----	----	
<b>EK262A: Total Nitrogen</b>									
Dissolved Total Nitrogen as N	----	0.01	mg/L	----	----	----	0.68	2.09	
<b>EK267A: Total Phosphorus (Persulfate Digestion)</b>									
Dissolved Total Phosphorus as P	----	0.005	mg/L	----	----	----	0.030	0.077	
<b>EK271A: Reactive Phosphorus</b>									
Reactive Phosphorus as P	14265-44-2	0.001	mg/L	0.065	0.079	0.142	----	----	



### Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	236043	236044	236045	----	----
Sampling date / time				20-Jun-2023 00:00	20-Jun-2023 00:00	20-Jun-2023 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2321880-036	ES2321880-037	ES2321880-038	-----	-----	
				Result	Result	Result	----	----	
<b>EK262A: Total Nitrogen</b>									
Dissolved Total Nitrogen as N	----	0.01	mg/L	<b>0.87</b>	<b>0.97</b>	<b>0.83</b>	----	----	
<b>EK267A: Total Phosphorus (Persulfate Digestion)</b>									
Dissolved Total Phosphorus as P	----	0.005	mg/L	<b>0.062</b>	<b>0.105</b>	<b>0.173</b>	----	----	