QUALITY CONTROL REPORT

Work Order	: **EN2501918**	Page	: 1 of 5
Client	: **OBERON COUNCIL**	Laboratory	: Environmental Division Newcastle
Contact	: ANDREW KROL	Contact	: Andrea Swan
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Telephone	: —	Telephone	: +61 2 4014 2500
Project	: end January 24 river samples	Date Samples Received	: 04-Feb-2025
Order number	: PO 006555	Date Analysis Commenced	: 04-Feb-2025
C-O-C number	: —	Issue Date	: 17-Feb-2025
Sampler	: Luke Renshaw		
Site	: —		
Quote number	: EN/222		
No. of samples received	: 4		
No. of samples analysed	: 4		

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 Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

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*
Allan Brown	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Christopher Cameron	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Gregory Towers	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Ruby Buller	Laboratory Technician	Newcastle - Inorganics, Mayfield West, 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.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
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
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA005P: pH by PC Titrator (QC Lot: 6361083)									
EN2502144-001	Anonymous	EA005-P: pH Value	—	0.01	pH Unit	7.32	7.32	0.0	0% - 20%
ES2503130-001	Anonymous	EA005-P: pH Value	—	0.01	pH Unit	7.25	7.25	0.0	0% - 20%
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 6363855)									
EN2501926-002	Anonymous	EA025H: Suspended Solids (SS)	—	5	mg/L	32	49	42.8	No Limit
EN2502132-001	Anonymous	EA025H: Suspended Solids (SS)	—	5	mg/L	19	18	7.0	No Limit
EN2502259-001	Anonymous	EA025H: Suspended Solids (SS)	—	5	mg/L	<5	<5	0.0	No Limit
EN2502313-006	Anonymous	EA025H: Suspended Solids (SS)	—	5	mg/L	11	10	15.4	No Limit
EN2501670-005	Anonymous	EA025H: Suspended Solids (SS)	—	5	mg/L	<5	<5	0.0	No Limit
EK055A: Ammonia as N (QC Lot: 6361595)									
EN2501918-001	Ex pond discharge EMP1	EK055A: Ammonia as N	7664-41-7	0.05	mg/L	0.33	0.33	0.0	No Limit
EK059A: Nitrite and Nitrate as N (NOx) (QC Lot: 6361596)									
EN2501918-001	Ex pond discharge EMP1	EK059A: Nitrite + Nitrate as N	—	0.05	mg/L	0.53	0.54	0.0	0% - 50%
EK062A: Total Nitrogen as N (QC Lot: 6375256)									
EN2501918-001	Ex pond discharge EMP1	EK062A: Total Nitrogen as N	—	0.1	mg/L	3.4	3.4	0.0	0% - 20%
EN2502045-001	Anonymous	EK062A: Total Nitrogen as N	—	0.1	mg/L	0.7	0.6	0.0	No Limit
EK067A: Total Phosphorus as P (QC Lot: 6372568)									
EN2501918-001	Ex pond discharge EMP1	EK067A: Total Phosphorus as P	—	0.05	mg/L	1.60	1.57	1.8	0% - 20%
EN2502209-001	Anonymous	EK067A: Total Phosphorus as P	—	0.05	mg/L	0.06	<0.05	0.0	No Limit
EP008.WN: Chlorophyll a and Pheophytin a (QC Lot: 6361734)									
EN2501918-001	Ex pond discharge EMP1	EP008.WN: Chlorophyll a	—	1	µg/L	149	149	0.3	0% - 20%
EP030.WN: Biochemical Oxygen Demand (BOD) (QC Lot: 6361555)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP030.WN: Biochemical Oxygen Demand (BOD) (QC Lot: 6361555) - continued									
EN2501918-001	Ex pond discharge EMP1	EP030.WN: Biochemical Oxygen Demand	---	2	mg/L	25	25	0.0	0% - 50%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 6361083)								
EA005-P: pH Value	—	—	pH Unit	—	7.6 pH Unit	100	98.5	102
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 6363855)								
EA025H: Suspended Solids (SS)	—	5	mg/L	<5	150 mg/L	102	85.0	110
				<5	1000 mg/L	95.1	85.0	110
				<5	969 mg/L	87.7	85.0	115
EK055A: Ammonia as N (QCLot: 6361595)								
EK055A: Ammonia as N	7664-41-7	0.05	mg/L	<0.05	2 mg/L	103	90.0	110
EK059A: Nitrite and Nitrate as N (NOx) (QCLot: 6361596)								
EK059A: Nitrite + Nitrate as N	—	0.05	mg/L	<0.05	2 mg/L	102	90.0	110
EK062A: Total Nitrogen as N (QCLot: 6375256)								
EK062A: Total Nitrogen as N	—	0.1	mg/L	<0.1	5 mg/L	103	90.0	110
EK067A: Total Phosphorus as P (QCLot: 6372568)								
EK067A: Total Phosphorus as P	—	0.05	mg/L	<0.05	5 mg/L	102	90.0	110
EP008.WN: Chlorophyll a and Pheophytin a (QCLot: 6361734)								
EP008.WN: Chlorophyll a	—	1	µg/L	<1.0	20 µg/L	90.1	70.0	130
EP021: Total Oil and Grease (QCLot: 6363887)								
EP021-S: Total Oil and Grease	—	2	mg/L	<2	197.3 mg/L	88.2	70.0	130
EP030.WN: Biochemical Oxygen Demand (BOD) (QCLot: 6361555)								
EP030.WN: Biochemical Oxygen Demand	—	2	mg/L	<2	200 mg/L	80.2	80.0	120

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK055A: Ammonia as N (QCLot: 6361595)							
EN2501924-002	Anonymous	EK055A: Ammonia as N	7664-41-7	2 mg/L	99.1	80.0	120
EK059A: Nitrite and Nitrate as N (NOx) (QCLot: 6361596)							
EN2501924-002	Anonymous	EK059A: Nitrite + Nitrate as N	—	2 mg/L	101	80.0	120

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
				Concentration	MS	Low	High
EK062A: Total Nitrogen as N (QCLot: 6375256)							
EN2501918-002	Up Stream EMP3	EK062A: Total Nitrogen as N	---	20 mg/L	93.6	80.0	120
EK067A: Total Phosphorus as P (QCLot: 6372568)							
EN2501918-002	Up Stream EMP3	EK067A: Total Phosphorus as P	---	5 mg/L	91.3	80.0	120