



## QUALITY CONTROL REPORT

Work Order	: <b>WN2403976</b>	Page	: 1 of 5
Client	: <b>OBERON COUNCIL</b>	Laboratory	: ALS Water - Newcastle
Contact	: ANDREW KROL	Contact	: Andrea Swan
Address	: 137-139 OBERON STREET OBERON NSW,AUSTRALIA 2787	Address	: 5/585 Maitland Road Newcastle West NSW Australia 2304
Telephone	: ----	Telephone	: +61 2 4014 2500
Project	: end MARCH 24 river samples	Date Samples Received	: 03-Apr-2024
Order number	: PO 003673	Date Analysis Commenced	: 03-Apr-2024
C-O-C number	: ----	Issue Date	: 12-Apr-2024
Sampler	: Luke Renshaw		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 4		
No. of samples analysed	: 4		



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	Chemistry, Newcastle West, NSW
Gregory Towers	Technical Officer	Chemistry, Newcastle West, NSW
Sarah Dowley	Microbiology Section Supervisor	Microbiology, Newcastle West, 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.

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 (%)
<b>EA005: pH (QC Lot: 5706906)</b>									
WN2403934-002	Anonymous	EA005: pH Value	----	0.01	pH Unit	6.92	6.85	1.0	0% - 20%
WN2403993-005	Anonymous	EA005: pH Value	----	0.01	pH Unit	8.36	8.37	0.1	0% - 20%
<b>EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 5708306)</b>									
WN2403976-001	Ex pond discharge EMP1	EA025: Suspended Solids (SS)	----	1	mg/L	8	9	0.0	No Limit
<b>EK055A: Ammonia as N (QC Lot: 5707116)</b>									
WN2404106-001	Anonymous	EK055A: Ammonia as N	7664-41-7	0.05	mg/L	<0.05	<0.05	0.0	No Limit
WN2403899-015	Anonymous	EK055A: Ammonia as N	7664-41-7	0.05	mg/L	68.3	67.6	1.1	0% - 20%
<b>EK059A: Nitrite and Nitrate as N (NOx) (QC Lot: 5707117)</b>									
WN2404106-001	Anonymous	EK059A: Nitrite + Nitrate as N	----	0.05	mg/L	<0.05	<0.05	0.0	No Limit
WN2403899-015	Anonymous	EK059A: Nitrite + Nitrate as N	----	0.05	mg/L	<0.05	<0.05	0.0	No Limit
<b>EK062A: Total Nitrogen as N (QC Lot: 5706439)</b>									
WN2403771-001	Anonymous	EK062A: Total Nitrogen as N	----	0.1	mg/L	6.1	5.9	2.5	0% - 20%
WN2403954-001	Anonymous	EK062A: Total Nitrogen as N	----	0.1	mg/L	857	844	1.5	0% - 20%
<b>EK067A: Total Phosphorus as P (QC Lot: 5713291)</b>									
WN2403899-001	Anonymous	EK067A: Total Phosphorus as P	----	0.05	mg/L	4.11	4.06	1.1	0% - 20%
WN2403899-011	Anonymous	EK067A: Total Phosphorus as P	----	0.05	mg/L	7.58	7.86	3.6	0% - 20%
<b>EK067A: Total Phosphorus as P (QC Lot: 5713292)</b>									
WN2403976-002	Up Stream EMP3	EK067A: Total Phosphorus as P	----	0.05	mg/L	<0.05	<0.05	0.0	No Limit
WN2404106-001	Anonymous	EK067A: Total Phosphorus as P	----	0.05	mg/L	0.32	0.33	0.0	No Limit
<b>EP008.WN: Chlorophyll a and Pheophytin a (QC Lot: 5707993)</b>									
WN2403574-005	Anonymous	EP008.WN: Chlorophyll a	----	1	µg/L	12.8	14.4	11.8	0% - 50%

Page : 3 of 5  
 Work Order : WN2403976  
 Client : OBERON COUNCIL  
 Project : end MARCH 24 river samples



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 (%)
<b>EP008.WN: Chlorophyll a and Pheophytin a (QC Lot: 5707993) - continued</b>									
WN2403769-003	Anonymous	EP008.WN: Chlorophyll a	----	1	µg/L	82.0	95.9	15.6	0% - 20%
<b>EP030.WN: Biochemical Oxygen Demand (BOD) (QC Lot: 5704405)</b>									
WN2403761-009	Anonymous	EP030.WN: Biochemical Oxygen Demand	----	2	mg/L	<2	<2	0.0	No Limit
WN2403975-001	Anonymous	EP030.WN: Biochemical Oxygen Demand	----	2	mg/L	174	177	1.7	0% - 20%



### 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			
Method: Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
<b>EA005: pH (QCLot: 5706906)</b>								
EA005: pH Value	----	----	pH Unit	----	7.6 pH Unit	101	98.5	102
<b>EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 5708306)</b>								
EA025: Suspended Solids (SS)	----	1	mg/L	<1	150 mg/L	97.5	85.0	110
				<1	1000 mg/L	93.9	85.0	110
				<1	969 mg/L	92.2	85.0	115
<b>EK055A: Ammonia as N (QCLot: 5707116)</b>								
EK055A: Ammonia as N	7664-41-7	0.05	mg/L	<0.05	2 mg/L	102	90.0	110
<b>EK059A: Nitrite and Nitrate as N (NOx) (QCLot: 5707117)</b>								
EK059A: Nitrite + Nitrate as N	----	0.05	mg/L	<0.05	2 mg/L	103	90.0	110
<b>EK062A: Total Nitrogen as N (QCLot: 5706439)</b>								
EK062A: Total Nitrogen as N	----	0.1	mg/L	<0.1	5 mg/L	96.8	90.0	110
<b>EK067A: Total Phosphorus as P (QCLot: 5713291)</b>								
EK067A: Total Phosphorus as P	----	0.05	mg/L	<0.05	5 mg/L	95.8	90.0	110
<b>EK067A: Total Phosphorus as P (QCLot: 5713292)</b>								
EK067A: Total Phosphorus as P	----	0.05	mg/L	<0.05	5 mg/L	95.4	90.0	110
<b>EP008.WN: Chlorophyll a and Pheophytin a (QCLot: 5707993)</b>								
EP008.WN: Chlorophyll a	----	1	µg/L	<1.0	20 µg/L	85.2	70.0	130
<b>EP021: Total Oil and Grease (QCLot: 5711952)</b>								
EP021-S: Total Oil and Grease	----	2	mg/L	<2	203 mg/L	89.8	70.0	130
<b>EP030.WN: Biochemical Oxygen Demand (BOD) (QCLot: 5704405)</b>								
EP030.WN: Biochemical Oxygen Demand	----	2	mg/L	<2	200 mg/L	91.5	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				
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery (%) MS	Acceptable Limits (%) Low High		
<b>EK055A: Ammonia as N (QCLot: 5707116)</b>								
WN2403899-016	Anonymous							

Page : 5 of 5  
 Work Order : WN2403976  
 Client : OBERON COUNCIL  
 Project : end MARCH 24 river samples



Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EK055A: Ammonia as N (QCLot: 5707116) - continued</b>							
WN2403899-016	Anonymous	EK055A: Ammonia as N	7664-41-7	2 mg/L	# Not Determined	80.0	120
<b>EK059A: Nitrite and Nitrate as N (NOx) (QCLot: 5707117)</b>							
WN2403899-016	Anonymous	EK059A: Nitrite + Nitrate as N	----	2 mg/L	102	80.0	120
<b>EK062A: Total Nitrogen as N (QCLot: 5706439)</b>							
WN2403774-003	Anonymous	EK062A: Total Nitrogen as N	----	20 mg/L	83.8	80.0	120
<b>EK067A: Total Phosphorus as P (QCLot: 5713291)</b>							
WN2403899-002	Anonymous	EK067A: Total Phosphorus as P	----	5 mg/L	92.2	80.0	120
<b>EK067A: Total Phosphorus as P (QCLot: 5713292)</b>							
WN2403976-003	Down stream EMP4	EK067A: Total Phosphorus as P	----	5 mg/L	89.9	80.0	120