

QUALITY CONTROL REPORT

Work Order	: WN2010967	Page	: 1 of 4
Client	: OBERON COUNCIL	Laboratory	: ALS Water - Newcastle
Contact	: Water Oberon	Contact	: Andrea Swan
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Project	: OBERON WASTE WATER	Date Samples Received	: 08-Dec-2020
Order number	: 12444	Date Analysis Commenced	: 08-Dec-2020
C-O-C number	: ----	Issue Date	: 14-Dec-2020
Sampler	: Luke Renshow		
Site	: ----		
Quote number	: WN Blanket Quote		
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.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Craig Glover	Microbiological Supervisor	Microbiology, Newcastle West, NSW
Neil Martin	Team Leader - Chemistry	Chemistry, 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

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 (%)	Recovery Limits (%)
EA005: pH (QC Lot: 3409314)									
WN2010955-001	Anonymous	EA005: pH Value	----	0.01	pH Unit	8.21	8.23	0.243	0% - 20%
WN2010967-001	ExPond Works Discharge EMP1	EA005: pH Value	----	0.01	pH Unit	7.33	7.32	0.136	0% - 20%
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 3407275)									
ES2043337-008	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	55	55	0.00	0% - 50%
EK055A: Ammonia as N (QC Lot: 3410142)									
WN2010955-001	Anonymous	EK055A: Ammonia as N	7664-41-7	0.05	mg/L	0.13	0.14	7.41	No Limit
WN2010966-008	Anonymous	EK055A: Ammonia as N	7664-41-7	0.05	mg/L	20.8	21.0	0.957	0% - 20%
EK059A: Nitrite and Nitrate as N (NO_x) (QC Lot: 3410141)									
WN2010955-001	Anonymous	EK059A: Nitrite + Nitrate as N	----	0.05	mg/L	3.40	3.40	0.00	0% - 20%
WN2010966-008	Anonymous	EK059A: Nitrite + Nitrate as N	----	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EK062A: Total Nitrogen as N (QC Lot: 3414889)									
WN2010649-001	Anonymous	EK062A: Total Nitrogen as N	----	0.1	mg/L	0.6	0.5	0.00	No Limit
WN2010966-009	Anonymous	EK062A: Total Nitrogen as N	----	0.1	mg/L	3.2	3.2	0.00	0% - 20%
EK067A: Total Phosphorus as P (QC Lot: 3412550)									
WN2010955-004	Anonymous	EK067A: Total Phosphorus as P	----	0.05	mg/L	2.33	2.32	0.623	0% - 20%
WN2010971-001	Anonymous	EK067A: Total Phosphorus as P	----	0.05	mg/L	34.7	34.7	0.0812	0% - 20%
EP008.WN: Chlorophyll a and Pheophytin a (QC Lot: 3407850)									
WN2010967-001	ExPond Works Discharge EMP1	EP008.WN: Chlorophyll a	----	1	µg/L	14.1	11.7	18.6	0% - 50%
EP030.WN: Biochemical Oxygen Demand (BOD) (QC Lot: 3408052)									
WN2010937-001	Anonymous	EP030.WN: Biochemical Oxygen Demand	----	2	mg/L	27	28	3.64	0% - 50%
WN2010966-008	Anonymous	EP030.WN: Biochemical Oxygen Demand	----	2	mg/L	177	188	6.03	0% - 20%



Method Blank (MB) and Laboratory Control Spike (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 Spike (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: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
EA005: pH (QCLot: 3409314)								
EA005: pH Value	----	----	pH Unit	----	7.6 pH Unit	99.9	98.5	102
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 3407275)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	96.0	90.0	110
				<5	1000 mg/L	91.0	90.0	110
EK055A: Ammonia as N (QCLot: 3410142)								
EK055A: Ammonia as N	7664-41-7	0.05	mg/L	<0.05	2 mg/L	99.0	90.0	110
EK059A: Nitrite and Nitrate as N (NOx) (QCLot: 3410141)								
EK059A: Nitrite + Nitrate as N	----	0.05	mg/L	<0.05	2 mg/L	98.8	90.0	110
EK062A: Total Nitrogen as N (QCLot: 3414889)								
EK062A: Total Nitrogen as N	----	0.1	mg/L	<0.1	5 mg/L	99.8	90.0	110
EK067A: Total Phosphorus as P (QCLot: 3412550)								
EK067A: Total Phosphorus as P	----	0.05	mg/L	<0.05	5 mg/L	95.4	90.0	110
EP008.WN: Chlorophyll a and Pheophytin a (QCLot: 3407850)								
EP008.WN: Chlorophyll a	----	1	µg/L	<1.0	20 µg/L	94.0	90.0	110
EP021: Total Oil and Grease (QCLot: 3407951)								
EP021-S: Total Oil and Grease	----	2	mg/L	<2	1340 mg/L	90.4	70.0	130
EP030.WN: Biochemical Oxygen Demand (BOD) (QCLot: 3408052)								
EP030.WN: Biochemical Oxygen Demand	----	2	mg/L	<2	200 mg/L	97.5	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**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%) Low High	
EK055A: Ammonia as N (QCLot: 3410142)							
WN2010955-002	Anonymous	EK055A: Ammonia as N	7664-41-7	2 mg/L	# Not Determined	80.0	120
EK059A: Nitrite and Nitrate as N (NOx) (QCLot: 3410141)							
WN2010955-002	Anonymous	EK059A: Nitrite + Nitrate as N	----	2 mg/L	104	80.0	120
EK062A: Total Nitrogen as N (QCLot: 3414889)							

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 Project : OBERON WASTE WATER



Sub-Matrix: **WATER**

				<i>Matrix Spike (MS) Report</i>			
				<i>Spike</i>	<i>SpikeRecovery(%)</i>	<i>Recovery Limits (%)</i>	
<i>Laboratory sample ID</i>	<i>Sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>Concentration</i>	<i>MS</i>	<i>Low</i>	<i>High</i>
EK062A: Total Nitrogen as N (QCLot: 3414889) - continued							
WN2010955-001	Anonymous	EK062A: Total Nitrogen as N	----	20 mg/L	97.6	80.0	120
EK067A: Total Phosphorus as P (QCLot: 3412550)							
WN2010966-001	Anonymous	EK067A: Total Phosphorus as P	----	5 mg/L	90.2	80.0	120