

QUALITY CONTROL REPORT

Work Order	: EM2212384	Page	: 1 of 6
Client	: Dept for Environment & Water	Laboratory	: Environmental Division Melbourne
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Project	: HCHB Monitoring Program	Date Samples Received	: 01-Jul-2022
Order number	: -	Date Analysis Commenced	: 01-Jul-2022
C-O-C number	: 39418	Issue Date	: 11-Jul-2022
Sampler	: DARCY MORRIS, ROWLAND BOXALL		
Site	: HCHB Boat - 29-30 June 2022		
Quote number	: AD/052/20 V2		
No. of samples received	: 10		
No. of samples analysed	: 10		



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>
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
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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 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.

Laboratory Duplicate (DUP) Report

Sub-Matrix: **WATER**

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 (%)
EK055G-SW: Ammonia as N by Discrete Analyser in Saline Water (QC Lot: 4439188)									
EM2212384-001	Murray Mouth	EK055G-SW: Ammonia as N	7664-41-7	0.02	mg/L	0.13	0.13	0.0	No Limit
EM2212384-010	1.8km west of Salt Creek	EK055G-SW: Ammonia as N	7664-41-7	0.02	mg/L	<0.02	<0.02	0.0	No Limit
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 4439447)									
EM2212384-008	Snipe Point	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	62400	68600	9.4	0% - 20%
EM2212385-008	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	8330	8610	3.3	0% - 20%
EM2212307-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	26	26	0.0	No Limit
EM2212355-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	699	632	10.1	0% - 20%
EA045: Turbidity (QC Lot: 4435556)									
EM2212384-001	Murray Mouth	EA045: Turbidity	----	0.1	NTU	28.4	33.2	15.6	0% - 20%
EM2212384-010	1.8km west of Salt Creek	EA045: Turbidity	----	0.1	NTU	12.8	11.9	7.3	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 4437094)									
EM2212384-002	Mark Point	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	101	101	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	101	101	0.0	0% - 20%
EM2212385-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	88	89	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	88	89	0.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 4435179)									
EM2212485-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	493	491	0.5	0% - 20%
EM2212384-001	Murray Mouth	ED045G: Chloride	16887-00-6	1	mg/L	11700	11800	0.7	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 4435755)									

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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 (%)
ED045G: Chloride by Discrete Analyser (QC Lot: 4435755) - continued									
EM2212385-007	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	2450	2460	0.1	0% - 20%
EM2212384-003	Parnka Point	ED045G: Chloride	16887-00-6	1	mg/L	29000	29000	0.1	0% - 20%
EG052G: Silica by Discrete Analyser (QC Lot: 4435177)									
EM2212384-001	Murray Mouth	EG052G: Reactive Silica	----	0.05	mg/L	1.29	1.28	0.0	0% - 20%
EG052G: Silica by Discrete Analyser (QC Lot: 4435753)									
EM2212385-009	Anonymous	EG052G: Reactive Silica	----	0.05	mg/L	15.6	15.7	0.6	0% - 20%
EM2212384-003	Parnka Point	EG052G: Reactive Silica	----	0.05	mg/L	1.80	1.79	0.0	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 4435178)									
EM2212485-003	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EM2212384-001	Murray Mouth	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 4435754)									
EM2212385-008	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EM2212384-003	Parnka Point	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 4439189)									
EM2212384-001	Murray Mouth	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.04	0.03	0.0	No Limit
EM2212384-010	1.8km west of Salt Creek	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 4435912)									
EM2212384-001	Murray Mouth	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.9	5.9	102	No Limit
EM2212384-010	1.8km west of Salt Creek	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	5.4	5.1	4.3	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 4435911)									
EM2212384-001	Murray Mouth	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.26	0.14	59.4	No Limit
EM2212384-010	1.8km west of Salt Creek	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.35	0.23	43.9	No Limit
EP002: Dissolved Organic Carbon (DOC) (QC Lot: 4440623)									
EM2212384-001	Murray Mouth	EP002: Dissolved Organic Carbon	----	1	mg/L	9	8	0.0	No Limit
EM2212384-010	1.8km west of Salt Creek	EP002: Dissolved Organic Carbon	----	1	mg/L	30	29	0.0	0% - 20%
EP005: Total Organic Carbon (TOC) (QC Lot: 4440624)									
EM2212384-001	Murray Mouth	EP005: Total Organic Carbon	----	1	mg/L	6	6	0.0	No Limit
EM2212384-010	1.8km west of Salt Creek	EP005: Total Organic Carbon	----	1	mg/L	35	35	0.0	0% - 20%

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.

Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
	Spike	Spike Recovery (%)	Acceptable Limits (%)		
Result	Concentration	LCS	Low	High	
<0.02	0.5 mg/L	90.7	81.1	124	
<10	2000 mg/L	99.2	91.0	110	
<10	2460 mg/L	101	81.7	118	
<10	293 mg/L	106	91.0	110	
<0.1	40 NTU	103	88.1	110	
----	200 mg/L	95.7	85.0	116	
<1	10 mg/L	95.8	85.0	115	
<1	1000 mg/L	99.6	85.0	122	
<1	10 mg/L	97.8	85.0	115	
<1	1000 mg/L	101	85.0	122	
<0.05	5 mg/L	104	78.9	118	
<0.05	5 mg/L	104	78.9	118	
<0.01	0.5 mg/L	100	90.9	112	
<0.01	0.5 mg/L	99.1	90.9	112	
<0.01	0.5 mg/L	106	90.0	117	
<0.1	5 mg/L	97.6	70.0	117	
<0.01	2.21 mg/L	93.2	71.9	114	
<1	100 mg/L	91.6	83.0	115	

Matrix Spike (MS) Report

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK055G-SW: Ammonia as N by Discrete Analyser in Saline Water (QCLot: 4439188)							
EM2212384-002	Mark Point	EK055G-SW: Ammonia as N	7664-41-7	0.5 mg/L	97.4	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 4435179)							
EM2212384-002	Mark Point	ED045G: Chloride	16887-00-6	400 mg/L	# Not Determined	70.0	142
ED045G: Chloride by Discrete Analyser (QCLot: 4435755)							
EM2212384-004	Villa De Yumpa	ED045G: Chloride	16887-00-6	400 mg/L	# Not Determined	70.0	142
EG052G: Silica by Discrete Analyser (QCLot: 4435177)							
EM2212384-002	Mark Point	EG052G: Reactive Silica	----	5 mg/L	99.6	80.0	120
EG052G: Silica by Discrete Analyser (QCLot: 4435753)							
EM2212384-004	Villa De Yumpa	EG052G: Reactive Silica	----	5 mg/L	91.7	80.0	120
EK057G: Nitrite as N by Discrete Analyser (QCLot: 4435178)							
EM2212384-002	Mark Point	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	92.0	80.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 4435754)							
EM2212384-004	Villa De Yumpa	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	86.3	80.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 4439189)							
EM2212384-002	Mark Point	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	84.5	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 4435912)							
EM2212384-002	Mark Point	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	107	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 4435911)							



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 4435911) - continued							
EM2212384-002	Mark Point	EK067G: Total Phosphorus as P	----	1 mg/L	110	70.0	130
EP002: Dissolved Organic Carbon (DOC) (QCLot: 4440623)							
EM2212384-002	Mark Point	EP002: Dissolved Organic Carbon	----	100 mg/L	115	75.0	117
EP005: Total Organic Carbon (TOC) (QCLot: 4440624)							
EM2212384-002	Mark Point	EP005: Total Organic Carbon	----	100 mg/L	96.9	76.6	125