Appendix 8: 2022 Water Quality Monitoring Results

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2226107**	Page	: 1 of 5
Client	: **SOLOMON ISLAND WATER AUTHORITY**	Laboratory	: Environmental Division Brisbane
Contact	: JOSHUA KERA	Contact	: Customer Services EB
Address	: POINT CRUZ, COMMONWEALTH STREET P.O BOX 1407 HONIARA SOLOMON ISLAND	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: UWSSSP EIS	Date Samples Received	: 05-Sep-2022 14:35
Order number	: ----	Date Analysis Commenced	: 06-Sep-2022
C-O-C number	: ----	Issue Date	: 14-Sep-2022 13:11
Sampler	: JOSHUA KERA		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 12		
No. of samples analysed	: 12		

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 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*
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Mark Hallas	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD

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.

- EK061G (Total Kjeldahl Nitrogen as N) / EK067G (Total Phosphorus as P): Some samples were diluted due to matrix interference. LOR adjusted accordingly.
- EG020T (Total Metals by ICP-MS): Limit of reporting raised for some samples due to matrix interference.

Analytical Results

Sub-Matrix: **MARINE WATER** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	1	2	3	4	5
				Sampling date / time	30-Aug-2022 08:00	30-Aug-2022 08:35	30-Aug-2022 08:25	30-Aug-2022 09:35	30-Aug-2022 09:29
					EB2226107-001	**EB2226107-002**	**EB2226107-003**	**EB2226107-004**	**EB2226107-005**
					Result	Result	Result	Result	Result
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**8.08**	**8.08**	**8.13**	**8.08**	**8.10**
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L		**13**	**6**	<5	<5	**9**
EA045: Turbidity									
Turbidity	----	0.1	NTU		**7.3**	**0.9**	**0.6**	**1.1**	**0.6**
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium	7440-43-9	0.0001	mg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	7440-47-3	0.001	mg/L		<0.005	<0.005	<0.005	<0.005	<0.005
Copper	7440-50-8	0.001	mg/L		<0.005	<0.005	<0.005	<0.005	<0.005
Lead	7439-92-1	0.001	mg/L		<0.005	**0.150**	**0.235**	<0.005	**0.103**
Nickel	7440-02-0	0.001	mg/L		<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	7440-66-6	0.005	mg/L		**0.059**	**0.028**	**0.048**	<0.026	<0.026
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		<0.5	<0.5	<0.5	<0.5	<0.5
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		<0.5	<0.5	<0.5	<0.5	<0.5
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		<0.05	<0.05	<0.05	**0.05**	<0.05
EP030: Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand	----	2	mg/L		<2	<2	**4**	<2	<2

Analytical Results

Sub-Matrix: **MARINE WATER** (Matrix: **WATER**)

Compound	CAS Number	LOR	Unit	Sample ID	6	7	10	11	12
				Sampling date / time	30-Aug-2022 09:19	30-Aug-2022 09:09	30-Aug-2022 10:19	30-Aug-2022 10:12	30-Aug-2022 09:56
					EB2226107-006	EB2226107-007	EB2226107-010	EB2226107-011	EB2226107-012
					Result	Result	Result	Result	Result
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**8.13**	**8.13**	**8.04**	**8.12**	**8.13**
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L		<5	<5	<5	<5	<5
EA045: Turbidity									
Turbidity	----	0.1	NTU		**0.6**	**0.2**	**0.5**	**0.9**	**0.5**
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium	7440-43-9	0.0001	mg/L		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	7440-47-3	0.001	mg/L		<0.005	<0.005	<0.005	<0.005	<0.005
Copper	7440-50-8	0.001	mg/L		<0.005	<0.005	<0.005	<0.005	<0.005
Lead	7439-92-1	0.001	mg/L		**0.134**	**0.125**	<0.005	<0.005	<0.005
Nickel	7440-02-0	0.001	mg/L		<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	7440-66-6	0.005	mg/L		<0.026	<0.026	<0.026	<0.026	<0.026
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		<0.01	<0.01	**0.05**	**0.02**	**0.03**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		<0.5	<0.5	<0.5	<0.5	<0.5
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ **Total Nitrogen as N**	----	0.1	mg/L		<0.5	<0.5	<0.5	<0.5	<0.5
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		<0.05	<0.05	**0.05**	<0.05	<0.05
EP030: Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand	----	2	mg/L		**2**	**3**	<2	<2	<2

Analytical Results

Sub-Matrix: SEWAGE WATER (Matrix: WATER)			Sample ID	8	9	----	----	----
			Sampling date / time	30-Aug-2022 12:05	30-Aug-2022 09:46	----	----	----
Compound	CAS Number	LOR	Unit	EB2226107-008	EB2226107-009	--------	--------	--------
				Result	Result	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.71**	**8.05**	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	**195**	**25**	----	----	----
EA045: Turbidity								
Turbidity	----	0.1	NTU	**176**	**14.4**	----	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	**0.004**	**0.001**	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	**0.0001**	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L	**0.002**	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L	**0.021**	**0.005**	----	----	----
Lead	7439-92-1	0.001	mg/L	**0.002**	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	**0.003**	**0.002**	----	----	----
Zinc	7440-66-6	0.005	mg/L	**0.191**	**0.038**	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.04**	**0.36**	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**68.8**	**10.5**	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**68.8**	**10.9**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**7.56**	**1.29**	----	----	----
EP030: Biochemical Oxygen Demand (BOD)								
Biochemical Oxygen Demand	----	2	mg/L	**256**	**47**	----	----	----

National Public Health Laboratory (NPHL)
P.O. Box 349, Honiara, Solomon Islands.
Telephone: (+677) 38871

Test Report No. MTR 113/22

MICROBIOLOGY TEST REPORT

Job Number: **J22105**

Customer: Solomon Water

Address: P. O. Box 1407
Honiara, Solomon Islands

Tel / Mobile / Email: 44700 / 8422992 / jkera@solomonwater.com.sb

Sample Type: Water **Date/time received: 30/08/2022, 4:12 pm** **Date/time tested: 30/08/2022, 6:40 pm**

Sample No.	Date/time collected:	Sample ID	Analysis	Result	Units	Method
J22105-1	30/08/22 8:00 am	1 – NRH 5	*Enterococci*	7701	MPN/100 mL	Enterolert: APHA (online) 9230D
J22105-2	30/08/22 8:35 am	2 – NRH 170	*Enterococci*	20	MPN/100 mL	Enterolert: APHA (online) 9230D
J22105-3	30/08/22 8:25 am	3 – NRH 350	*Enterococci*	195	MPN/100 mL	Enterolert: APHA (online) 9230D
J22105-4	30/08/22 9:35 am	4 – RAN 5	*Enterococci*	1872	MPN/100 mL	Enterolert: APHA (online) 9230D
J22105-5	30/08/22 9:29 am	5 – RAN 170	*Enterococci*	228	MPN/100 mL	Enterolert: APHA (online) 9230D
J22105-6	30/08/22 9:19 am	6 – RAN 340	*Enterococci*	>24196	MPN/100 mL	Enterolert: APHA (online) 9230D
J22105-7	30/08/22 9:09 am	7 – RAN 500	*Enterococci*	63	MPN/100 mL	Enterolert: APHA (online) 9230D
J22105-8	30/08/22 12:05 pm	8 – SEW 1 (Tuvaruhu)	*Enterococci*	>24196	MPN/100 mL	Enterolert: APHA (online) 9230D
J22105-9	30/08/22 9:46 am	9 – SEW 2 (Ranadi)	*Enterococci*	41	MPN/100 mL	Enterolert: APHA (online) 9230D
J22105-10	30/08/22 10:19 am	10 – Pacific Casino	*Enterococci*	>24196	MPN/100 mL	Enterolert: APHA (online) 9230D
J22105-11	30/08/22 10:12 am	11 – Spice Bar	*Enterococci*	75	MPN/100 mL	Enterolert: APHA (online) 9230D
J22105-12	30/08/22 9:56 am	12 – Panatina School	*Enterococci*	41	MPN/100 mL	Enterolert: APHA (online) 9230D

Results apply to samples as received

D/ND = Detected/Not Detected in 100 mL water

MPN/100mL = Most Probable Number per 100 millilitres

CFU/mL = colony forming units per millilitres

< = less than, > = greater than

National Public Health Laboratory (NPHL)
P.O. Box 349, Honiara, Solomon Islands.
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Test Report No. MTR 113/22

Results in bold indicate the exceedance of the WHO drinking water guidelines for drinking water.
Results not in bold indicate that the parameters fall within the WHO drinking water guidelines for acceptable drinking water.

WHO guidelines (2011) for drinking water: Water intended for public consumption must not contain any *E. coli* in a 100 mL sample.

Results in bold indicate the exceedance of the Solomon Islands Gazette - Pure Food Regulations 2010 maximum limits on microbiological contaminants in food.

Solomon Islands Gazette - Pure Food Regulations 2010: Maximum limits on microbiological contaminants in foods.

Sample Type	Microorganism	Level *
Packaged water	Faecal coliform	<1 MPN/100ml
	Total coliforms	<1 MPN/100ml
	E. coli	<1 MPN/100ml
Potable water	Faecal coliform	<1 MPN/100ml
	Total coliforms	100 MPN/100ml

* No coliform or *E. coli* detected in a 100 mL sample is shown in the test results as <1 MPN/100mL.

Reporting Date: 01/09/2022

Signature:
Authorised by: Kim Irofufuli
Section Head, Microbiology

NATIONAL PUBLIC HEALTH LABORATORY Date: MHMS

Signature:
Released by: Dickson Manongi
Director