

CERTIFICATE OF ANALYSIS

Work Order : **EM2125413**

Client : Dept for Environment & Water

Contact : Mr FRANK MANGERUCA

Address : GPO BOX 2834

ADELAIDE SA, AUSTRALIA 5001

Telephone : ----

Project : HCHB - Phase 1

 Order number
 : ---

 C-O-C number
 : ---

 Sampler
 : ---

 Site
 : ---

Quote number : AD/052/20 V2

No. of samples received : 22

No. of samples analysed : 22

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Laboratory : Environmental Division Melbourne

Contact : Kieren Burns

Address : 4 Westall Rd Springvale VIC Australia 3171

Telephone : +61881625130

Date Samples Received : 16-Dec-2021 11:05

Date Analysis Commenced : 16-Dec-2021

Issue Date : 24-Dec-2021 09:46



130/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
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC
Samantha Smith	Assistant Laboratory Manager	WRG Subcontracting, Springvale, VIC

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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.

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 Contact 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.

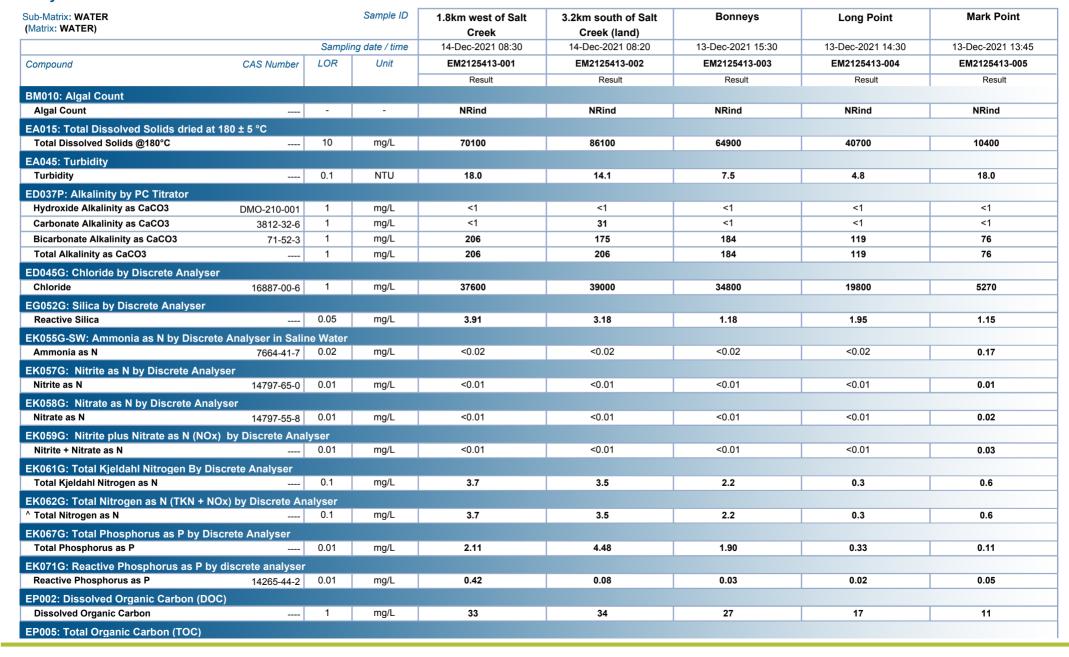
LOR = Limit of reporting

- ^ = 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.
- ED037-P: EM2125413 #19 Poor duplicate precision for carbonate alkalinity as CaCO3 due to sample heterogeneity. Insufficient sample to confirm.
- EP002:EP005:It is recognised that total organic carbon is less than dissolved organic carbon for samples EM2125413 #5, #9, #17. However, the difference is within experimental variation of the methods.
- EP005:EP002:It is recognised that total organic carbon is less than dissolved organic carbon for samples EM2125413 #18. However, the results have been confirmed by re-extraction and re-analysis.
- It is recognised that TP is less than RP for sample #8 and #20. However, the difference is within experimental variation of the methods.
- EP008, Chlorophyll-a standard deos not contained Pheophytin-a standard.
- EP008, LOR raised for various samples due to samples matrix.
- EA015H: EM2125413 #12-13, #15, #17-18: TDS by method EA-015 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- ED052G: EM2125413-022 Poor matrix spike recovery for reactive silica due to matrix effects.
- EK055G-SW EM2125413 #2 & 22 Poor matrix spike recovery for Ammonia as N(saline water) due to matrix effects.
- EP002: EM2125413 #22 Poor matrix spike recovery for dissolved mercury due to sample matrix. Confirmed by re-extraction and re-analysis.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.
- Algal Count (BM010) has been performed by ALS Water Resources Group, NATA Accreditation no. 992, Site no. 989.

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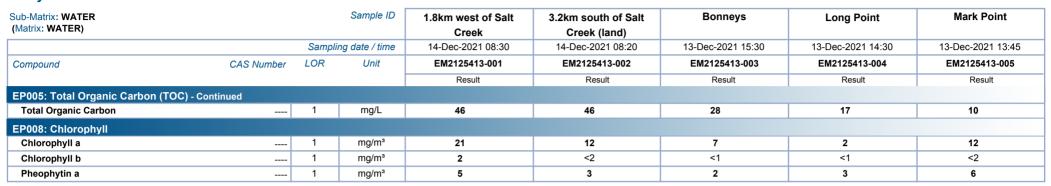




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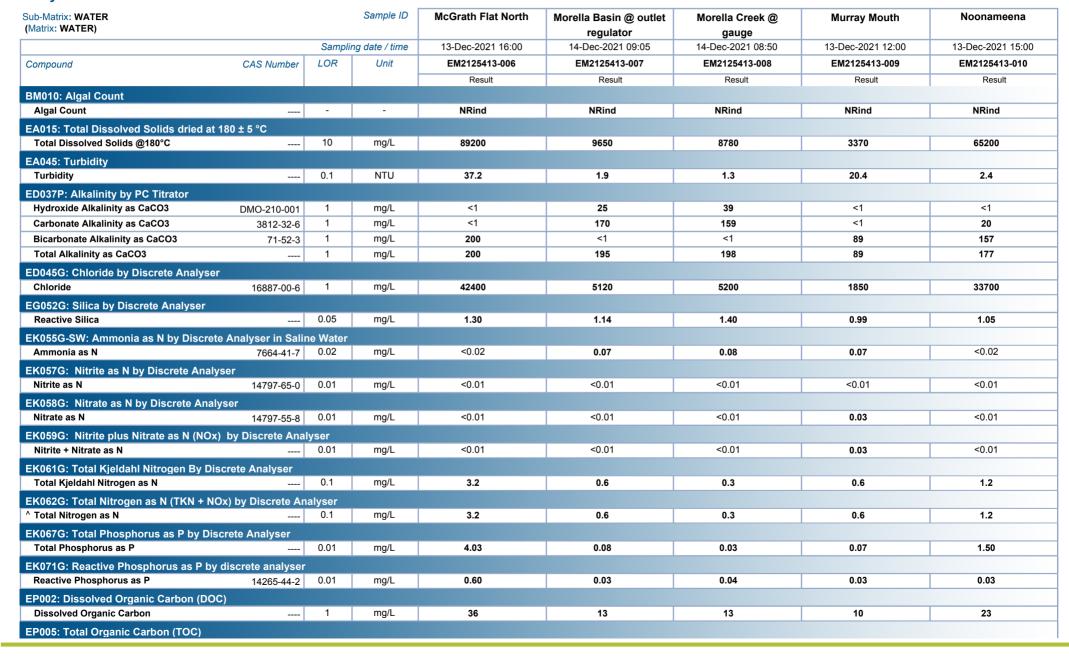




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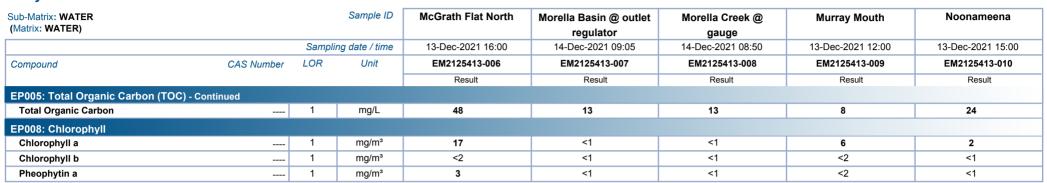




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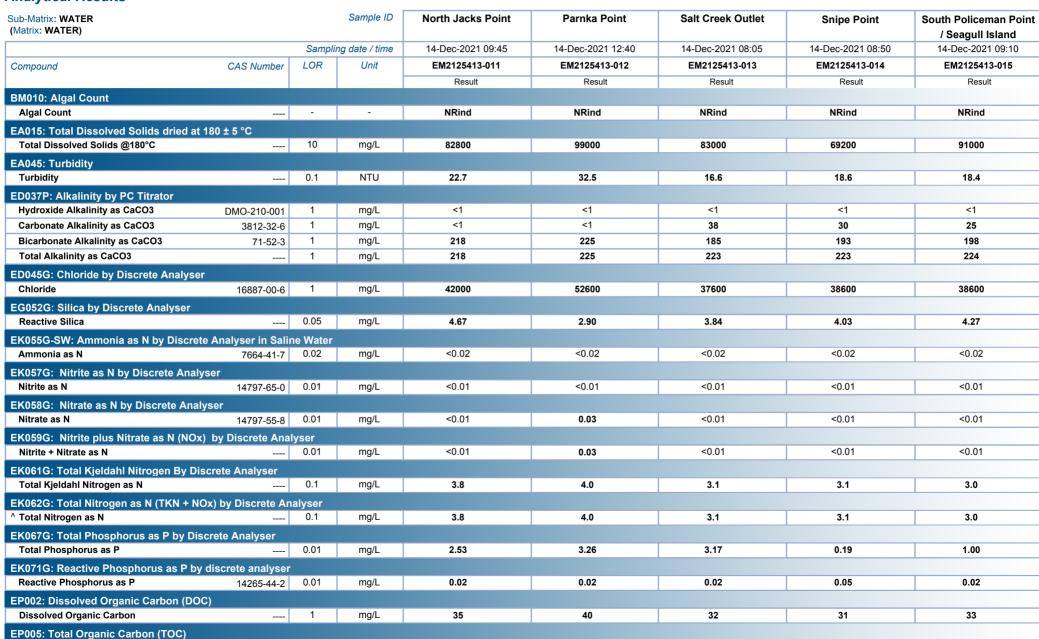




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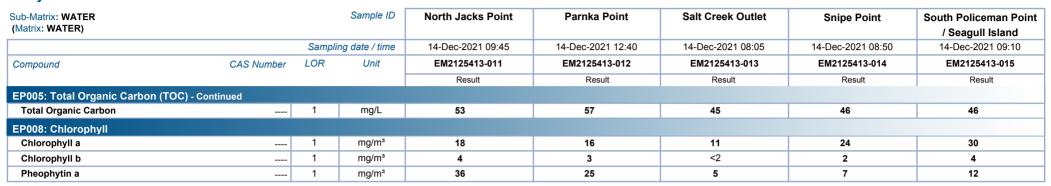




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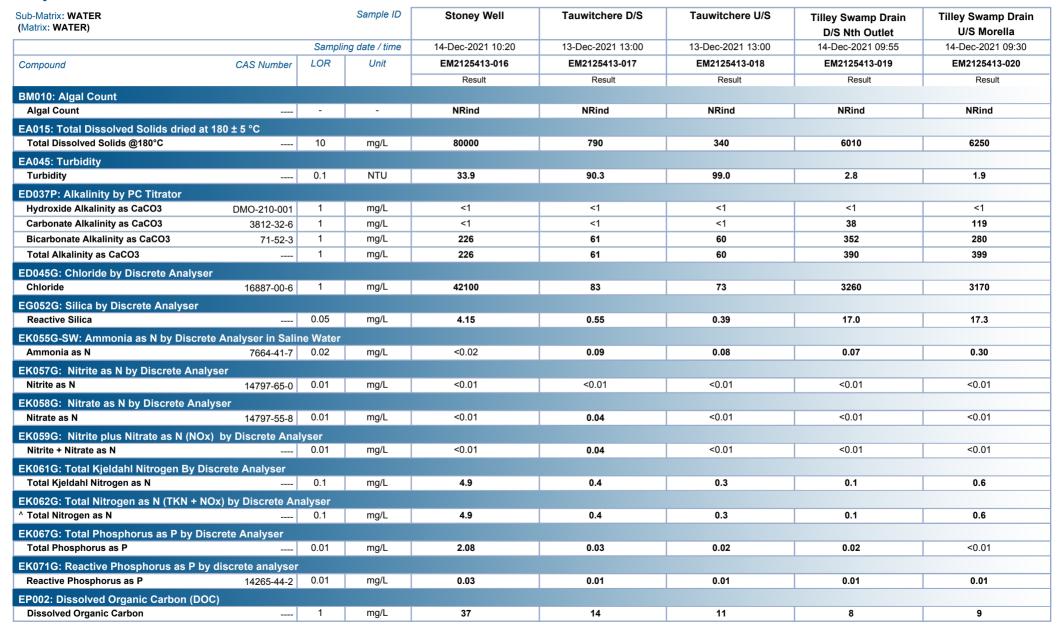




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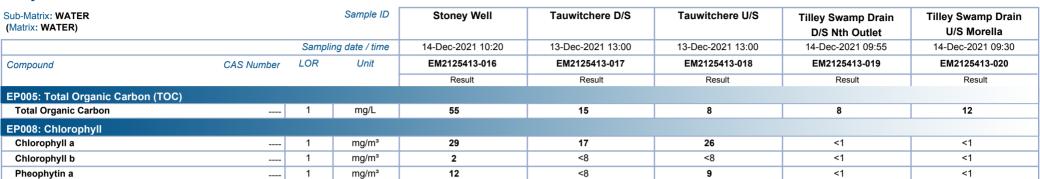




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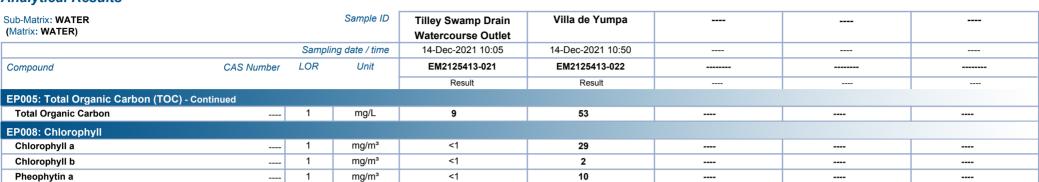
ub-Matrix: WATER Matrix: WATER)		Sampl	Sample ID	Tilley Swamp Drain Watercourse Outlet 14-Dec-2021 10:05	Villa de Yumpa 14-Dec-2021 10:50	 	
Compound	CAS Number	LOR	Unit	EM2125413-021	EM2125413-022	 	
				Result	Result	 	
BM010: Algal Count							
Algal Count		-	-	NRind	NRind	 	
A015: Total Dissolved Solids dried a	t 180 ± 5 °C						
Total Dissolved Solids @180°C		10	mg/L	6100	83500	 	
A045: Turbidity							
Turbidity		0.1	NTU	2.4	26.0	 	
D037P: Alkalinity by PC Titrator							
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	 	
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	110	<1	 	
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	286	227	 	
Total Alkalinity as CaCO3		1	mg/L	396	227	 	
D045G: Chloride by Discrete Analyse	er						
Chloride	16887-00-6	1	mg/L	3260	41800	 	
G052G: Silica by Discrete Analyser							
Reactive Silica		0.05	mg/L	17.4	4.58	 	
K055G-SW: Ammonia as N by Discre	te Analyser in Salir	ne Water					
Ammonia as N	7664-41-7	0.02	mg/L	0.33	<0.02	 	
K057G: Nitrite as N by Discrete Anal	vser						
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	 	
K058G: Nitrate as N by Discrete Ana	lvser						
Nitrate as N	14797-55-8	0.01	mg/L	0.01	<0.01	 	
K059G: Nitrite plus Nitrate as N (NO		vser					
Nitrite + Nitrate as N	x) by Discrete Anal	0.01	mg/L	0.01	<0.01	 	
K061G: Total Kjeldahl Nitrogen By D			3· =				l .
Total Kjeldahl Nitrogen By D		0.1	mg/L	0.8	4.7	 	
K062G: Total Nitrogen as N (TKN + N			· · · · · · · · ·				l .
Total Nitrogen as N (TKN + N	OX) by Discrete An	0.1	mg/L	0.8	4.7	 	
		V. 1	9, =	515	TH	<u> </u>	
K067G: Total Phosphorus as P by Di Total Phosphorus as P	Screte Analyser	0.01	mg/L	0.03	0.30	 	
•			iiig/L	0.00	0.00	 	
K071G: Reactive Phosphorus as P b		0.01	ma/l	0.01	0.01	I	I
Pagativa Phaanharus as P	14265-44-2	0.01	mg/L	U.U1	U.U1	 	
Reactive Phosphorus as P							
Reactive Phosphorus as P P002: Dissolved Organic Carbon (DC Dissolved Organic Carbon	OC)	1	mg/L	9	38	 	

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Analytical Results



Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry) 14913 (Biology).

(WATER) EP008: Chlorophyll

