

CERTIFICATE OF ANALYSIS

Work Order : **EM2121437**

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

Page : 1 of 12

Laboratory : Environmental Division Melbourne

Contact : Kieren Burns

Address : 4 Westall Rd Springvale VIC Australia 3171

Telephone : +61881625130

Date Samples Received : 28-Oct-2021 11:15

Date Analysis Commenced : 28-Oct-2021

Issue Date : 12-Nov-2021 14:50



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.

Sigi	natories	Position	Accreditation Category		
Anl	kit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW		
Dila	ani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC		
Jar	rwis Nheu	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC		
Nik	kki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC		
Sai	mantha Smith	Assistant Laboratory Manager	WRG Subcontracting, Springvale, VIC		
Dila Jar Nik	ani Fernando rwis Nheu kki Stepniewski	Laboratory Coordinator Senior Inorganic Chemist Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC Melbourne Inorganics, Springvale, VIC Melbourne Inorganics, Springvale, VIC		

Page : 2 of 12 Work Order : EM2121437

Client : Dept for Environment & Water

Project : HCHB - Phase 1



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.

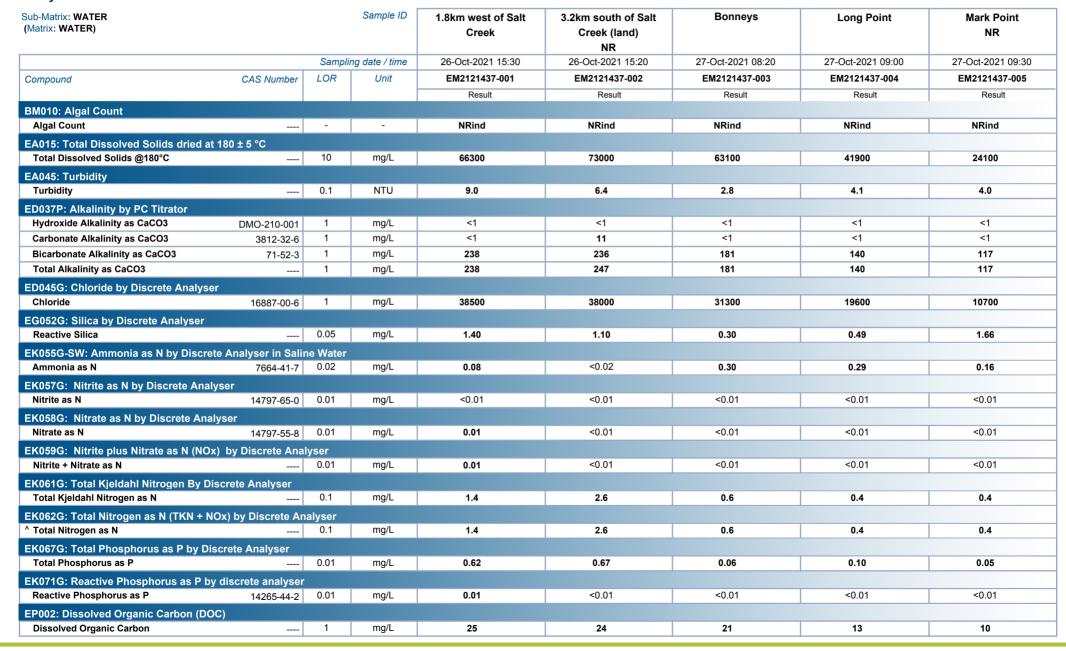
LOR = Limit of reporting

- ^ = 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: EM2021437 #1. Alkalinity has been confirmed via re-preparation and re-analysis.
- EP002:EP005:It is recognised that total organic carbon less than dissolved organic carbon for samples EM2121437 #7, #9, #10, #17, #18 & #19. However, the difference is within experimental variation of the methods.
- EP008, Chlorophyll-a standard does not contained Pheophytin-a standard.
- EP008, LOR raised for sample 17 for Chlorophyll-b and Pheophytin-a due to sample matrix.
- EP008, LOR raised for Chlorophyll-b for sample 18 due to sample matrix.
- EA015H: EM2121437 #3-6, #10-18, #22: 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.
- EK067G: EM2121437 #10 Poor duplicate precision for Total phosphorus due to sample heterogeneity. 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.

Page : 3 of 12 Work Order : EM2121437

Client : Dept for Environment & Water

Project : HCHB - Phase 1

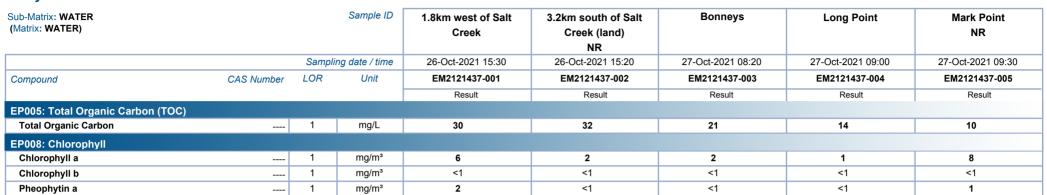




Page : 4 of 12 Work Order : EM2121437

Client : Dept for Environment & Water

Project : HCHB - Phase 1

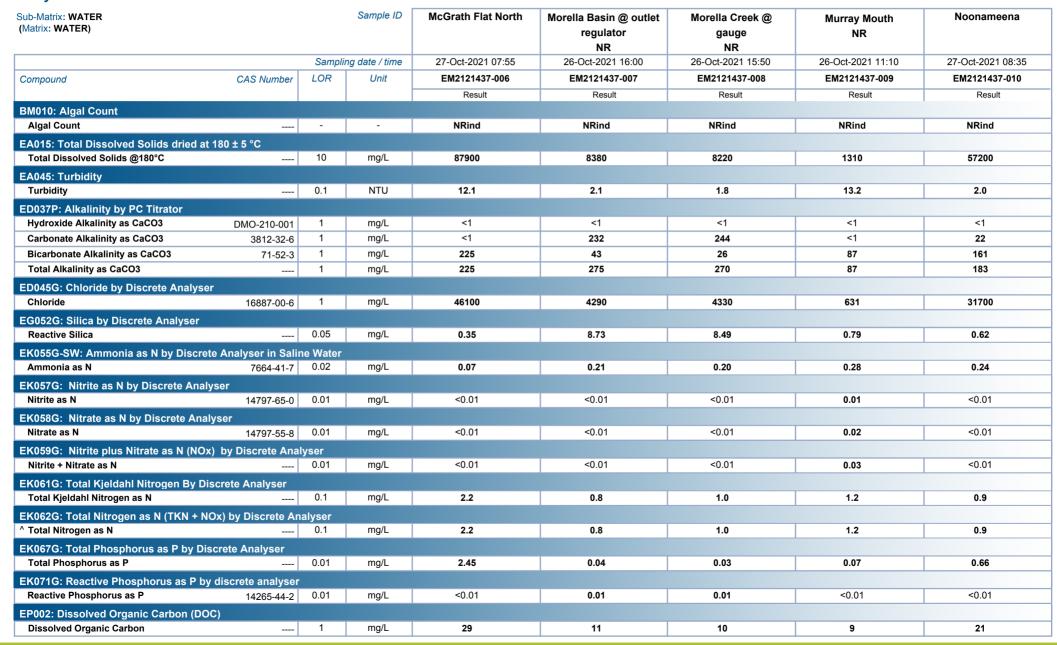




Page : 5 of 12 Work Order : EM2121437

Client : Dept for Environment & Water

Project : HCHB - Phase 1

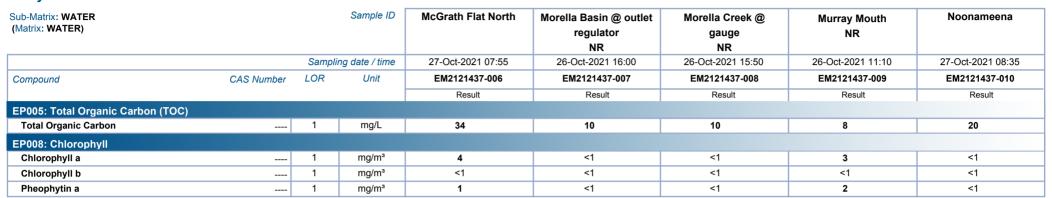




Page : 6 of 12 Work Order : EM2121437

Client : Dept for Environment & Water

Project : HCHB - Phase 1





Page : 7 of 12 : EM2121437 Work Order

: Dept for Environment & Water : HCHB - Phase 1 Client

Project

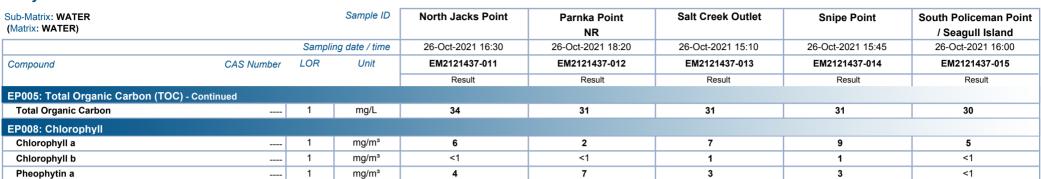


ub-Matrix: WATER Matrix: WATER)	· ·			North Jacks Point	Parnka Point NR	Salt Creek Outlet	Snipe Point	South Policeman Poin / Seagull Island
				26-Oct-2021 16:30	26-Oct-2021 18:20	26-Oct-2021 15:10	26-Oct-2021 15:45	26-Oct-2021 16:00
Compound	CAS Number	LOR	Unit	EM2121437-011	EM2121437-012	EM2121437-013	EM2121437-014	EM2121437-015
				Result	Result	Result	Result	Result
BM010: Algal Count								
Algal Count		-	-	NRind	NRind	NRind	NRind	NRind
EA015: Total Dissolved Solids dried a	t 180 ± 5 °C							
Total Dissolved Solids @180°C		10	mg/L	81500	86400	74100	74000	77300
A045: Turbidity								
Turbidity		0.1	NTU	11.3	10.6	8.2	8.3	8.6
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	5	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	246	232	256	262	263
Total Alkalinity as CaCO3		1	mg/L	246	232	260	262	263
D045G: Chloride by Discrete Analyse	er							
Chloride	16887-00-6	1	mg/L	47200	41200	38400	39700	41100
G052G: Silica by Discrete Analyser								
Reactive Silica		0.05	mg/L	0.81	0.46	1.41	1.33	1.16
K055G-SW: Ammonia as N by Discre	te Analyser in Salir	ne Water						
Ammonia as N	7664-41-7	0.02	mg/L	0.14	<0.02	0.18	0.20	0.02
K057G: Nitrite as N by Discrete Ana	vser							
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Ana	lvser							
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
:K059G: Nitrite plus Nitrate as N (NO			3					
Nitrite + Nitrate as N	x) by Discrete Anal	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
	icarata Anglyser		9. =	5.5.	3.5.		3.5.	0.0.
K061G: Total Kjeldahl Nitrogen By D Total Kjeldahl Nitrogen as N	iscrete Analyser	0.1	mg/L	2.3	2.2	1.1	1.4	1.2
-			mg/L	2.0		111	1.4	1.4
:K062G: Total Nitrogen as N (TKN + N Total Nitrogen as N	Ox) by Discrete An	0.1	mg/L	2.3	2.2	1.1	1.4	1.2
		0.1	IIIg/L	2.3	2.2	1.1	1.4	1.2
K067G: Total Phosphorus as P by Di	screte Analyser	0.01	m a/l	4.00	4.44	0.22	0.44	0.00
Total Phosphorus as P		0.01	mg/L	1.09	1.11	0.22	0.14	0.08
EK071G: Reactive Phosphorus as P b			ma c /l	10.04	40.04	40.04	40.04	40.04
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
P002: Dissolved Organic Carbon (DC	OC)							
Dissolved Organic Carbon		1	mg/L	28	27	27	26	26

Page : 8 of 12 Work Order : EM2121437

Client : Dept for Environment & Water

Project : HCHB - Phase 1

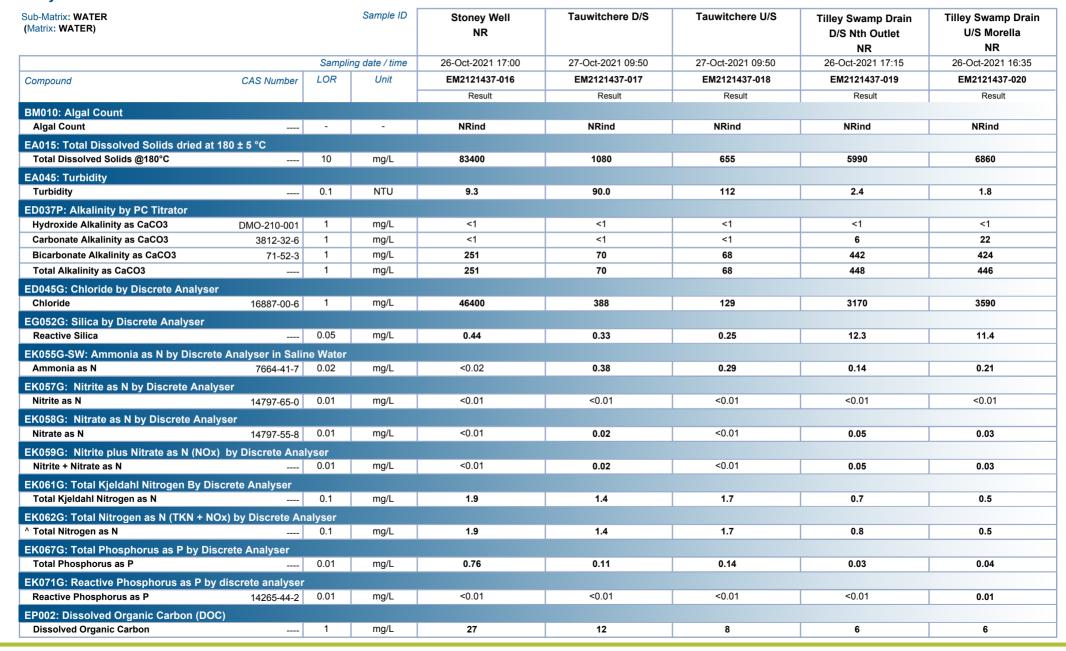




Page : 9 of 12 Work Order : EM2121437

Client : Dept for Environment & Water

Project : HCHB - Phase 1

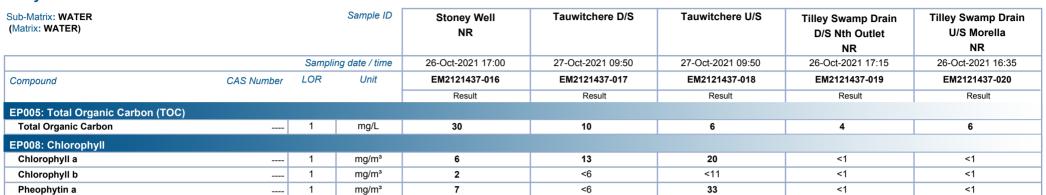




Page : 10 of 12 Work Order : EM2121437

Client : Dept for Environment & Water

Project : HCHB - Phase 1

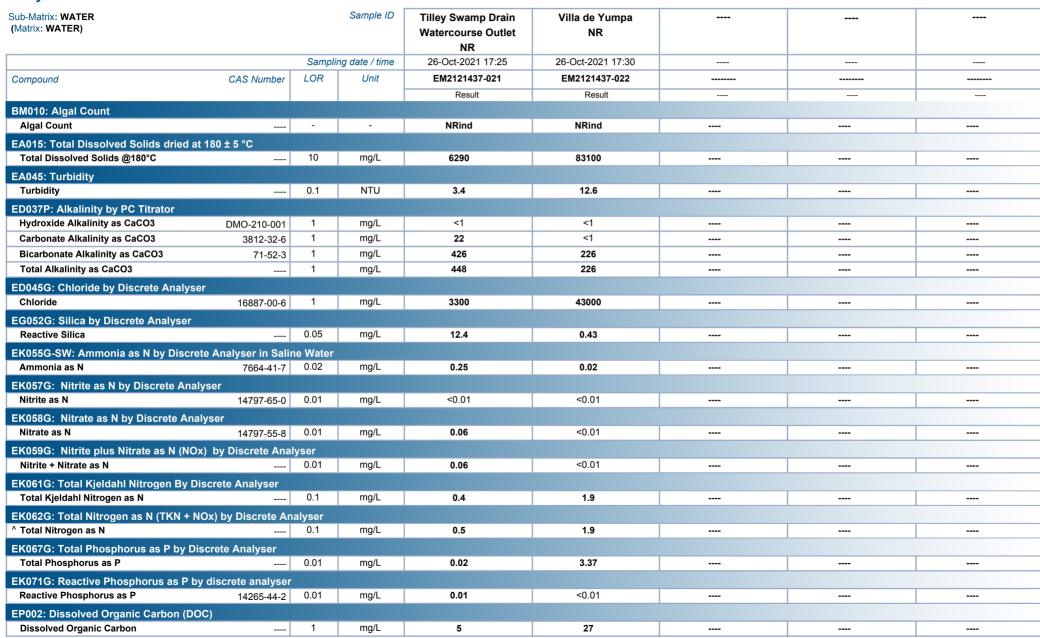




Page : 11 of 12 Work Order : EM2121437

Client : Dept for Environment & Water

Project : HCHB - Phase 1





Page : 12 of 12 Work Order : EM2121437

Client : Dept for Environment & Water

Project : HCHB - Phase 1

EP005: Total Organic Carbon (TOC)

Analytical Results

Sub-Matrix: WATER

(Matrix: WATER)

Compound



Inter-Laboratory Testing

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

CAS Number

Sample ID

Unit

mg/L

mg/m³

mg/m³

mg/m³

Sampling date / time

LOR

1

1

Tilley Swamp Drain

Watercourse Outlet

NR 26-Oct-2021 17:25

EM2121437-021

Result

<1

<1

<1

Villa de Yumpa

NR

26-Oct-2021 17:30

EM2121437-022

Result

32

7

1

6

(WATER) EP008: Chlorophyll

Total Organic Carbon

EP008: Chlorophyll Chlorophyll a

Chlorophyll b

Pheophytin a

