PRECISE ENVIRONMENTAL
Consulting Environmental Scientists

CONSTRUCTION PHASE SURFACE WATER QUALITY MONITORING REPORT – DECEMBER 2023

Serenity Cove Development, Hope Island, Queensland

Oyster Cove Projects Pty Ltd ATF The Oyster Cove Projects Unit Trust

January 2024

Precise Environmental Pty Ltd
ATF Precise Environmental Unit Trust
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15 January 2024

Our Ref: PE1250.13_Serenity Cove SWQM Report_Dec 2023

Oyster Cove Projects Pty Ltd ATF The Oyster Cove Projects Unit Trust
4/66A Slobodian Avenue
Eight Mile Plains, QLD
Email: tommyhung@kinstone.com.au

Attention: Tommy Hung

CONSTRUCTION PHASE WATER QUALITY MONITORING – DECEMBER 2023, SERENITY COVE, HELENSVALE ROAD, HELENSVALE, QUEENSLAND.

Precise Environmental (PE) was commissioned by Oyster Cove Projects Pty Ltd ATF The Oyster Cove Projects Unit Trust (the client) to undertake construction phase surface water quality monitoring within the Serenity Cove lake system, and at two external locations in Saltwater Creek. The monitoring was conducted in relation to stormwater management and erosion and sediment control requirements of Condition 10, 12(i) and 12(j) of the City of Gold Coast Decision Notice (ROL201100207 dated 2 March 2020).

Accordingly, this report presents the results the final three rounds of construction phase monitoring between 8 December 2023 and 18 December 2023. Construction works concluded on 22 December 2023. Assessment of compliance was completed with reference to the water quality objectives (WQOs) adopted for the lake system specified in the Acid Sulfate Soil Management Plan (Gilbert & Sutherland, June 2007).

Scope and method of monitoring

Monitoring of the below parameters was conducted at locations SW1, SW2, SW3, SW4, SW5/6 & SW7:

- pH, electrical conductivity (EC), dissolved oxygen (DO), turbidity, and temperature
- Total suspended solids (SS).

Sampling locations are shown in Attachment A – Figure 1.

All monitoring was conducted by a qualified environmental scientist with reference to the Monitoring and Sampling Manual (DES 2018).

Results summary

A summary of the monitoring results is presented below and should be read in conjunction with the attached data tables, (Appendix B) and laboratory certificates of analysis (Attachment C).

Three rainfall events were recorded in December during the monitoring period and rainfall ranged from 10.2 – 18.2 mm, totalling 42 mm (Gold Coast Seaway weather station 040764).

Assessment of compliance during the construction phase is based on comparison of the median value of sample results with the relevant WQO. Highlighting of individual results exceeding WQOs are provided for indicative purposes only and should not be considered non-compliances.

Table A. Summary of water quality monitoring results.

Parameter	Lake monitoring locations compliant with WQO		Comments
	Individual result(s)	Running median*	
pH	No	No – see comments	The median pH at all sampling locations (8.3 – 8.4 units) within the lake exceeded the WQO (7.5 – 8.0 units), however the median values were similar to external locations SW3 and SW4 (8.1 – 8.2 units) and were not attributed to construction activities.
EC	Yes	Yes	-
DO	Yes	Yes	-
Turbidity	Yes	Yes	-
SS	Yes	Yes	SS was only detected at SW2 on 13 December 2023 at 5 mg/L, equal to the laboratory limit of reporting (LOR). SS at the external lake locations ranged from <5 mg/L – 14 mg/L.

* Median for period from commencement of construction to current.

Conclusions and recommendations

Non-compliances of pH were not attributed to construction activities. The results do not reflect any deterioration in water quality within the Serenity Cove lake system.

Please do not hesitate to contact the undersigned if you have queries or require any additional information.

Sean Gardiner BSc (Env)
Environmental Scientist

Limitations

The findings of this report are based on the objectives and scope of work outlined above. PE performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. No warranties or guarantees, express or implied, are made. Subject to the scope of work, PE's assessment is limited strictly to identifying typical environmental conditions associated with the subject property, and does not include evaluation of any other issues.

This report does not comment on any regulatory obligations based on the findings, for which a legal opinion should be sought. This report relates only to the objectives and scope of work stated, and does not relate to any other works undertaken for the Client.

The report and conclusions are based on the information obtained at the time of the assessment. Changes to the subsurface, site or adjacent site conditions may occur subsequent to the investigation described herein, through natural processes or through the intentional or accidental addition of contaminants, and these conditions may change with space and time. While PE has used reasonable care to avoid reliance on data and information that is inaccurate or unsuitable, PE is not able to verify the accuracy or completeness of all information and data made available.

Parameters and/or contaminants of potential concern may exist at or adjacent to the site. The absence of these in deliverables associated with services provided by PE should not be interpreted as a warranty or guarantee that such parameters and/or contaminants do not exist on the site. If additional certainty is required, additional site history or desktop studies, or environmental sampling and analysis, should be commissioned.

The results of this assessment are based upon site inspection and fieldwork conducted by PE personnel and information provided by the Client. Any samples collected at specific locations, and should be considered to be an approximation of the condition of the sample.

All conclusions regarding the property area are the professional opinions of the PE personnel involved with the project, subject to the qualifications made above. While normal assessments of data reliability have been made by PE, PE assume no responsibility or liability for errors in any data obtained from regulatory agencies, or information from sources outside of PE's control, or developments resulting from situations outside the scope of this project.

ATTACHMENT A – Monitoring locations

LEGEND

Water monitoring locations

All locations indicative only

Image sourced and modified from Google Earth (2014), version 7.1.2.2041

Client: OYSTER COVE PROJECTS PTY LTD ATF THE OYSTER COVE PROJECTS UNIT TRUST	Site location: SERENITY COVE, HELENSVALE ROAD, HELENSVALE, QUEENSLAND		Real property description: -		Drawing number: FIGURE 1 Drawing version: F	PRECISE ENVIRONMENTAL Consulting Environmental Scientists
Project: MAINTENANCE PHASE WATER QUALITY MONITORING	Project number: PE1250.13	Scale: NOT TO SCALE	Drawn by: SG Date drawn: 23.04.2021	Reviewed by: AG Approved: AG	Drawing title: SURFACE WATER MONITORING LOCATIONS	Unit 7 / 14 Fremantle Street, Burleigh Heads, Qld, 4220 PO Box 4424, Robina Town Centre, Qld 4230 Ph: (07) 5593 7848 Fax: (07) 5593 7020 mail@preciseenvironmental.com.au

ATTACHMENT B – Data tables and control charts

TABLE 1: SURFACE WATER QUALITY DATA

SW1	units	mS/cm	mg/L	NTU	mg/L
	pH	EC	DO	Turb	SS
03.11.23	**8.3**	**55.9**	8.1	2.4	2.5
09.11.23	**8.4**	**55.7**	10.2	0.3	2.5
16.11.23	**8.4**	**55.8**	8.8	0.2	2.5
23.11.23	**8.3**	45.8	8.8	3.7	2.5
30.11.23	**8.4**	51.5	9.2	2.8	2.5
08.12.23	**8.3**	54.2	9.8	1.1	2.5
13.12.23	**8.2**	52.1	8.9	0.7	2.5
18.12.23	**8.3**	54.0	9.7	0.7	2.5
WQO	7.5 - 8.0	35 - 55	≥5.6	≤27	≤14
Mean	8.3	53.1	9.2	1.5	2.5
Median	8.3	54.1	9.0	0.9	2.5
Min	8.2	45.8	8.1	0.2	2.5
Max	8.4	55.9	10.2	3.7	3

Denotes below laboratory LOR - half LOR applied used for graphing purposes

Bold denotes exceedance of WQO

Blank denotes no data

(<) denotes below LOR for algae cell count

(-) denotes no criteria

WQO derived from Amended Acid Sulfate Soil Management Plan (ASSMP), Extension to Lake Serenity, Oyster Cove, Qld (Gilbert & Sutherland, June 2007)

TABLE 2: SURFACE WATER QUALITY DATA

SW2	units	mS/cm	mg/L	NTU	mg/L
	pH	EC	DO	Turb	SS
03.11.23	7.9	50.0	10.0	5.8	2.5
09.11.23	**8.5**	**56.7**	8.0	0.3	2.5
16.11.23	**8.4**	**56.1**	7.6	0.6	2.5
23.11.23	**8.5**	46.9	8.7	9.6	2.5
30.11.23	**8.4**	52.7	9.0	2.9	2.5
08.12.23	**8.4**	54.5	8.2	1.6	5
13.12.23	**8.1**	50.6	7.1	0.9	2.5
18.12.23	**8.5**	53.6	7.2	0.4	2.5
WQO	7.5 - 8.0	35 - 55	≥5.6	≤27	≤14
Mean	8.3	52.6	8.2	2.7	2.8
Median	8.4	53.2	8.1	1.2	2.5
Min	7.9	46.9	7.1	0.3	2.5
Max	8.5	56.7	10.0	9.6	5.0

Denotes below laboratory LOR - half LOR applied used for graphing purposes

Bold denotes exceedance of WQO

Blank denotes no data

(<) denotes below LOR for algae cell count

(-) denotes no criteria

WQO derived from Amended Acid Sulfate Soil Management Plan (ASSMP), Extension to Lake Serenity, Oyster Cove, Qld (Gilbert & Sutherland, June 2007)

TABLE 3: SURFACE WATER QUALITY DATA

SW3	units	mS/cm	mg/L	NTU	mg/L
	pH	EC	DO	Turb	SS
03.11.23	8.2	58.1	5.9	8.0	10
09.11.23	8.2	56.5	6.6	4.1	10
16.11.23	8.3	55.6	6.0	4.7	12
23.11.23	8.3	51.7	7.3	5.7	8
30.11.23	8.3	44.1	8.8	5.6	16
08.12.23	7.9	48.8	5.5	15.6	18
13.12.23	8.3	49.9	7.0	6.8	2.5
18.12.23	8.1	51.8	5.9	4.8	10
WQO	7.5 - 8.0	35 - 55	≥5.6	≤27	≤14
Mean	8.2	52.1	6.6	6.9	10.8
Median	8.2	51.8	6.3	5.7	10.0
Min	7.9	44.1	5.5	4.1	2.5
Max	8.3	58.1	8.8	15.6	18.0

Denotes below laboratory LOR - half LOR applied used for graphing purposes

Bold denotes exceedance of WQO

WQOs not applicable to external lake locations and are shown for reference only

Blank denotes no data

(<) denotes below LOR for algae cell count

(-) denotes no criteria

WQO derived from Amended Acid Sulfate Soil Management Plan (ASSMP), Extension to Lake Serenity, Oyster Cove, Qld (Gilbert & Sutherland, June 2007)

TABLE 4: SURFACE WATER QUALITY DATA

SW4	units	mS/cm	mg/L	NTU	mg/L
	pH	EC	DO	Turb	SS
03.11.23	8.1	55.2	7.7	6.6	14
09.11.23	8.1	53.6	8.9	7.8	18
16.11.23	8.2	53.8	8.4	3.7	13
23.11.23	8.1	48.4	6.9	5.9	8
30.11.23	8.3	43.6	8.2	13.6	40
08.12.23	7.7	44.1	7.9	8.1	6
13.12.23	7.7	49.5	7.8	10.4	2.5
18.12.23	7.9	52.8	8.2	7.7	14
WQO	7.5 - 8.0	35 - 55	≥5.6	≤27	≤14
Mean	8.0	50.1	8.0	8.0	14.4
Median	8.1	51.2	8.0	7.8	13.5
Min	7.7	43.6	6.9	3.7	2.5
Max	8.3	55.2	8.9	13.6	40.0

Denotes below laboratory LOR - half LOR applied used for graphing purposes

Bold denotes exceedance of WQO

WQOs not applicable to external lake locations and are shown for reference only

Blank denotes no data

(<) denotes below LOR for algae cell count

(-) denotes no criteria

WQO derived from Amended Acid Sulfate Soil Management Plan (ASSMP), Extension to Lake Serenity, Oyster Cove, Qld (Gilbert & Sutherland, June 2007)

TABLE 5: SURFACE WATER QUALITY DATA

SW5|6	units	mS/cm	mg/L	NTU	mg/L
	pH	EC	DO	Turb	SS
03.11.23	**8.3**	**56.7**	7.4	1.6	2.5
09.11.23	**8.4**	**56.1**	7.5	1.8	2.5
16.11.23	**8.3**	**55.6**	6.9	0.6	2.5
23.11.23	**8.3**	51.5	7.3	4.4	2.5
30.11.23	**8.5**	50.0	9.0	5.8	2.5
08.12.23	**8.3**	55.0	6.6	1.4	2.5
13.12.23	**8.1**	52.5	6.7	0.6	2.5
18.12.23	**8.4**	54.2	6.9	0.3	2.5
WQO	7.5 - 8.0	35 - 55	≥5.6	≤27	≤14
Mean	8.3	54.0	7.3	2.1	2.5
Median	8.3	54.6	7.1	1.5	2.5
Min	8.1	50.0	6.6	0.3	2.5
Max	8.5	56.7	9.0	5.8	2.5

Denotes below laboratory LOR - half LOR applied used for graphing purposes

Bold denotes exceedance of WQO

Blank denotes no data

(<) denotes below LOR for algae cell count

(-) denotes no criteria

WQO derived from Amended Acid Sulfate Soil Management Plan (ASSMP), Extension to Lake Serenity, Oyster Cove, Qld (Gilbert & Sutherland, June 2007)

TABLE 6: SURFACE WATER QUALITY DATA

SW7	units	mS/cm	mg/L	NTU	mg/L
	pH	EC	DO	Turb	SS
03.11.23	**8.3**	**55.9**	6.4	1.5	2.5
09.11.23	**8.4**	**56.1**	7.5	0.4	2.5
16.11.23	**8.4**	**55.8**	7.2	0.9	2.5
23.11.23	**8.4**	51.3	7.7	4.2	2.5
30.11.23	**8.4**	51.3	8.7	2.9	2.5
08.12.23	**8.3**	54.9	7.5	0.6	2.5
13.12.23	**8.0**	52.1	7.9	0.6	2.5
18.12.23	**8.5**	53.5	7.6	0.8	2.5
WQO	7.5 - 8.0	35 - 55	≥5.6	≤27	≤14
Mean	8.3	53.9	7.6	1.5	2.5
Median	8.4	54.2	7.6	0.9	2.5
Min	8.0	51.3	6.4	0.4	2.5
Max	8.5	56.1	8.7	4.2	2.5

Denotes below laboratory LOR - half LOR applied used for graphing purposes

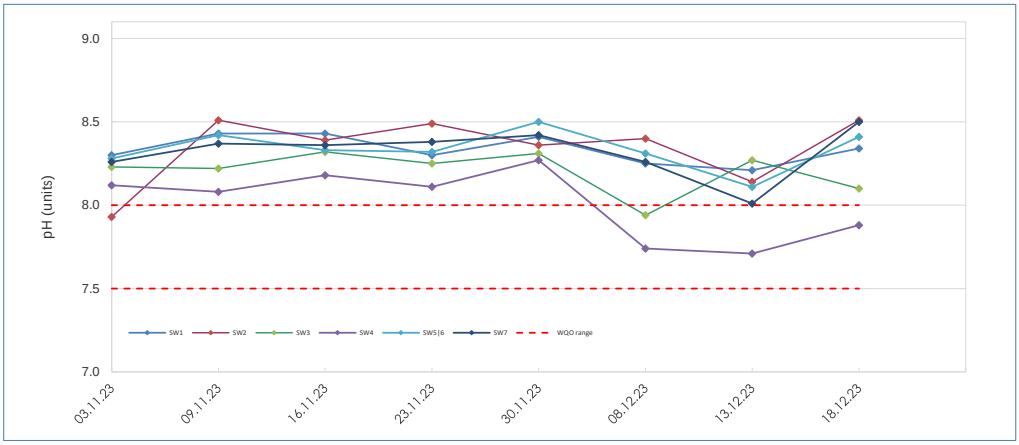
Bold denotes exceedance of WQO

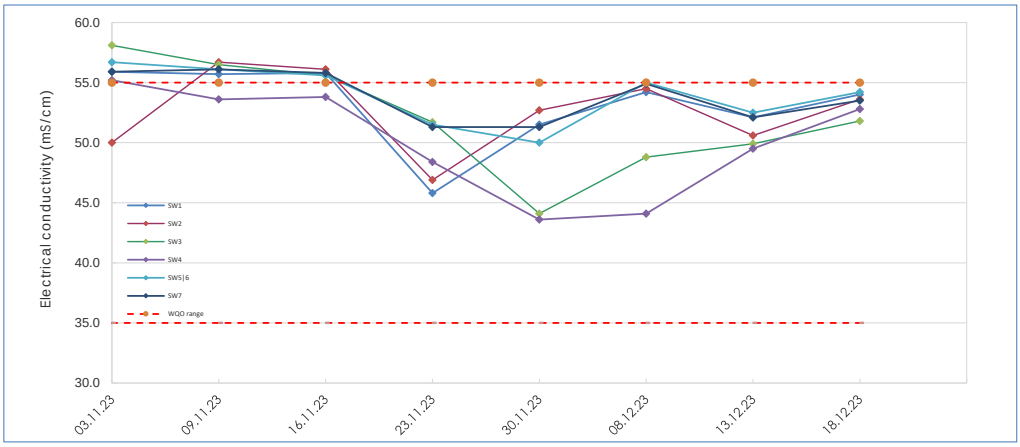
Blank denotes no data

(<) denotes below LOR for algae cell count

(-) denotes no criteria

WQO derived from Amended Acid Sulfate Soil Management Plan (ASSMP), Extension to Lake Serenity, Oyster Cove, Qld (Gilbert & Sutherland, June 2007)


pH (units)
9.0
8.5
8.0
7.5
7.0
SW1
SW2
SW3
SW4
SW5|6
SW7
WQO range
03.11.23
09.11.23
16.11.23
23.11.23
30.11.23
08.12.23
13.12.23
18.12.23


Electrical conductivity (mS/cm)
60.0
55.0
50.0
45.0
40.0
35.0
30.0
SW1
SW2
SW3
SW4
SW5|6
SW7
WQO range
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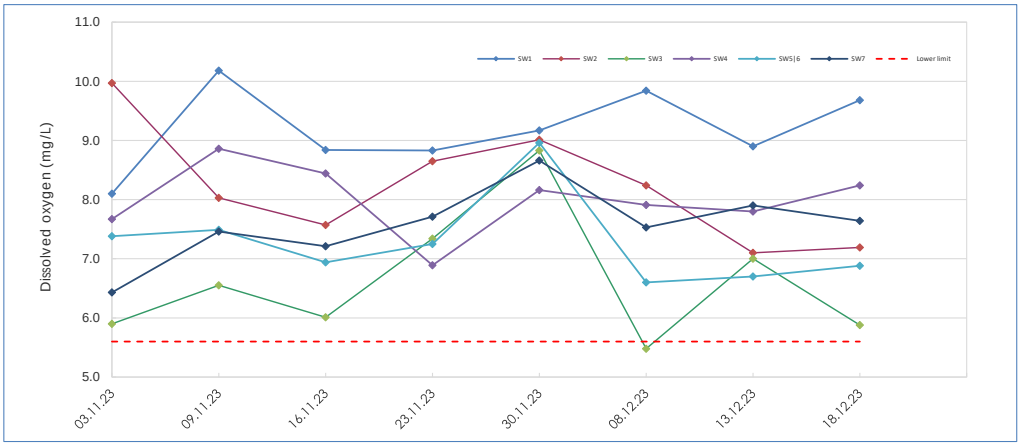
09.11.23
16.11.23
23.11.23
30.11.23
08.12.23
13.12.23
18.12.23


Dissolved oxygen (mg/L)
11.0
10.0
9.0
8.0
7.0
6.0
5.0
SW1
SW2
SW3
SW4
SW5|6
SW7
Lower limit
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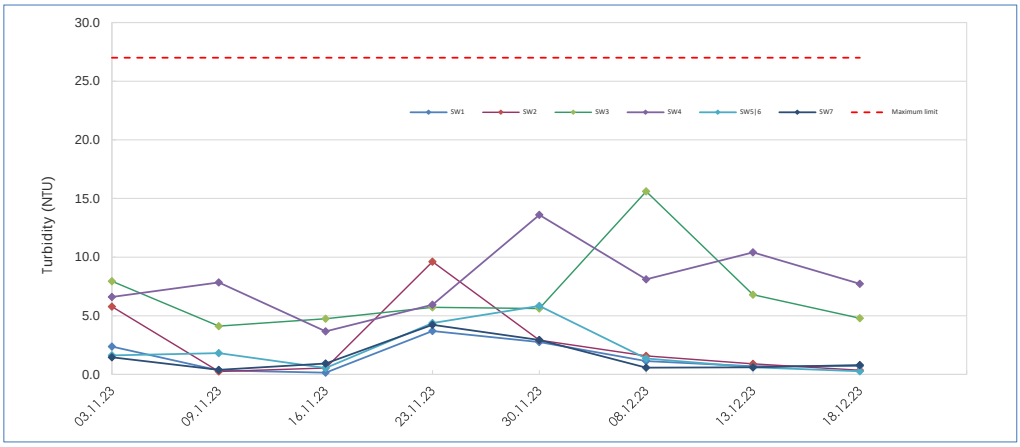
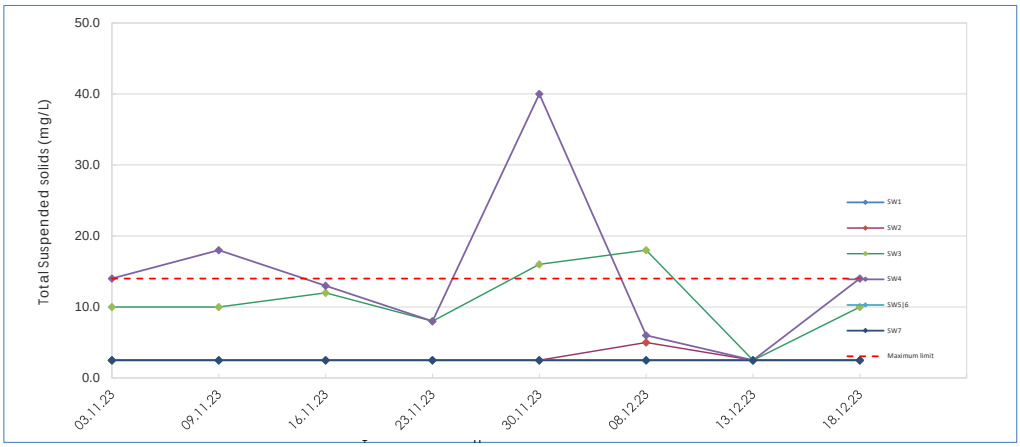
16.11.23
23.11.23
30.11.23
08.12.23
13.12.23
18.12.23


Turbidity (NTU)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
SW1
SW2
SW3
SW4
SW5|6
SW7
Maximum limit
03.11.23
09.11.23
16.11.23
23.11.23
30.11.23
08.12.23
13.12.23
18.12.23


Total Suspended solids (mg/L)
50.0
40.0
30.0
20.0
10.0
0.0
03.11.23
09.11.23
16.11.23
23.11.23
30.11.23
08.12.23
13.12.23
18.12.23
SW1
SW2
SW3
SW4
SW5|6
SW7
Maximum limit

ATTACHMENT C – Laboratory certificates

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2339083**

Client	: **PRECISE ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: SEAN GARDINER	Contact	: David Wall
Address	: PO BOX 4424 ROBINA TOWN CENTRE QLD, AUSTRALIA 4230	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: sean@preciseenvironmental.com.au	E-mail	: david.wall@alsglobal.com
Telephone	: ----	Telephone	: +61-7-3243 7222
Facsimile	: ----	Facsimile	: +61-7-3243 7218
Project	: PE1250.13	Page	: 1 of 2
Order number	: PE1250.13	Quote number	: EB2017PREENV0003 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: SEAN GARDINER		

Dates

Date Samples Received	: 11-Dec-2023 14:10	Issue Date	: 11-Dec-2023
Client Requested Due Date	: 19-Dec-2023	Scheduled Reporting Date	: **19-Dec-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 9.9°C - Ice present
Receipt Detail	: ESKY	No. of samples received / analysed	: 6 / 6

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EA025H Suspended Solids - Standard Level
EB2339083-001	08-Dec-2023 00:00	SW1	✓
EB2339083-002	08-Dec-2023 00:00	SW2	✓
EB2339083-003	08-Dec-2023 00:00	SW3	✓
EB2339083-004	08-Dec-2023 00:00	SW4	✓
EB2339083-005	08-Dec-2023 00:00	SW5/6	✓
EB2339083-006	08-Dec-2023 00:00	SW7	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

RESULTS & INVOICE

- *AU Certificate of Analysis - NATA (COA)	Email	mail@preciseenvironmental.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mail@preciseenvironmental.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mail@preciseenvironmental.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mail@preciseenvironmental.com.au
- A4 - AU Tax Invoice (INV)	Email	mail@preciseenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	mail@preciseenvironmental.com.au
- EDI Format - XTab (XTAB)	Email	mail@preciseenvironmental.com.au

SEAN GARDINER

- *AU Certificate of Analysis - NATA (COA)	Email	sean@preciseenvironmental.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	sean@preciseenvironmental.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	sean@preciseenvironmental.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	sean@preciseenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	sean@preciseenvironmental.com.au
- EDI Format - XTab (XTAB)	Email	sean@preciseenvironmental.com.au

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ Sydney: 277 Woodpark Rd, Smithfield NSW 2176 Ph: 02 8784 8555 E: samples.sydney@alsenviro.com
☐ Newcastle: 5 Rosegum Rd, Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsenviro.com
☒ Brisbane: 32 Shand St, Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com
☐ Townsville: 14-15 Desma Ct, Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsenviro.com
☐ Melbourne: 2-4 Westall Rd, Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsenviro.com
☐ Adelaide: 2-1 Burma Rd, Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsenviro.com
☐ Perth: 10 Hod W... Ph: 08 9209 7655 E...
☐ Launceston: 27... Ph: 03 6331 2158 E...

Environmental Division Brisbane
Work Order Reference
EB2339083

Telephone: + 61-7-3243 7222

CLIENT:	Precise Environmental	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	☒ Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date):
OFFICE:	PO Box 4424, Robina Town Centre, 4230	ALS QUOTE NO.:	EN222/22
PROJECT:	PE1250.13	COC SEQUENCE NUMBER (Circle)	COC: (1) 2 3 4 5 6 7
ORDER NUMBER:	PE1250.13		OF: (1) 2 3 4 5 6 7
PROJECT MANAGER:	Sean Gardiner	CONTACT PH: 0409 827 396	
SAMPLER:	Sean Gardiner	SAMPLER MOBILE:	
COC emailed to ALS? (YES / (NO))		EDD FORMAT (or default):	
Email Reports to: mail@preciseenvironmental.com.au			
Mail Invoice to: PO Box 4424, Robina Town Centre, QLD, 4230			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED	FOR LABORATORY
Sean Gardiner [signature]	[signature]		Custody Seal: N/A
DATE/TIME: 11.12.23 9AM	DATE/TIME: 11/12/23 1410	DATE/TIME:	Free ice / frozen on receipt?: N/A
			Random Sample...
			Other comments

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	EA025H (TSS)								Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	SW1	08.12.23	Saline	P/SP/<4C	1	X								
2	SW2	08.12.23	Saline	P/SP/<4C	1	X								
3	SW3	08.12.23	Saline	P/SP/<4C	1	X								
4	SW4	08.12.23	Saline	P/SP/<4C	1	X								
5	SW5/6	08.12.23	Saline	P/SP/<4C	1	X								
6.	SW7	08.12.23	Saline	P/SP/<4C	1	X								
					6									

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CERTIFICATE OF ANALYSIS

Work Order	: **EB2339083**	Page	: 1 of 4
Client	: **PRECISE ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: SEAN GARDINER	Contact	: David Wall
Address	: PO BOX 4424 ROBINA TOWN CENTRE QLD, AUSTRALIA 4230	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: PE1250.13	Date Samples Received	: 11-Dec-2023 14:10
Order number	: PE1250.13	Date Analysis Commenced	: 15-Dec-2023
C-O-C number	: ----	Issue Date	: 18-Dec-2023 09:35
Sampler	: SEAN GARDINER		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 6		
No. of samples analysed	: 6		

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

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.

Analytical Results

Sub-Matrix: SALINE WATER (Matrix: WATER)				Sample ID	SW1	SW2	SW3	SW4	SW5/6
				Sampling date / time	08-Dec-2023 00:00	08-Dec-2023 00:00	08-Dec-2023 00:00	08-Dec-2023 00:00	08-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		EB2339083-001	EB2339083-002	EB2339083-003	EB2339083-004	EB2339083-005
					Result	Result	Result	Result	Result
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L		<5	**5**	**18**	**6**	<5

Analytical Results

Sub-Matrix: SALINE WATER (Matrix: WATER)				Sample ID	SW7	----	----	----	----
				Sampling date / time	08-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2339083-006	---------	---------	---------	---------
					Result	----	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L		<5	**----**	**----**	**----**	**----**

QUALITY CONTROL REPORT

Work Order	: **EB2339083**	Page	: 1 of 3
Client	: **PRECISE ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: SEAN GARDINER	Contact	: David Wall
Address	: PO BOX 4424 ROBINA TOWN CENTRE QLD, AUSTRALIA 4230	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: PE1250.13	Date Samples Received	: 11-Dec-2023
Order number	: PE1250.13	Date Analysis Commenced	: 15-Dec-2023
C-O-C number	: ----	Issue Date	: 18-Dec-2023
Sampler	: SEAN GARDINER		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 6		
No. of samples analysed	: 6		

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 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.

Signatories	*Position*	*Accreditation Category*
Kim McCabe	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.

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 (%)*	*Acceptable RPD (%)*
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 5493633)									
EB2337630-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	85	102	17.6	0% - 20%
EB2339170-004	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	47	42	10.1	No Limit

Method Blank (MB) and Laboratory Control Sample (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 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.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 5493633)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	105	88.0	112
				<5	1000 mg/L	103	88.0	112
				<5	987 mg/L	102	85.0	115

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.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2339083**	Page	: 1 of 4
Client	: **PRECISE ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: SEAN GARDINER	Telephone	: +61-7-3243 7222
Project	: PE1250.13	Date Samples Received	: 11-Dec-2023
Site	: ----	Issue Date	: 18-Dec-2023
Sampler	: SEAN GARDINER	No. of samples received	: 6
Order number	: PE1250.13	No. of samples analysed	: 6

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA025: Total Suspended Solids dried at 104 ± 2°C							
Clear Plastic Bottle - Natural (EA025H)							
SW1, SW2, SW3, SW4, SW5/6, SW7	**08-Dec-2023**	**----**	----	----	**15-Dec-2023**	15-Dec-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Suspended Solids (High Level)	EA025H	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Suspended Solids (High Level)	EA025H	3	15	**20.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Suspended Solids (High Level)	EA025H	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Suspended Solids (High Level)	EA025H	WATER	In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of `non-filterable` residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM Schedule B(3)

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2339682**

Client	: **PRECISE ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MR SEAN GARDINER	Contact	: David Wall
Address	: PO BOX 4424 ROBINA TOWN CENTRE QLD, AUSTRALIA 4230	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: mail@preciseenvironmental.com.au	E-mail	: david.wall@alsglobal.com
Telephone	: +61 07 5593 7848	Telephone	: +61-7-3243 7222
Facsimile	: ----	Facsimile	: +61-7-3243 7218
Project	: PE1250.13	Page	: 1 of 2
Order number	: PE1250.13	Quote number	: EB2017PREENV0003 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: SEAN GARDINER		

Dates

Date Samples Received	: 14-Dec-2023 13:48	Issue Date	: 14-Dec-2023
Client Requested Due Date	: 27-Dec-2023	Scheduled Reporting Date	: **27-Dec-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 10.4°C - Ice present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 6 / 6

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EA025H Suspended Solids - Standard Level
EB2339682-001	13-Dec-2023 00:00	SW1	✓
EB2339682-002	13-Dec-2023 00:00	SW2	✓
EB2339682-003	13-Dec-2023 00:00	SW3	✓
EB2339682-004	13-Dec-2023 00:00	SW4	✓
EB2339682-005	13-Dec-2023 00:00	SW5/6	✓
EB2339682-006	13-Dec-2023 00:00	SW7	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

RESULTS & INVOICE

- *AU Certificate of Analysis - NATA (COA)	Email	mail@preciseenvironmental.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mail@preciseenvironmental.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mail@preciseenvironmental.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mail@preciseenvironmental.com.au
- A4 - AU Tax Invoice (INV)	Email	mail@preciseenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	mail@preciseenvironmental.com.au
- EDI Format - XTab (XTAB)	Email	mail@preciseenvironmental.com.au

Environmental Division
Brisbane
Work Order Reference
EB2339682

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ Sydney: 277 Woodpark Rd, Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsenviro.com
☒ Brisbane: 32 Shand St, Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com
☐ Melbourne: 2-4 Westall Rd, Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsenviro.com
☐ Perth: 10 Hod Way, Malaga Ph: 08 9209 7655 E: samples
☐ Newcastle: 5 Rosegum Rd, Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsenviro.com
☐ Townsville: 14-15 Desma Ct, Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsenviro.com
☐ Adelaide: 2-4 Burma Rd, Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsenviro.com
☐ Launceston: 27 Wellington Ph: 03 6331 2156 E: launces

Telephone : 61-7-3243 7222

CLIENT:	Precise Environmental	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☒ Standard TAT (List due date):	FOR LABORATOR	
OFFICE:	PO Box 4424, Robina Town Centre, 4230		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact?	
PROJECT:	PE1250.13	ALS QUOTE NO.: EN222/22	COC SEQUENCE NUMBER (Circle)	Free ice / frozen ice b receipt?	
ORDER NUMBER:	PE1250.13		COC: (1) 2 3 4 5 6 7	Random Sample Tem	
PROJECT MANAGER:	Sean Gardiner	CONTACT PH: 0409 827 396	OF: (1) 2 3 4 5 6 7	Other comment:	

SAMPLER:	Sean Gardiner	SAMPLER MOBILE:	RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
COC emailed to ALS? (YES / (NO)		EDD FORMAT (or default):	Sean Gardiner	NL		
Email Reports to: mail@preciseenvironmental.com.au			DATE/TIME:	DATE/TIME:	DATE/TIME:	DATE/TIME:
Mail Invoice to: PO Box 4424, Robina Town Centre, QLD, 4230			14.12.23 9AM	14/12/23 1348		

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	EA025H (TSS)								Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	SW1	13.12.23	Saline	P/SP/<4C	1	X								
2	SW2	13.12.23	Saline	P/SP/<4C	1	X								
3	SW3	13.12.23	Saline	P/SP/<4C	1	X								
4	SW4	13.12.23	Saline	P/SP/<4C	1	X								
5	SW5/6	13.12.23	Saline	P/SP/<4C	1	X								
6	SW7	13.12.23	Saline	P/SP/<4C	1	X								
					6									

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CERTIFICATE OF ANALYSIS

Work Order	: **EB2339682**	Page	: 1 of 4
Client	: **PRECISE ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MR SEAN GARDINER	Contact	: David Wall
Address	: PO BOX 4424 ROBINA TOWN CENTRE QLD, AUSTRALIA 4230	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: +61 07 5593 7848	Telephone	: +61-7-3243 7222
Project	: PE1250.13	Date Samples Received	: 14-Dec-2023 13:48
Order number	: PE1250.13	Date Analysis Commenced	: 18-Dec-2023
C-O-C number	: ----	Issue Date	: 21-Dec-2023 16:37
Sampler	: SEAN GARDINER		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 6		
No. of samples analysed	: 6		

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.

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- General Comments
- Analytical Results

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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

General Comments

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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.

Analytical Results

Sub-Matrix: SALINE WATER (Matrix: WATER)				Sample ID	SW1	SW2	SW3	SW4	SW5/6
				Sampling date / time	13-Dec-2023 00:00	13-Dec-2023 00:00	13-Dec-2023 00:00	13-Dec-2023 00:00	13-Dec-2023 00:00
Compound	CAS Number	LOR	Unit		EB2339682-001	EB2339682-002	EB2339682-003	EB2339682-004	EB2339682-005
					Result	Result	Result	Result	Result
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L		<5	<5	<5	<5	<5

Analytical Results

Sub-Matrix: SALINE WATER (Matrix: WATER)				Sample ID	SW7	----	----	----	----
				Sampling date / time	13-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2339682-006	--------	--------	--------	--------
					Result	----	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L		<5	**----**	**----**	**----**	**----**

QUALITY CONTROL REPORT

Work Order	: **EB2339682**	Page	: 1 of 3
Client	: **PRECISE ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MR SEAN GARDINER	Contact	: David Wall
Address	: PO BOX 4424 ROBINA TOWN CENTRE QLD, AUSTRALIA 4230	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: +61 07 5593 7848	Telephone	: +61-7-3243 7222
Project	: PE1250.13	Date Samples Received	: 14-Dec-2023
Order number	: PE1250.13	Date Analysis Commenced	: 18-Dec-2023
C-O-C number	: ----	Issue Date	: 21-Dec-2023
Sampler	: SEAN GARDINER		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 6		
No. of samples analysed	: 6		

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 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.

Signatories	*Position*	*Accreditation Category*
Kim McCabe	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.

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 (%)*	*Acceptable RPD (%)*
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 5500957)									
EB2339657-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	5	5	0.0	No Limit
EB2339682-006	SW7	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (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 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.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 5500957)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	101	88.0	112
				<5	1000 mg/L	95.7	88.0	112
				<5	987 mg/L	107	85.0	115

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.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2339682**	Page	: 1 of 4
Client	: **PRECISE ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MR SEAN GARDINER	Telephone	: +61-7-3243 7222
Project	: PE1250.13	Date Samples Received	: 14-Dec-2023
Site	: ----	Issue Date	: 21-Dec-2023
Sampler	: SEAN GARDINER	No. of samples received	: 6
Order number	: PE1250.13	No. of samples analysed	: 6

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA025: Total Suspended Solids dried at 104 ± 2°C							
Clear Plastic Bottle - Natural (EA025H)							
SW1, SW2, SW3, SW4, SW5/6, SW7	**13-Dec-2023**	**----**	----	----	**18-Dec-2023**	20-Dec-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Suspended Solids (High Level)	EA025H	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Suspended Solids (High Level)	EA025H	3	19	**15.79**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Suspended Solids (High Level)	EA025H	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Suspended Solids (High Level)	EA025H	WATER	In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of `non-filterable` residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM Schedule B(3)

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2340503**

Client	: **PRECISE ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MR SEAN GARDINER	Contact	: David Wall
Address	: PO BOX 4424 ROBINA TOWN CENTRE QLD, AUSTRALIA 4230	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: mail@preciseenvironmental.com.au	E-mail	: david.wall@alsglobal.com
Telephone	: +61 07 5593 7848	Telephone	: +61-7-3243 7222
Facsimile	: ----	Facsimile	: +61-7-3243 7218
Project	: PE1250.13	Page	: 1 of 2
Order number	: PE1250.13	Quote number	: EB2017PREENV0003 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: SEAN GARDINER		

Dates

Date Samples Received	: 20-Dec-2023 13:20	Issue Date	: 20-Dec-2023
Client Requested Due Date	: 05-Jan-2024	Scheduled Reporting Date	: **05-Jan-2024**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 5.7°C - Ice Bricks present
Receipt Detail	: HARD ESKY	No. of samples received / analysed	: 6 / 6

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EA025H Suspended Solids - Standard Level
EB2340503-001	18-Dec-2023 00:00	SW1	✓
EB2340503-002	18-Dec-2023 00:00	SW2	✓
EB2340503-003	18-Dec-2023 00:00	SW3	✓
EB2340503-004	18-Dec-2023 00:00	SW4	✓
EB2340503-005	18-Dec-2023 00:00	SW5/6	✓
EB2340503-006	18-Dec-2023 00:00	SW7	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

RESULTS & INVOICE

- *AU Certificate of Analysis - NATA (COA)	Email	mail@preciseenvironmental.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mail@preciseenvironmental.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mail@preciseenvironmental.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mail@preciseenvironmental.com.au
- A4 - AU Tax Invoice (INV)	Email	mail@preciseenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	mail@preciseenvironmental.com.au
- EDI Format - XTab (XTAB)	Email	mail@preciseenvironmental.com.au

Environmental Division
Brisbane
Work Order Reference
EB2340503

Telephone : + 61-7-3243 7222

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ Sydney 277 Woodpark Rd Smithfield NSW 2164 Ph 02 8784 8555 E samples.sydney@alsenviro.com

☒ Brisbane 32 Shand St Stafford QLD 4053 Ph 07 3243 7222 E samples.brisbane@alsenviro.com

☐ Melbourne 3-1 Westall Rd Springvale VIC 3171 Ph 03 8549 9600 E samples.melbourne@alsenviro.com

☐ Perth 10 Hod Way (Mais Ph 08 9209 7655 E samples

☐ Newcastle 5 Rose Rd Warabrook NSW 2304 Ph 02 4968 9433 E samples.newcastle@alsenviro.com

☐ Townsville 14-15 Desma Cl Bohle QLD 4818 Ph 07 4796 0600 E samples.townsville@alsenviro.com

☐ Adelaide 21 Burma Rd Pooraka SA 5095 Ph 08 8359 0890 E adelaide@alsenviro.com

☐ Launceston 27 Wellington Ph 03 6331 2345 E launcest

CLIENT:	Precise Environmental	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☒ Standard TAT (List due date):
OFFICE:	PO Box 4424, Robina Town Centre, 4230		☐ Non Standard or urgent TAT (List due date):
PROJECT:	PE1250.13	ALS QUOTE NO.: EN222/22	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7
ORDER NUMBER:	PE1250.13		OF: 1 2 3 4 5 6 7
PROJECT MANAGER:	Sean Gardiner	CONTACT PH: 0409 827 396	
SAMPLER:	Sean Gardiner	SAMPLER MOBILE:	
COC emailed to ALS? (YES / NO)		EDD FORMAT (or default):	
Email Reports to: mail@preciseenvironmental.com.au			
Mail Invoice to: PO Box 4424, Robina Town Centre, QLD, 4230			

FOR LABORATOR
Custody Seal Intact?
Free ice / frozen ice bri receipt?
Random Sample Temp
Other comment:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Sean Gardiner	NL		
DATE/TIME:	DATE/TIME:	DATE/TIME:	DATE/TIME:
20.12.23 9AM	20/12/23 1320		

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where **Metals** are required, specify **Total** (unfiltered bottle required) or **Dissolved** (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL BOTTLES	EA025H (TSS)								Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	SW1	18.12.23	Saline	P/SP/<4C	1	X								
2	SW2	18.12.23	Saline	P/SP/<4C	1	X								
3	SW3	18.12.23	Saline	P/SP/<4C	1	X								
4	SW4	18.12.23	Saline	P/SP/<4C	1	X								
5	SW5/6	18.12.23	Saline	P/SP/<4C	1	X								
6	SW7	18.12.23	Saline	P/SP/<4C	1	X								
					6									

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CERTIFICATE OF ANALYSIS

Work Order	: **EB2340503**	Page	: 1 of 4
Client	: **PRECISE ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MR SEAN GARDINER	Contact	: David Wall
Address	: PO BOX 4424 ROBINA TOWN CENTRE QLD, AUSTRALIA 4230	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: +61 07 5593 7848	Telephone	: +61-7-3243 7222
Project	: PE1250.13	Date Samples Received	: 20-Dec-2023 13:20
Order number	: PE1250.13	Date Analysis Commenced	: 21-Dec-2023
C-O-C number	: ----	Issue Date	: 02-Jan-2024 18:12
Sampler	: SEAN GARDINER		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 6		
No. of samples analysed	: 6		

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*
Beatriz Llarinas	Senior Chemist - Inorganics	Brisbane Inorganics, Stafford, QLD

General Comments

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^ = 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.

Analytical Results

Sub-Matrix: SALINE WATER (Matrix: WATER)			Sample ID	SW1	SW2	SW3	SW4	SW5/6
			Sampling date / time	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00	18-Dec-2023 00:00
Compound	CAS Number	LOR	Unit	EB2340503-001	EB2340503-002	EB2340503-003	EB2340503-004	EB2340503-005
				Result	Result	Result	Result	Result
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	<5	<5	**10**	**14**	<5

Analytical Results

Sub-Matrix: SALINE WATER (Matrix: WATER)				Sample ID	SW7	----	----	----	----
				Sampling date / time	18-Dec-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EB2340503-006	--------	--------	--------	--------
					Result	----	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L		<5	**----**	**----**	**----**	**----**

QUALITY CONTROL REPORT

Work Order	: **EB2340503**	Page	: 1 of 3
Client	: **PRECISE ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MR SEAN GARDINER	Contact	: David Wall
Address	: PO BOX 4424 ROBINA TOWN CENTRE QLD, AUSTRALIA 4230	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: +61 07 5593 7848	Telephone	: +61-7-3243 7222
Project	: PE1250.13	Date Samples Received	: 20-Dec-2023
Order number	: PE1250.13	Date Analysis Commenced	: 21-Dec-2023
C-O-C number	: ----	Issue Date	: 02-Jan-2024
Sampler	: SEAN GARDINER		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 6		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

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- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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Signatories	*Position*	*Accreditation Category*
Beatriz Llarinas	Senior Chemist - Inorganics	Brisbane Inorganics, Stafford, QLD

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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

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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 (%)*
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 5509804)									
EB2340496-002	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	31	34	8.4	No Limit
EB2340503-002	SW2	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (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 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.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 5509804)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	106	88.0	112
				<5	1000 mg/L	104	88.0	112
				<5	987 mg/L	101	85.0	115

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.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2340503**	Page	: 1 of 4
Client	: **PRECISE ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: MR SEAN GARDINER	Telephone	: +61-7-3243 7222
Project	: PE1250.13	Date Samples Received	: 20-Dec-2023
Site	: ----	Issue Date	: 02-Jan-2024
Sampler	: SEAN GARDINER	No. of samples received	: 6
Order number	: PE1250.13	No. of samples analysed	: 6

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA025: Total Suspended Solids dried at 104 ± 2°C							
Clear Plastic Bottle - Natural (EA025H)							
SW1, SW2, SW3, SW4, SW5/6, SW7	**18-Dec-2023**	**----**	----	----	**21-Dec-2023**	25-Dec-2023	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Suspended Solids (High Level)	EA025H	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Suspended Solids (High Level)	EA025H	3	13	**23.08**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Suspended Solids (High Level)	EA025H	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Suspended Solids (High Level)	EA025H	WATER	In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of `non-filterable` residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM Schedule B(3)