



**PRECISE
ENVIRONMENTAL**
Consulting Environmental Scientists

CONSTRUCTION PHASE SURFACE WATER QUALITY MONITORING REPORT – NOVEMBER 2023

Serenity Cove Development, Hope Island, Queensland

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

December 2023

18 December 2023

Our Ref: PE1250.13_Serenity Cove SWQM Report_Nov 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 – NOVEMBER 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 of five rounds of construction phase monitoring between 3 November 2023 and 30 November 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).

Fourteen rainfall events were recorded in November and rainfall ranged from 0.2 – 42.4 mm, totalling 133.8 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 – 8.3 units) and were not attributed to construction activities.
EC	No – see comments	Yes	Individual EC results at all locations within the lake exceeded the WQO (35 – 55 mS/cm) during the first three sampling events; the exception being EC at SW1 on 3 November 2023. Individual EC results at all locations within the lake system complied during the last two monitoring events. Median EC at all locations also complied with the WQO and were comparable (i.e. ± 2 mS/cm) with the external locations. A general decrease in EC was noted at all locations throughout November 2023, which was likely attributed to persistent rainfall events throughout November.
DO	Yes	Yes	-
Turbidity	Yes	Yes	-
SS	Yes	Yes	SS were not detected within the lake system during any of the November monitoring events. SS at the external lake locations ranged from 8 – 40 mg/L.

* Median for period from commencement of construction to current.

Conclusions and recommendations

Non-compliances of pH and EC were not attributed to construction activities. Other results within the lake system were compliant with the WQOs during the November 2023 monitoring events.

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

Project:
MAINTENANCE PHASE WATER QUALITY MONITORING

Site location:
SERENITY COVE, HELENSVALE ROAD,
HELENSVALE, QUEENSLAND

Project number:
PE1250.13

Scale:
NOT TO SCALE

Real property description:
-

Drawn by: SG
Date drawn: 23.04.2021

Reviewed by: AG
Approved: AG

Drawing number: FIGURE 1

Drawing version: F

Drawing title:
SURFACE WATER
MONITORING LOCATIONS



PRECISE ENVIRONMENTAL
Consulting Environmental Scientists

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
WQO	7.5 - 8.0	35 - 55	≥5.6	≤27	≤14
Mean	8.4	52.9	9.0	1.9	2.5
Median	8.4	55.7	8.8	2.4	2.5
Min	8.3	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
WQO	7.5 - 8.0	35 - 55	≥5.6	≤27	≤14
Mean	8.3	52.5	8.6	3.8	2.5
Median	8.4	52.7	8.7	2.9	2.5
Min	7.9	46.9	7.6	0.3	2.5
Max	8.5	56.7	10.0	9.6	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 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
WQO	7.5 - 8.0	35 - 55	≥5.6	≤27	≤14
Mean	8.3	53.2	6.9	5.6	11.2
Median	8.3	55.6	6.6	5.6	10.0
Min	8.2	44.1	5.9	4.1	8.0
Max	8.3	58.1	8.8	8.0	16.0



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
WQO	7.5 - 8.0	35 - 55	≥5.6	≤27	≤14
Mean	8.2	50.9	8.0	7.5	18.6
Median	8.1	53.6	8.2	6.6	14.0
Min	8.1	43.6	6.9	3.7	8.0
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
WQO	7.5 - 8.0	35 - 55	≥5.6	≤27	≤14
Mean	8.4	54.0	7.6	2.8	2.5
Median	8.3	55.6	7.4	1.8	2.5
Min	8.3	50.0	6.9	0.6	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
WQO	7.5 - 8.0	35 - 55	≥5.6	≤27	≤14
Mean	8.4	54.1	7.5	2.0	2.5
Median	8.4	55.8	7.5	1.5	2.5
Min	8.3	51.3	6.4	0.4	2.5
Max	8.4	56.1	8.7	4.2	2.5



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

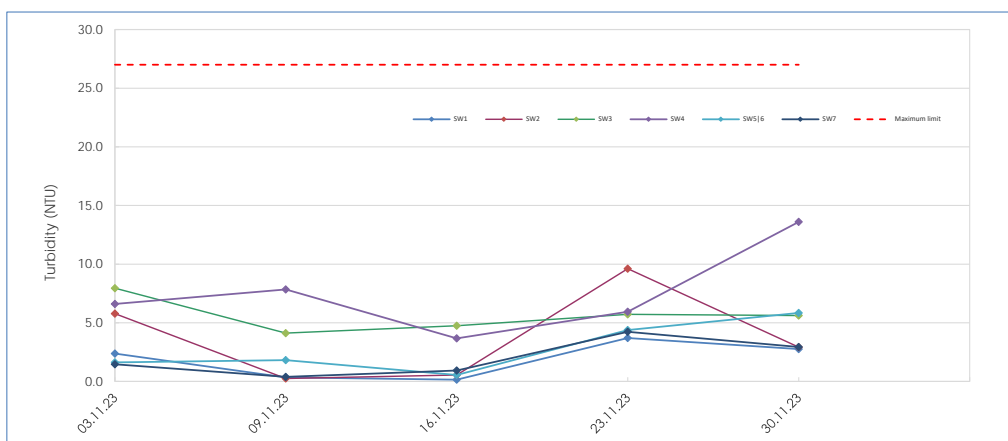
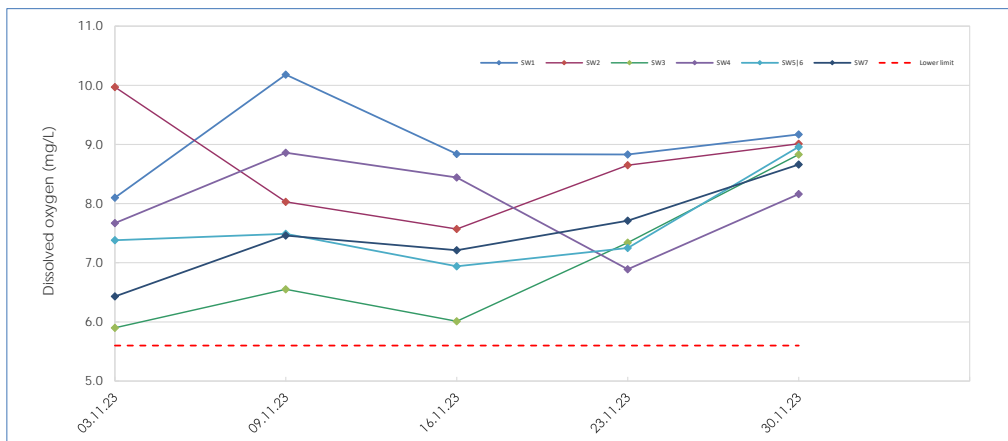
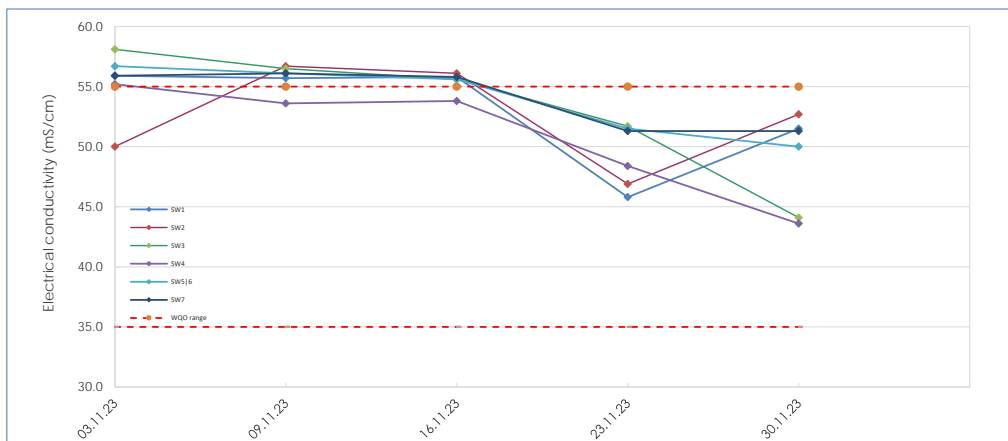
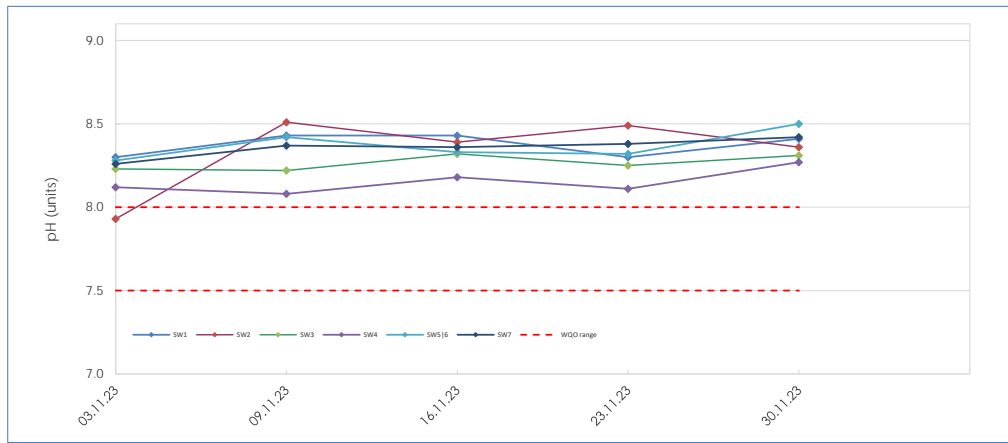
Bold denotes exceedance of WQO

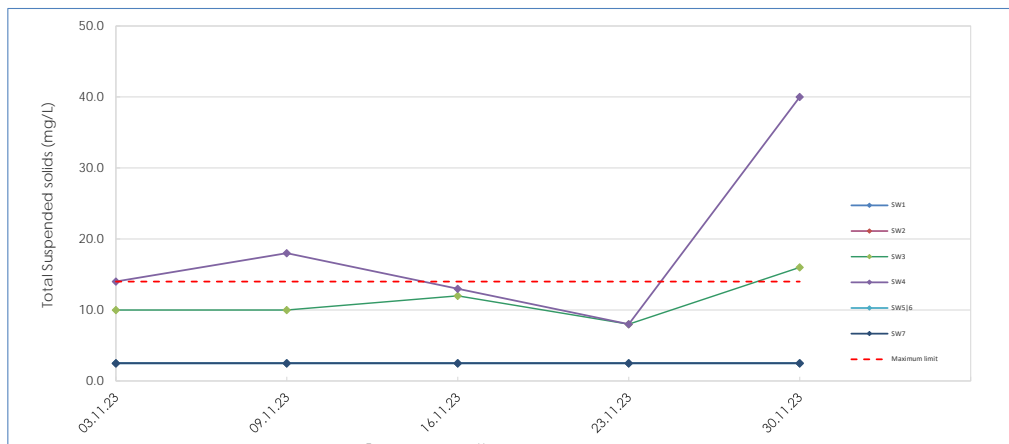
Blank denotes no data

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(-) denotes no criteria

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





ATTACHMENT C – Laboratory certificates



SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2334659**

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	: 06-Nov-2023 13:45	Issue Date	: 06-Nov-2023
Client Requested Due Date	: 13-Nov-2023	Scheduled Reporting Date	: 13-Nov-2023

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 5.0°C - Ice present
Receipt Detail	: HARD EKS	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.**



CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ Sydney: 177 Warringah Rd, Sydney NSW 1570
Ph: 02 9374 4444 E: info@preciseenvironmental.com.au
☐ Newcastle: 7 Bickerton Rd, Warminster NSW 1501
Ph: 02 4921 0100 E: info@preciseenvironmental.com.au

☒ Brisbane: 14 Sharn St, Sharn QLD 4065
Ph: 07 3249 0111 E: info@preciseenvironmental.com.au
☐ Townsville: 1414 Duroma Ct, Bulah QLD 4811
Ph: 07 4780 0411 E: info@preciseenvironmental.com.au

☐ Melbourne: 144 Warrig Rd, Springvale VIC 3171
Ph: 03 8547 4444 E: info@preciseenvironmental.com.au
☐ Adelaide: 141 Baring Rd, Renmark SA 5206
Ph: 08 8547 4444 E: info@preciseenvironmental.com.au

☐ Perth: 141 Baring Rd, Renmark SA 5206
Ph: 08 8547 4444 E: info@preciseenvironmental.com.au
☐ Launceston: 141 Baring Rd, Renmark SA 5206
Ph: 08 8547 4444 E: info@preciseenvironmental.com.au

Environmental Division
Brisbane
Work Order Reference
EB2334659



Telephone : + 61-7-3243 7222

N/A
N/A

CLIENT: Precise Environmental		TURNAROUND REQUIREMENTS : <input checked="" type="checkbox"/> Standard TAT (List due date):		FOR	
OFFICE: PO Box 4424, Robina Town Centre, 4230		(Standard TAT may be longer for some tests e.g., Ultra Trace Organics)		Cust	
PROJECT: PE1250.13		ALS QUOTE NO.: BN222/21		Free	
ORDER NUMBER: PE1250.13				Recd	
PROJECT MANAGER: Sean Gardiner		CONTACT PH: 0409 827 396		Rand	
SAMPLER: Sean Gardiner		SAMPLER MOBILE: 0409 827 396		Other	
COC emailed to ALS? (YES NO)		RELINQUISHED BY: Sean Gardiner		RECEIVED BY: <i>Sw</i>	
Email Reports to: mail@preciseenvironmental.com.au		DATE/TIME: 06.11.23 9AM		DATE/TIME: 6/11/23 13:45	
Mail Invoice to: PO Box 4424, Robina Town Centre, QLD, 4230					
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:					
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 Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.					
ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)		CONTAINER INFORMATION		
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES
1	SW1	03.11.23	Saline	P/SP/<4C	1
2	SW2	03.11.23	Saline	P/SP/<4C	1
3	SW3	03.11.23	Saline	P/SP/<4C	1
4	SW4	03.11.23	Saline	P/SP/<4C	1
5	SW5/6	03.11.23	Saline	P/SP/<4C	1
6	SW7	03.11.23	Saline	P/SP/<4C	1
					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 : **EB2334659**
Client : **PRECISE ENVIRONMENTAL PTY LTD**
Contact : MR SEAN GARDINER
Address : PO BOX 4424
ROBINA TOWN CENTRE QLD, AUSTRALIA 4230
Telephone : +61 07 5593 7848
Project : PE1250.13
Order number : PE1250.13
C-O-C number : ----
Sampler : SEAN GARDINER
Site : ----
Quote number : EN/222
No. of samples received : 6
No. of samples analysed : 6

Page : 1 of 4
Laboratory : Environmental Division Brisbane
Contact : David Wall
Address : 2 Byth Street Stafford QLD Australia 4053
Telephone : +61-7-3243 7222
Date Samples Received : 06-Nov-2023 13:45
Date Analysis Commenced : 07-Nov-2023
Issue Date : 08-Nov-2023 09:09



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					03-Nov-2023 00:00	03-Nov-2023 00:00	03-Nov-2023 00:00	03-Nov-2023 00:00	03-Nov-2023 00:00
Compound	CAS Number	LOR	Unit	EB2334659-001	EB2334659-002	EB2334659-003	EB2334659-004	EB2334659-005	
				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	03-Nov-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EB2334659-006	-----	-----	-----	-----	-----
					Result	----	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L	<5	----	----	----	----	----



QUALITY CONTROL REPORT

Work Order : **EB2334659**

Client : **PRECISE ENVIRONMENTAL PTY LTD**

Contact : **MR SEAN GARDINER**

Address : **PO BOX 4424**
ROBINA TOWN CENTRE QLD, AUSTRALIA 4230

Telephone : **+61 07 5593 7848**

Project : **PE1250.13**

Order number : **PE1250.13**

C-O-C number : **----**

Sampler : **SEAN GARDINER**

Site : **----**

Quote number : **EN/222**

No. of samples received : **6**

No. of samples analysed : **6**

Page : 1 of 3

Laboratory : Environmental Division Brisbane

Contact : David Wall

Address : 2 Byth Street Stafford QLD Australia 4053

Telephone : +61-7-3243 7222

Date Samples Received : 06-Nov-2023

Date Analysis Commenced : 07-Nov-2023

Issue Date : 08-Nov-2023



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: 5408153)									
EB2334455-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
EB2334659-005	SW5/6	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

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	Low	High
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 5408153)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	100	88.0	112
				<5	1000 mg/L	95.7	88.0	112
				<5	825 mg/L	99.4	84.7	116

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	: EB2334659	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	: 06-Nov-2023
Site	: ----	Issue Date	: 08-Nov-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.

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.

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

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			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)		03-Nov-2023	----	----	----	07-Nov-2023	10-Nov-2023	✓
SW1,	SW2,							
SW3,	SW4,							
SW5/6,	SW7							



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	12	16.67	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Suspended Solids (High Level)	EA025H	3	12	25.00	15.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Suspended Solids (High Level)	EA025H	1	12	8.33	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 : **EB2335338**

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	: TOM BULTER		

Dates

Date Samples Received	: 10-Nov-2023 14:50	Issue Date	: 11-Nov-2023
Client Requested Due Date	: 20-Nov-2023	Scheduled Reporting Date	: 20-Nov-2023

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 2.3°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.**

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

- No sample container / preservation non-compliance exists.

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.

✓	✓	✓	✓	✓	WATER - EA025H Suspended Solids - Standard Level
---	---	---	---	---	---

Matrix: WATER

Laboratory sample ID	Sampling date / time	Sample ID	Water (Suspension)
EB2335338-001	09-Nov-2023 00:00	SW1	✓
EB2335338-002	09-Nov-2023 00:00	SW2	✓
EB2335338-003	09-Nov-2023 00:00	SW3	✓
EB2335338-004	09-Nov-2023 00:00	SW4	✓
EB2335338-005	09-Nov-2023 00:00	SW5/6	✓
EB2335338-006	09-Nov-2023 00:00	SW7	✓

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

RESULTS & INVOICE

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

[illegible]



CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ Sydney: 277 Woodpark Rd, Sheffield NSW 2170
Ph: 02 8744 5555 E: samples.sydney@alsenviro.com
☐ Newcastle: 5 Rosslyn Rd, Warbrook NSW 2304
Ph: 02 4968 5457 E: samples.newcastle@alsenviro.com

☒ Brisbane: 32 Shand St, Stafford QLD 4053
Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com
☐ Townsville: 14-16 Desma Ct, Birnie QLD 4816
Ph: 07 4758 0600 E: samples.townsville@alsenviro.com

☐ Melbourne: 24 Westall Rd, Springvale VIC 3171
Ph: 03 9549 9600 E: samples.melbourne@alsenviro.com
☐ Adelaide: 241 Burma Rd, Morphett SA 5006
Ph: 08 8355 0860 E: samples.adelaide@alsenviro.com

☐ Perth: 10 Hind Way, Malaga WA 6060
Ph: 08 9206 7655 E: samples.perth@alsenviro.com
☐ Launceston: 27 Wellington St, Launceston TAS 7250
Ph: 03 6331 2158 E: samples.launceston@alsenviro.com

CLIENT:	Precise Environmental	TURNAROUND REQUIREMENTS:	<input checked="" type="checkbox"/> Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle) Custody Seal intact? Yes No N/A Free ice / frozen ice bricks present upon receipt? Yes No N/A Random Sample Temperature on Receipt: °C Other comment:
OFFICE:	PO Box 4424, Robina Town Centre, 4230	(Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	<input type="checkbox"/> Non Standard or urgent TAT (List due date):	
PROJECT:	PE1250.13	ALS QUOTE NO.:	BN222/21	
ORDER NUMBER:	PE1250.13	COC SEQUENCE NUMBER (Circle)	COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7	
PROJECT MANAGER:	Sean Gardiner	CONTACT PH: 0409 827 396		
SAMPLER:	Tom Butler	SAMPLER MOBILE:	RELINQUISHED BY: <i>Tom Butler</i>	RECEIVED BY: <i>EH</i>
COC emailed to ALS? (YES / NO)		EDD FORMAT (or default):	DATE/TIME: 10.11.23 9AM	DATE/TIME: 10.11.23 1450
Email Reports to: mail@preciseenvironmental.com.au				
Mail Invoice to: PO Box 4424, Robina Town Centre, QLD, 4230				

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	09.11.23	Saline	P/SP/<4C	1	X							
2	SW2	09.11.23	Saline	P/SP/<4C	1	X							
3	SW3	09.11.23	Saline	P/SP/<4C	1	X							
4	SW4	09.11.23	Saline	P/SP/<4C	1	X							
5	SW5/6	09.11.23	Saline	P/SP/<4C	1	X							
6	SW7	09.11.23	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.

Environmental Division
Brisbane

Work Order Reference
EB2335338



Telephone: 01 73243 7222



CERTIFICATE OF ANALYSIS

Work Order : **EB2335338**
Client : **PRECISE ENVIRONMENTAL PTY LTD**
Contact : **MR SEAN GARDINER**
Address : **PO BOX 4424**
ROBINA TOWN CENTRE QLD, AUSTRALIA 4230
Telephone : **+61 07 5593 7848**
Project : **PE1250.13**
Order number : **PE1250.13**
C-O-C number : **----**
Sampler : **TOM BULTER**
Site : **----**
Quote number : **EN/222**
No. of samples received : **6**
No. of samples analysed : **6**

Page : **1 of 4**
Laboratory : **Environmental Division Brisbane**
Contact : **David Wall**
Address : **2 Byth Street Stafford QLD Australia 4053**
Telephone : **+61-7-3243 7222**
Date Samples Received : **10-Nov-2023 14:50**
Date Analysis Commenced : **15-Nov-2023**
Issue Date : **16-Nov-2023 20:42**



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

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					09-Nov-2023 00:00	09-Nov-2023 00:00	09-Nov-2023 00:00	09-Nov-2023 00:00	09-Nov-2023 00:00
Compound	CAS Number	LOR	Unit	EB2335338-001	EB2335338-002	EB2335338-003	EB2335338-004	EB2335338-005	
				Result	Result	Result	Result	Result	
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L	<5	<5	10	18	<5	



Analytical Results

Sub-Matrix: SALINE WATER (Matrix: WATER)			Sample ID	SW7	----	----	----	----
				Sampling date / time	09-Nov-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EB2335338-006	-----	-----	-----	-----
					Result	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	<5	---	---	---	---



QUALITY CONTROL REPORT

Work Order	: EB2335338	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	: 10-Nov-2023
Order number	: PE1250.13	Date Analysis Commenced	: 15-Nov-2023
C-O-C number	: ----	Issue Date	: 16-Nov-2023
Sampler	: TOM BULTER		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 6		
No. of samples analysed	: 6		



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
Beatriz Llarinas	Senior Chemist - Inorganics	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: 5425254)									
EB2335338-001	SW1	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
EB2335372-008	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	173	182	4.7	0% - 20%



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

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: 5425254)									
EA025H: Suspended Solids (SS)		----	5	mg/L	<5	150 mg/L	106	88.0	112
					<5	1000 mg/L	95.7	88.0	112
					<5	825 mg/L	103	84.7	116

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	: EB2335338	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	: 10-Nov-2023
Site	: ----	Issue Date	: 16-Nov-2023
Sampler	: TOM BULTER	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.

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.

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

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			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)		09-Nov-2023	----	----	----	15-Nov-2023	16-Nov-2023	✓
SW1,	SW2,							
SW3,	SW4,							
SW5/6,	SW7							



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	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Suspended Solids (High Level)	EA025H	3	20	15.00	15.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Suspended Solids (High Level)	EA025H	1	20	5.00	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 : **EB2336401**

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	: TOM BUTLER		

Dates

Date Samples Received	: 20-Nov-2023 14:10	Issue Date	: 20-Nov-2023
Client Requested Due Date	: 24-Nov-2023	Scheduled Reporting Date	: 24-Nov-2023

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 6.5°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.**



CHAIN OF CUSTODY

ALS Laboratory: please tick →

□ Sydney: 277 Woodpark Rd. Smithfield NSW 2176
Ph: 02 8784 6555 E: samples.sydney@alsenviro.com
□ Newcastle: 5 Rosegum Rd. Warabrook NSW 2304
Ph: 02 4568 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 6600 E: samples.melbourne@alsenviro.com
□ Adelaide: 2-4 Burma Rd. Pooraka SA 5095
Ph: 08 8359 0890 E: adelaide@alsenviro.com

□ Perth: 10 Hed Way. Malaga
Ph: 08 9209 7655 E: samples
□ Launceston: 27 Wellington
Ph: 03 6331 2158 E: launceston



Telephone : + 61-7-3243 7222

CLIENT:	Precise Environmental	TURNAROUND REQUIREMENTS :		<input checked="" type="checkbox"/> Standard TAT (List due date):	
OFFICE:	PO Box 4424, Robina Town Centre, 4230	(Standard TAT may be longer for some tests e.g.: Ultra Trace Organics)		<input type="checkbox"/> Non Standard or urgent TAT (List due date):	
PROJECT:	PE1250.13	ALS QUOTE NO.:	BN222/21	COC SEQUENCE NUMBER (Circle)	
ORDER NUMBER:	PE1250.13			COC: 1 2 3 4 5 6 7	
PROJECT MANAGER:	Sean Gardiner	CONTACT PH: 0409 827 396		OF: 1 2 3 4 5 6 7	
SAMPLER:	Tom Butler	SAMPLER MOBILE:		RELINQUISHED BY:	ED
COC emailed to ALS? (YES / NO)	NO	EDD FORMAT (or default):		RECEIVED BY:	
Email Reports to:	mail@preciseenvironmental.com.au		DATE/TIME:	17.11.23 9AM	2011 1410
Mail Invoice to:	PO Box 4424, Robina Town Centre, QLD, 4230		DATE/TIME:		

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	16.11.23	Saline	P/SP/<4C	1	X											
2	SW2	16.11.23	Saline	P/SP/<4C	1	X											
3	SW3	16.11.23	Saline	P/SP/<4C	1	X											
4	SW4	16.11.23	Saline	P/SP/<4C	1	X											
5	SW5/6	16.11.23	Saline	P/SP/<4C	1	X											
6	SW7	16.11.23	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 : **EB2336401**
Client : **PRECISE ENVIRONMENTAL PTY LTD**
Contact : MR SEAN GARDINER
Address : PO BOX 4424
ROBINA TOWN CENTRE QLD, AUSTRALIA 4230
Telephone : +61 07 5593 7848
Project : PE1250.13
Order number : PE1250.13
C-O-C number : ----
Sampler : TOM BUTLER
Site : ----
Quote number : EN/222
No. of samples received : 6
No. of samples analysed : 6

Page : 1 of 4
Laboratory : Environmental Division Brisbane
Contact : David Wall
Address : 2 Byth Street Stafford QLD Australia 4053
Telephone : +61-7-3243 7222
Date Samples Received : 20-Nov-2023 14:10
Date Analysis Commenced : 21-Nov-2023
Issue Date : 22-Nov-2023 11:29



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					16-Nov-2023 00:00	16-Nov-2023 00:00	16-Nov-2023 00:00	16-Nov-2023 00:00	16-Nov-2023 00:00
Compound	CAS Number	LOR	Unit	EB2336401-001	EB2336401-002	EB2336401-003	EB2336401-004	EB2336401-005	
Result				Result	Result	Result	Result	Result	
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	-----	5	mg/L	<5	<5	12	13	<5	



Analytical Results

Sub-Matrix: SALINE WATER (Matrix: WATER)			Sample ID	SW7	----	----	----	----
			Sampling date / time	16-Nov-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EB2336401-006	-----	-----	-----	-----
				Result	----	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	<5	----	----	----	----



QUALITY CONTROL REPORT

Work Order : **EB2336401**

Page : 1 of 3

Client : **PRECISE ENVIRONMENTAL PTY LTD**
Contact : **MR SEAN GARDINER**
Address : **PO BOX 4424**
ROBINA TOWN CENTRE QLD, AUSTRALIA 4230
Telephone : **+61 07 5593 7848**
Project : **PE1250.13**
Order number : **PE1250.13**
C-O-C number : **----**
Sampler : **TOM BUTLER**
Site : **----**
Quote number : **EN/222**
No. of samples received : **6**
No. of samples analysed : **6**

Laboratory : **Environmental Division Brisbane**
Contact : **David Wall**
Address : **2 Byth Street Stafford QLD Australia 4053**
Telephone : **+61-7-3243 7222**
Date Samples Received : **20-Nov-2023**
Date Analysis Commenced : **21-Nov-2023**
Issue Date : **22-Nov-2023**



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**

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: 5438002)									
EB2336058-008	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	85	86	1.7	0% - 50%
EB2336106-006	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	23	25	8.4	No Limit
EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 5438003)									
EB2336401-005	SW5/6	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

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result			LCS	Low
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 5438002)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	104	88.0	112
				<5	1000 mg/L	105	88.0	112
				<5	825 mg/L	110	84.7	116
EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 5438003)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	106	88.0	112
				<5	1000 mg/L	91.7	88.0	112
				<5	825 mg/L	97.2	84.7	116

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	: EB2336401	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-Nov-2023
Site	: ----	Issue Date	: 22-Nov-2023
Sampler	: TOM BUTLER	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.

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.

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

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			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)		16-Nov-2023	----	----	----	21-Nov-2023	23-Nov-2023	✓
SW1,	SW2,							
SW3,	SW4,							
SW5/6,	SW7							



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	3	22	13.64	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Suspended Solids (High Level)	EA025H	6	22	27.27	15.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Suspended Solids (High Level)	EA025H	2	22	9.09	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 : **EB2337104**

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	: 24-Nov-2023 14:50	Issue Date	: 24-Nov-2023
Client Requested Due Date	: 04-Dec-2023	Scheduled Reporting Date	: 04-Dec-2023

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 4.5°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.**



CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ Sydney: 277 Woodpark Rd, Smithfield NSW 2176
Ph: 02 8784 8555 E: samples.syd@alsenviro.com
☐ Newcastle: 5 Rosebud Rd, Waratah NSW 2334
Ph: 02 4968 9433 E: samples.newcastle@alsenviro.com

☒ Brisbane: 32 Shann St, Stafford QLD 4053
Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com
☐ Townsville: 14-15 Osborn Ct, Borneo QLD 4810
Ph: 07 4796 0609 E: samples.townsville@alsenviro.com

☐ Melbourne: 2-4 Westall Rd, Springvale VIC 3171
Ph: 03 8549 8600 E: samples.melbourne@alsenviro.com
☐ Adelaide: 2-1 Burma Rd, Pooraka SA 5095
Ph: 08 8359 0890 E: samples.adelaide@alsenviro.com

☐ Perth: 10 Hod Way, Malaga
Ph: 08 9209 7655 E: samples.perth@alsenviro.com
☐ Launceston: 27 Wellington
Ph: 03 6331 2158 E: samples.launceston@alsenviro.com



Telephone : + 61-7-3243 7222

CLIENT:	Precise Environmental	TURNAROUND REQUIREMENTS :		<input checked="" type="checkbox"/> Standard TAT (List due date):		FOR LABORATORY	
OFFICE:	PO Box 4424, Robina Town Centre, 4230	(Standard TAT may be longer for some tests e.g., Ultra Trace Organics)		<input type="checkbox"/> Non Standard or urgent TAT (List due date):		Custody Seal intact?	
PROJECT:	PE1250.13	ALS QUOTE NO.:	BN222/21	COC SEQUENCE NUMBER (Circle)		Free Ice / Frozen Ice Info Request?	
ORDER NUMBER:	PE1250.13			COC: 1 2 3 4 5 6 7		Random Sample Temp?	
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:	ED	RECEIVED BY:	
COC emailed to ALS? (YES / NO)	NO	EDD FORMAT (or default):		DATE/TIME:	24.11.23 9AM	RELINQUISHED BY:	
Email Reports to:	mail@preciseenvironmental.com.au			DATE/TIME:	24.11.23 19.50	RECEIVED BY:	
Mail Invoice to:	PO Box 4424, Robina Town Centre, QLD, 4230			DATE/TIME:		RELINQUISHED BY:	

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	23.11.23	Saline	P/SP/<4C	1	X								
2	SW2	23.11.23	Saline	P/SP/<4C	1	X								
3	SW3	23.11.23	Saline	P/SP/<4C	1	X								
4	SW4	23.11.23	Saline	P/SP/<4C	1	X								
5	SW5/6	23.11.23	Saline	P/SP/<4C	1	X								
6	SW7	23.11.23	Saline	P/SP/<4C	1	X								
					8									

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 : **EB2337104**
Client : **PRECISE ENVIRONMENTAL PTY LTD**
Contact : MR SEAN GARDINER
Address : PO BOX 4424
ROBINA TOWN CENTRE QLD, AUSTRALIA 4230
Telephone : +61 07 5593 7848
Project : PE1250.13
Order number : PE1250.13
C-O-C number : ----
Sampler : SEAN GARDINER
Site : ----
Quote number : EN/222
No. of samples received : 6
No. of samples analysed : 6

Page : 1 of 4
Laboratory : Environmental Division Brisbane
Contact : David Wall
Address : 2 Byth Street Stafford QLD Australia 4053
Telephone : +61-7-3243 7222
Date Samples Received : 24-Nov-2023 14:50
Date Analysis Commenced : 29-Nov-2023
Issue Date : 30-Nov-2023 21:15



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

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					23-Nov-2023 00:00	23-Nov-2023 00:00	23-Nov-2023 00:00	23-Nov-2023 00:00	23-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		EB2337104-001	EB2337104-002	EB2337104-003	EB2337104-004	EB2337104-005
					Result	Result	Result	Result	Result
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	-----	5	mg/L		<5	<5	8	8	<5



Analytical Results

Sub-Matrix: SALINE WATER (Matrix: WATER)			Sample ID	SW7	----	----	----	----
			Sampling date / time	23-Nov-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EB2337104-006	-----	-----	-----	-----
				Result	----	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)		----	5	mg/L	<5	---	---	---



QUALITY CONTROL REPORT

Work Order	: EB2337104	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	: 24-Nov-2023
Order number	: PE1250.13	Date Analysis Commenced	: 29-Nov-2023
C-O-C number	: ----	Issue Date	: 30-Nov-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
Beatriz Llarinas	Senior Chemist - Inorganics	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**

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: 5457204)									
EB2336838-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	86	85	0.0	0% - 50%
EB2337252-024	Anonymous	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

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: 5457204)									
EA025H: Suspended Solids (SS)		----	5	mg/L	<5	150 mg/L	97.6	88.0	112
					<5	1000 mg/L	92.6	88.0	112
					<5	825 mg/L	102	84.7	116

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	: EB2337104	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	: 24-Nov-2023
Site	: ----	Issue Date	: 30-Nov-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.

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

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			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)		23-Nov-2023	----	----	----	29-Nov-2023	30-Nov-2023	✓
SW1,	SW2,							
SW3,	SW4,							
SW5/6,	SW7							



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	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Suspended Solids (High Level)	EA025H	3	20	15.00	15.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Suspended Solids (High Level)	EA025H	1	20	5.00	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 : **EB2338037**

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	: 01-Dec-2023 15:48	Issue Date	: 02-Dec-2023
Client Requested Due Date	: 08-Dec-2023	Scheduled Reporting Date	: 08-Dec-2023

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 3.5°C - Ice present
Receipt Detail	: Medium 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.**

CHAIN OF CUSTODY

ALS Laboratory: please tick →

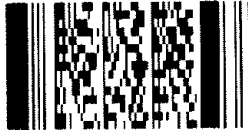
Sydney: 277 Wondoola Rd, Summer NSW 2176
 Ph: 02 9364 3505 E: samples_sydney@alison-vo.com
 Newcastle: 5 Rosegum Rd, Watkinson NSW 2301
 Ph: 02 496 6143 E: samples_newcastle@alison-vo.com

~~1~~ Brisbane: 32 Spence St, St Johns QLD 4059
Ph 07 3243 7222 E samples@brsane.4350evm.com
2 Townsville: 11-15 Deans Ct, Beak QLD 4818
Ph 07 4756 6000 E australia.environmental@sigarra.com

☐ Melbourne: 2-1 Westall Rd, Springvale VIC 3171
 Ph 03 8539 5500 E samples.melbourne@bscenviro.com
 ☐ Adelaide: 2-1 Burns Rd, Pooraka SA 5005
 Ph 08 8459 0500 E adelaide@bscenviro.com

U Perth: 10 Hed Way, Maida WA 6000
Ph 08 9200 7600 E samples.perth@plasmid.com
U Launceston: 37 Wellington St, Launceston TAS 7250
Ph 03 6331 2155 E launceston@plasmid.com

CLIENT: Precise Environmental		TURNAROUND REQUIREMENTS : <input checked="" type="checkbox"/> Standard TAT (List due date):		FOR LABORATORY USE ONLY (Circle)	
OFFICE: PO Box 4424, Robina Town Centre, 4230		(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) <input type="checkbox"/> Non Standard or urgent TAT (List due date):		Custody Seal Intact? Yes No N/A	
PROJECT: PE1250.13		ALS QUOTE NO.: EN222/22		Free Ice / frozen ice bricks present upon receipt? Yes No N/A	
ORDER NUMBER: PE1250.13				Random Sample Temperature on Receipt: °C	
PROJECT MANAGER: Sean Gardiner		CONTACT PH: 0409 827 396		Other comment:	
SAMPLER: Sean Gardiner		SAMPLER MOBILE:		RELINQUISHED BY:	
COC emailed to ALS? (YES / NO)		EDD FORMAT (or default):		RECEIVED BY: 1/12	
Email Reports to: mail@preciseenvironmental.com.au				DATE/TIME: 1/34	
Mail Invoice to: PO Box 4424, Robina Town Centre, QLD, 4230		01.12.23 9AM		DATE/TIME:	

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	29.11.23	Saline	P/SP/<4C	1	X							Environmental Division Brisbane Work Order Reference EB2338037  Telephone : + 61-7-3243 7222
2	SW2	29.11.23	Saline	P/SP/<4C	1	X							
3	SW3	29.11.23	Saline	P/SP/<4C	1	X							
4	SW4	29.11.23	Saline	P/SP/<4C	1	X							
5	SW5/6	29.11.23	Saline	P/SP/<4C	1	X							
6	SW7	29.11.23	Saline	P/SP/<4C	1	X							
					6								

Environmental Division
Brisbane
Work Order Reference
EB2338037



Telephone : + 61-7-3243 7222

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 : **EB2338037**
Client : **PRECISE ENVIRONMENTAL PTY LTD**
Contact : MR SEAN GARDINER
Address : PO BOX 4424
ROBINA TOWN CENTRE QLD, AUSTRALIA 4230
Telephone : +61 07 5593 7848
Project : PE1250.13
Order number : PE1250.13
C-O-C number : ----
Sampler : SEAN GARDINER
Site : ----
Quote number : EN/222
No. of samples received : 6
No. of samples analysed : 6

Page : 1 of 4
Laboratory : Environmental Division Brisbane
Contact : David Wall
Address : 2 Byth Street Stafford QLD Australia 4053
Telephone : +61-7-3243 7222
Date Samples Received : 01-Dec-2023 15:48
Date Analysis Commenced : 04-Dec-2023
Issue Date : 06-Dec-2023 10:50



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

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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					29-Nov-2023 00:00	29-Nov-2023 00:00	29-Nov-2023 00:00	29-Nov-2023 00:00	29-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		EB2338037-001	EB2338037-002	EB2338037-003	EB2338037-004	EB2338037-005
					Result	Result	Result	Result	Result
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	-----	5	mg/L		<5	<5	16	40	<5



Analytical Results

Sub-Matrix: SALINE WATER (Matrix: WATER)			Sample ID	SW7	----	----	----	----
			Sampling date / time	29-Nov-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EB2338037-006	-----	-----	-----	-----
				Result	----	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)		----	5	mg/L	<5	---	---	---



QUALITY CONTROL REPORT

Work Order : **EB2338037**

Client : **PRECISE ENVIRONMENTAL PTY LTD**

Contact : **MR SEAN GARDINER**

Address : **PO BOX 4424**
ROBINA TOWN CENTRE QLD, AUSTRALIA 4230

Telephone : **+61 07 5593 7848**

Project : **PE1250.13**

Order number : **PE1250.13**

C-O-C number : **----**

Sampler : **SEAN GARDINER**

Site : **----**

Quote number : **EN/222**

No. of samples received : **6**

No. of samples analysed : **6**

Page : **1 of 3**

Laboratory : **Environmental Division Brisbane**

Contact : **David Wall**

Address : **2 Byth Street Stafford QLD Australia 4053**

Telephone : **+61-7-3243 7222**

Date Samples Received : **01-Dec-2023**

Date Analysis Commenced : **04-Dec-2023**

Issue Date : **06-Dec-2023**



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**

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: 5466218)									
EB2337968-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	2610	2640	0.9	0% - 20%
EB2338037-005	SW5/6	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

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: 5466218)								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	103	88.0	112
				<5	1000 mg/L	93.0	88.0	112
				<5	825 mg/L	102	84.7	116

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	: EB2338037	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	: 01-Dec-2023
Site	: ----	Issue Date	: 06-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.

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

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			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)		29-Nov-2023	----	----	----	04-Dec-2023	06-Dec-2023	✓
SW1,	SW2,							
SW3,	SW4,							
SW5/6,	SW7							



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	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Suspended Solids (High Level)	EA025H	3	20	15.00	15.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Suspended Solids (High Level)	EA025H	1	20	5.00	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)