SYDNEY METRO - WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

Biannual Groundwater Monitoring Report

July to November 2023

Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works

Project number	WSA-200-SBT
Document number	SMWSASBT-CPG-SWD-SW000-GE-RPT-040410
Revision date	29/01/2024
Revision	B

Document approval

Rev	Date	Prepared by	Reviewed by	Approved by	Remarks
B	29/01/2024	Tetra Tech Major Projects	Emily Fuda	Jeremy Slattery	Nil
Signature:					

Details of Revision Amendments

Document Control

The Project Director is responsible for ensuring that this report is reviewed and approved. The Design Director is responsible for updating this report to reflect changes to construction, legal and other requirements, as required.

Amendments

Any revisions or amendments must be approved by the Design Director and/or client before being distributed / implemented.

Revision Details

Revision	Details
A.01	First draft issue for CPBG review
A.02	Second draft issue for CPBG review
B	CPBG update in response to Sydney Metro / ER comments

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Definitions and Abbreviations

Acronym/ Abbreviation	Definition
ANZG (2018)	Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2018)
BTEXN	Benzene, Toluene, Ethylbenzene, Xylene
CoC	Chain of Custody
CPBG	CPB Contractors Gella Joint Venture
DQO	Data Quality Objective
EC	Electrical conductivity
EIS	Sydney Metro Western Sydney Airport – Environmental Impact Statement
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
GDEs	Groundwater Dependent Ecosystems
GMP	Groundwater Monitoring Program
GWQ	Groundwater Quality
HHERA	Human Health and Ecological Risk Assessment
LOR	Limit of Reporting
mAHD	Elevation in metres with respect to the Australian Height Datum
mBGL	Metres Below Ground Level
mBTOC	Metres Below Top of Casing
NATA	National Association of Testing Authorities
PAH	Polycyclic Aromatic Hydrocarbons
PCE	Tetrachloroethene
PFAS	Per- and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane-Sulfonic Acid
QA	Quality assurance
QC	Quality control
RPD	Relative Percent Difference
SBT Works	Station Box and Tunnelling Works
SF	Service Facility
SVOC	Semi-Volatile Organic Compounds
TBM	Tunnel boring machine

Acronym/ Abbreviation	Definition
TCE	Trichloroethene
TDS	Total Dissolved Solids
TfNSW	Transport for NSW
TOC	Total Organic Carbon
TRH	Total Recoverable Hydrocarbons
Tetra Tech	Tetra Tech Major Projects Pty Ltd
µS/cm	Micro-Siemens per centimetre
VOC	Volatile Organic Compounds
VWP	Vibrating Wire Piezometers
WSA	Western Sydney Airport
WSI	Western Sydney International

1 Introduction

Sydney Metro has engaged CPB Ghella Joint Venture (CPBG) for the design and construction of Station Boxes and Tunnelling Works (SBT Works) for the Western Sydney Airport (WSA) project (the Project). The Project forms part of the broader Sydney Metro network and involves the construction and operation of a new 23km metro rail line from the existing Sydney Trains suburban T1 Western Line (at St Marys) in the north and the Aerotropolis (at Bringelly) in the south. The alignment includes tunnels and civil structures, including a viaduct, bridges, and surface and open-cut troughs between the two tunnel sections (Figure 1 below).

This Biannual Groundwater Monitoring Report has been prepared by Tetra Tech Major Projects Pty Ltd (Tetra Tech) on behalf of CPBG to report on the first round of groundwater monitoring and compare to baseline groundwater conditions as well as the adopted performance criteria, as outlined in the Groundwater Monitoring Plan (Document SMWSASBT-CPG-SWD-SW000-GE-RPT040404).

This report summarises the groundwater level and groundwater quality monitoring undertaken as detailed in the Groundwater Monitoring Plan (GMP) for construction between July and November 2023, and comparison to trigger levels as outlined in the GMP.

This report includes:

- Groundwater level and electrical conductivity data from July to November 2023
- Water quality monitoring results from sampling undertaken by CPBG from September to November 2023.

1.1 Project background and location

The Project is being delivered through several work packages, with SBT works package including the design and construction of:

- Northern Tunnels (between Orchard Hills and St Marys)
- Southern Tunnels (between Western Sydney International (WSI) and the new Aerotropolis station)

As well as excavation works including:

- Four station box with temporary ground support at St Mary's, Orchard Hills, Airport Terminal and Aerotropolis
- Two intermediate service facilities, one for each tunnel sections at Claremont and Bringelly
- Turn back excavations and stub tunnels for future extensions to the network

An overview of SBT works, including the tunnels and excavation areas, is shown in Figure 1-1.

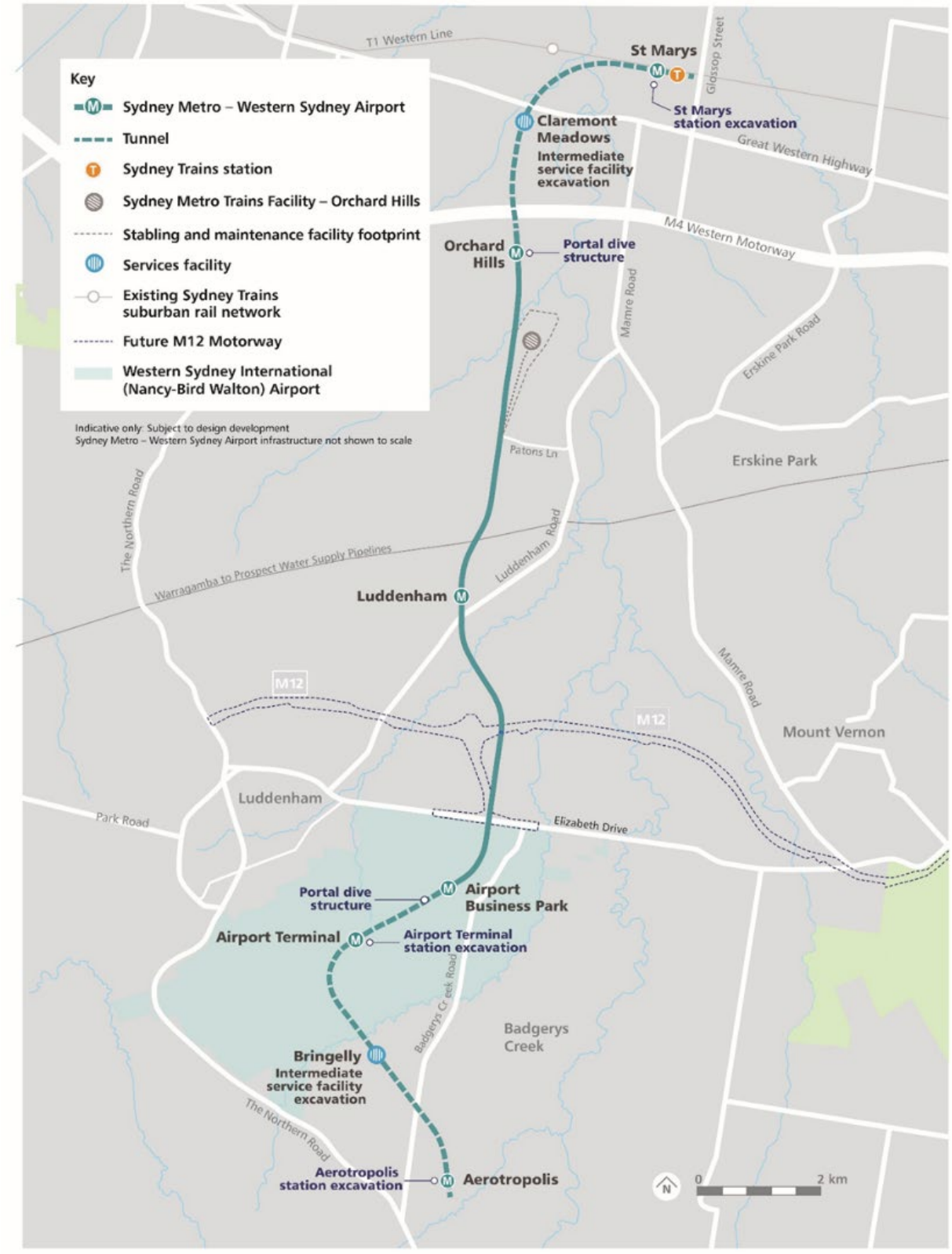


Figure 1-1: Overview of SBT works

1.2 Construction status

A summary of construction status and works completed as provided by CPBG is provided in Table 1-1.

Table 1-1: Works Activity Schedule

Activity	Start	Finish
St Marys Station Box Excavation	13-Jan-23	7-Sep-2023
Claremont Meadows shaft Excavation	16-Dec-22	12-Sep-23
Orchard Hills Station Box Excavation	13-Jan-23	17-Jul-23
Airport Business Park Station Box Excavation	13-Sep-22	24-Apr-23
Airport Terminal Station box excavation	13-Feb-23	21-Nov-23
Airport Terminal Temporary Shaft Excavation	17-Apr-23	24-Aug-23
Bringelly Shaft Excavation	22-Dec-22	5-Sep-23
Aerotropolis Station Box Excavation	16-Feb-23	22-Sep-23
Cross Passages (XP)		
XPN-21	6-Dec-23	13-Jan-24
XPN-20	4-Nov-23	17-Dec-23
XPN-16	17-Dec-23	17-Jan-24
XPS-2	20-Jul-23	3-Aug-23
XPS-3	25-Jul-23	1-Dec-23
XPS-6	20-Sep-23	8-Dec-23
XPS-8	13-Dec-23	15-Jan-24

2 Groundwater Monitoring Program Requirements

2.1 Monitoring Program

A GMP has been developed to meet the requirement for a groundwater construction monitoring program (requirement C13 of the Conditions of Approval for Sydney Metro – Western Sydney Airport (SSI 10051)).

The GMP describes how CPBG will monitor the extent and nature of potential impacts to groundwater levels and quality during the SBT Works, which will allow for implementation of appropriate management measures to address construction impacts.

The monitoring program is detailed in the GMP and summarised in the sections below, with monitoring locations shown on Figures 2-1 to 2-4.

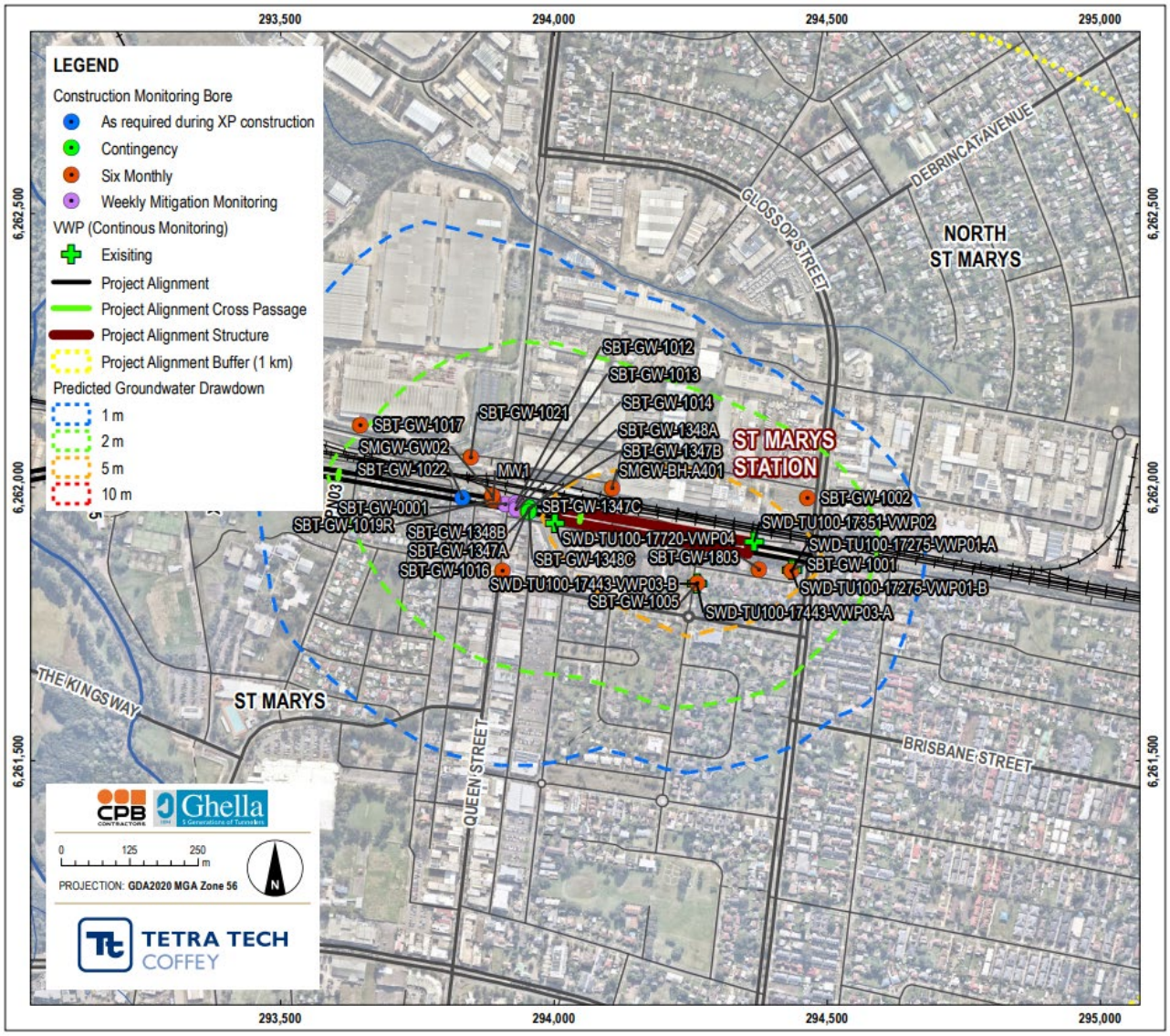


Figure 2-1: Construction groundwater monitoring program – St Marys Station

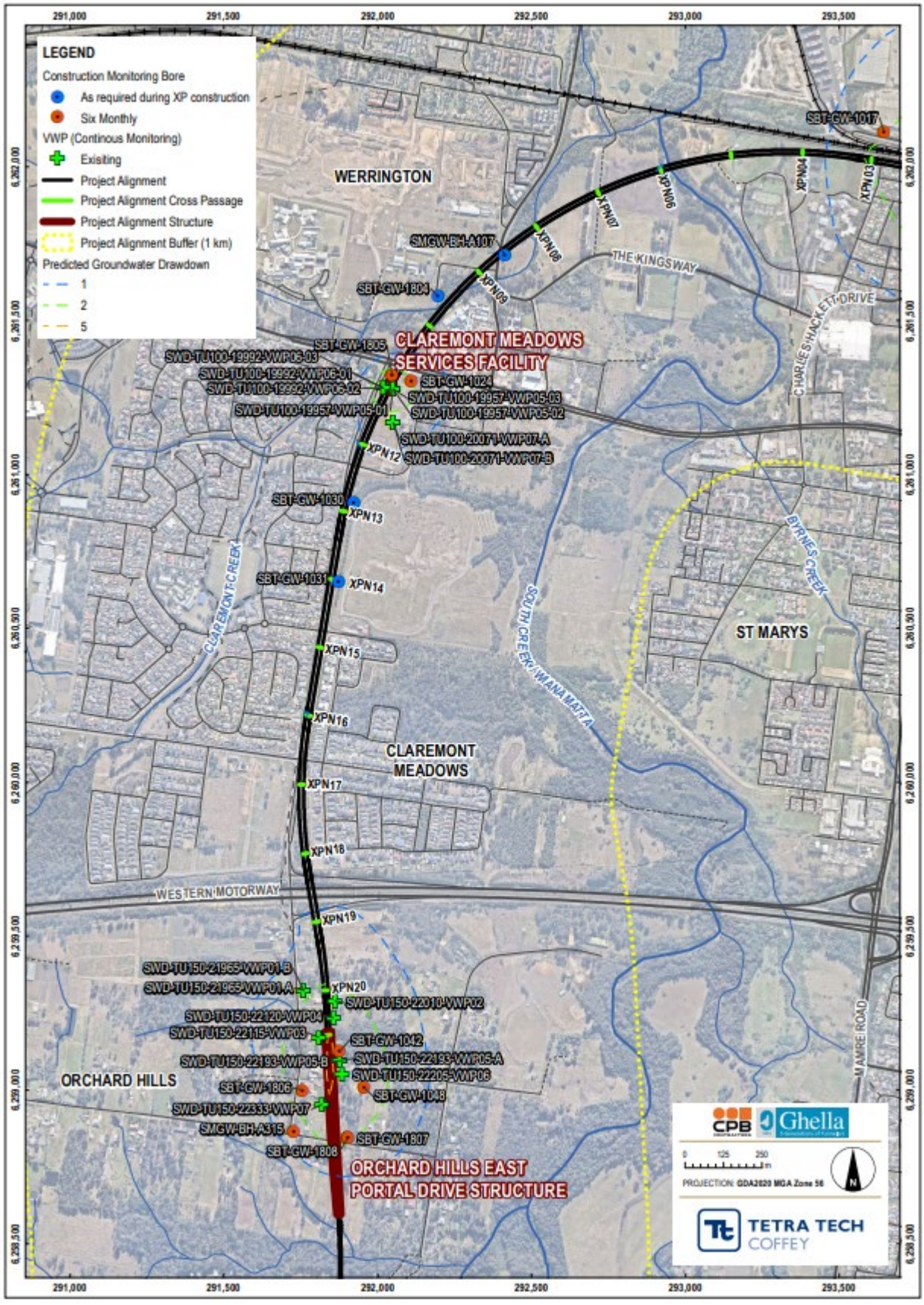


Figure 2-2 Construction groundwater monitoring program – South Creek to Orchard Hills Station

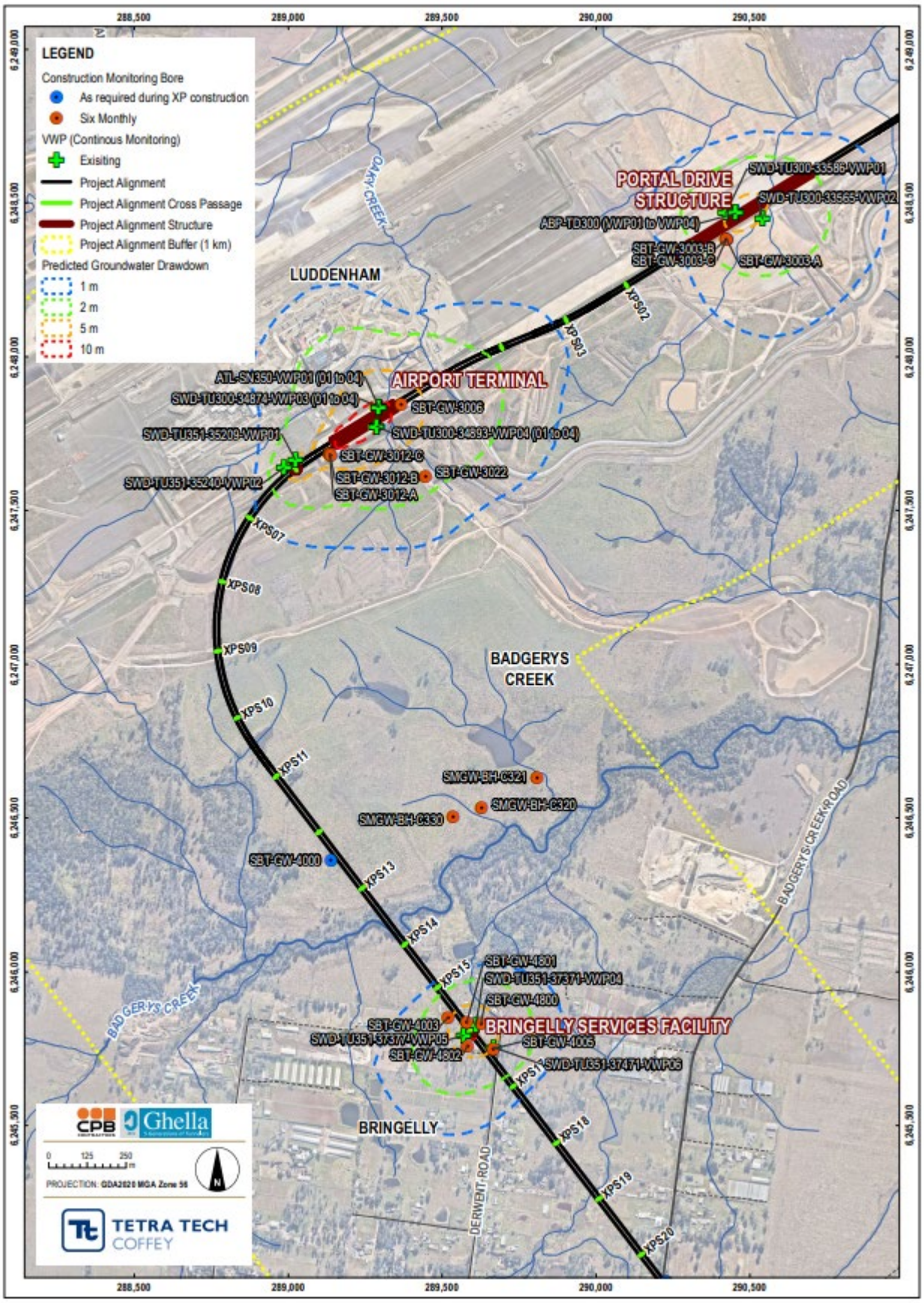


Figure 2-3: Construction groundwater monitoring program – WSI and Bringelly Services Facility

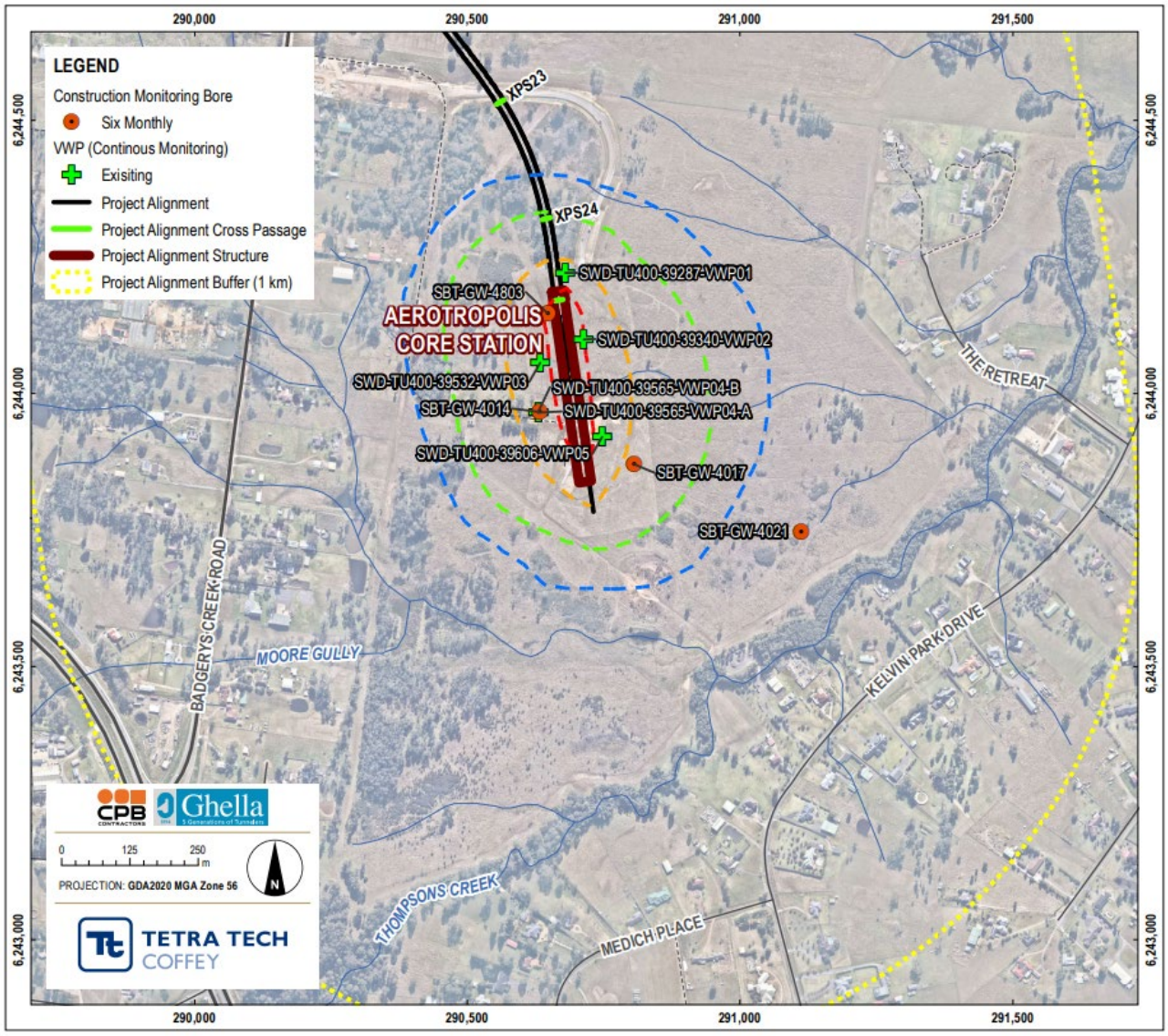


Figure 2-4: Construction groundwater monitoring program – Aerotropolis Core Station

2.2 Methodology

This section details the groundwater monitoring methodology to be implemented during the SBT Works as detailed in the GMP. Procedures for the collection of continuous and discrete groundwater monitoring data are provided, including all quality assurance / quality control requirements. Specifically, this methodology provides an approach for collection and assessment of the following environmental datasets:

- Groundwater level as mBTOC groundwater and mAHD (measurement and datalogger download)
- Groundwater salinity as electrical conductivity (measurement and datalogger download)
- Groundwater quality at key locations (field measurement and sample collection)

The methodology also provides quality assurance / quality control procedures for collecting and managing environmental datasets.

The groundwater sampling methodology has been developed for compliance with the following Australian and International Standards and Guidance:

- AS/NZS 5667.11:1998: Water Quality – Sampling Part 11: Guidance on Sampling of Groundwaters (Reconfirmed 2016)
- AS/NZS 5667.1:1998: Water Quality – Sampling Part 1: Guidance on the Design of Sampling Programs, Sampling Techniques and the Preservation and Handling of Samples (Reconfirmed 2016)
- Sundaram, B., Feitz, A., Caritat, P. de, Plazinska, A., Brodie, R., Coram, J. and Ransley, T., 2009. Groundwater Sampling and Analysis – A Field Guide. Geoscience Australia, Record 2009/27 95 pp.

All groundwater monitoring was undertaken by CPBG personnel with data portal access, or a summary of field and laboratory data, provided to Tetra Tech for reporting and comparison with triggers. The methodology as detailed in the GMP is summarised below.

2.3 Groundwater Levels

2.3.1 Grouted Vibrating Wire Piezometers (VWPs)

Grouted VWPs have been installed post-award at 45 locations by CPBG, with the locations of the 29 VWP monitored under the GMP shown in Figures 2-1 to 2-4, with details summarised in Table 4-2.

Telemetered monitoring of groundwater level data for VWPs is hosted by CPBG on their SensGrid portal.

Groundwater level results from July to November 2023 are summarised and compared to triggers in Section 5.1, and graphically shown in Annexure C.

2.3.2 Continuous electrical conductivity/ groundwater level monitoring

Electrical conductivity (EC) and groundwater level data is continuously logged at six locations to monitor conditions during the construction phase to assess potential risks to groundwater dependent ecosystems (GDEs).

GDE monitoring well details and triggers are provided in Section 4.2 of this report, with results and comparison to triggers in Section 5.1 and Section 5.2. Graphs displaying all results and triggers are provided in Annexure C and Annexure D.

2.3.3 Manual Groundwater Levels

Manual gauging to measure groundwater levels was undertaken on groundwater monitoring bores prior to sampling for groundwater quality.

Gauging was conducted using an electronic groundwater level interface meter from a known (surveyed) point at the top of the bore casing. Measurements were recorded to the nearest mm and recorded as metres below the top of casing (mBTOC). Where survey data is available, the groundwater level data has been corrected to Australian Height Datum (mAHD).

A summary of all available manual gauging data to date for the selected monitoring wells can be found with the groundwater quality results in the tables in Annexure A.

2.3.4 Groundwater Quality

A summary of the groundwater monitoring well network is provided in Table 2-1, below detailing the location, required monitoring frequency and analytical suite. Generally the frequency of water quality monitoring along the alignment is six monthly, and monthly prior to, during and after cross passage construction.

The analytical suites for construction monitoring for groundwater quality are provided in Table 2-2.

Table 2-1: Construction water quality monitoring Wells – frequency, water quality analysis and level/EC monitoring

Location ID	Monitoring Zone	Aquifer	TOC mAHD	Water quality sampling frequency	Base analytical Suite	Additional analytes
MW1	St Marys	Residual	*NK*	Six Monthly	✓	VOCs, PFAS
SBT-GW-0001	St Marys	*Unknown*	35.2	Weekly [1]	-	VOCs
SBT-GW-1001	St Marys	Residual/ Bedrock	48.8	Six Monthly	✓	
SBT-GW-1002	St Marys	Residual/ Bedrock	42.6	Six Monthly	✓	
SBT-GW-1005	St Marys	Residual/ Bedrock	44.2	Six Monthly	✓	
SBT-GW-1012	St Marys	Residual/ Bedrock	35.4	Weekly - multiple depths [1]	-	VOCs
SBT-GW-1013	St Marys	Residual/ Bedrock	35.4	Weekly - multiple depths [1]	✓	VOCs
SBT-GW-1014	St Marys	Residual/ Bedrock	35.5	Weekly - multiple depths [1]	-	VOCs
SBT-GW-1016	St Marys	Residual/ Bedrock	36.1	Six Monthly	✓	TPH/BTEXN, PFAS
SBT-GW-1017	St Marys	Residual/ Bedrock	32.5	Six Monthly	✓	TPH/BTEXN, PFAS
SBT-GW-1019R	St Marys	Bedrock	35.2	Six Monthly	✓	VOCs, PFAS
SBT-GW-1021	St Marys	Residual/ Bedrock	33.9	Six Monthly	✓	Phenols
SBT-GW-1022	St Marys	Bedrock	34.3	As required [2]	✓	VOCs, PFAS
SBT-GW-1803	St Marys	Bedrock	47.6	Six Monthly	✓	
SBT-GW-1347A	St Marys	Bedrock	35.7	- (contingency)		
SBT-GW-1347B	St Marys	Bedrock	35.7	- (contingency)		

Location ID	Monitoring Zone	Aquifer	TOC mAHD	Water quality sampling frequency	Base analytical Suite	Additional analytes
SBT-GW-1347C	St Marys	Bedrock	35.7	Weekly [1]	-	VOCs
SBT-GW-1348A	St Marys	Bedrock	35.8	- (contingency)		
SBT-GW-1348B	St Marys	Bedrock	35.8	- (contingency)		
SBT-GW-1348C	St Marys	Bedrock	35.8	Weekly [1]	-	VOCs
SMGW-BH-A401	St Marys	Residual/Bedrock	36.5	Six Monthly	✓	TPH/BTEXN, PFAS
SMGW-GW02	St Marys	Residual	35.4	Six monthly	-	VOC, PFAS
SBT-GW-1804	TBM Tunnel - South Creek	Residual	21	As required [2]	✓	
SMGW-BH-A107	TBM Tunnel - South Creek	Bedrock	22.5	As required [2]	✓	
SBT-GW-1030	Cross passage / Tunnel (XPN13)	Residual/Bedrock	36.8	As required [2]	✓	PFAS
SBT-GW-1031	Cross passage / Tunnel (XPN14)	Bedrock	40.8	As required [2]	✓	
SBT-GW-1024	Claremont Meadows SF	Alluvium/Bedrock	28.5	Six Monthly	✓	TPH/BTEXN, PFAS
SBT-GW-1805	Claremont Meadows SF	Residual	27.3	Six Monthly	✓	
SBT-GW-1806	Orchard Hills	Bedrock	43	Six Monthly	✓	TPH/BTEXN
SBT-GW-1807	Orchard Hills	Bedrock	37.5	Six Monthly	✓	
SBT-GW-1808	Orchard Hills	Residual	37.5	Six Monthly	✓	
SMGW-BH-A315	Orchard Hills	Residual/Bedrock	42.3	Six Monthly	✓	TPH/BTEXN, PFAS
SBT-GW-1042	Orchard Hills	Alluvium	40.1	Six Monthly	✓	
SBT-GW-1048	Orchard Hills	Alluvium/Bedrock	39.6	Six Monthly	✓	
SBT-GW-3003-A	Portal / Cross passage XPS01	Bedrock	67.7	Six Monthly	✓	
SBT-GW-3003-B	Portal / Cross passage XPS01	Bedrock	67.4	Six Monthly	✓	
SBT-GW-3003-C[3]	Portal / Cross passage XPS01	Bedrock	67.3	Six Monthly	✓	
SBT-GW-3006	Airport Terminal	Bedrock	84.3	Six monthly	✓	
SBT-GW-3012-A	Airport Terminal	Bedrock	84	Six Monthly	✓	

Location ID	Monitoring Zone	Aquifer	TOC mAHD	Water quality sampling frequency	Base analytical Suite	Additional analytes
SBT-GW-3012-B	Airport Terminal	Bedrock	83.9	Six Monthly	✓	TPH
SBT-GW-3012-C	Airport Terminal	Bedrock	83.8	Six Monthly	✓	
SBT-GW-3022	Airport Terminal	Bedrock	77.8	Six Monthly	✓	TPH
SBT-GW-4000	Western Sydney Airport	Bedrock	72.2	As required [2]	✓	TPH/BTEXN
SMGW-BH-C320	Western Sydney Airport	Residual/Bedrock	66.5	Six Monthly	✓	TPH/BTEXN, PFAS
SMGW-BH-C321	Western Sydney Airport	Residual/Bedrock	63.5	Six Monthly	✓	
SMGW-BH-C330	Western Sydney Airport	Bedrock	69.4	Six Monthly	✓	
SBT-GW-4003	Bringelly SF	Residual/Bedrock	71.9	Six Monthly	✓	TPH/BTEXN, PFAS
SBT-GW-4005	Bringelly SF	Bedrock	73.6	Six Monthly	✓	
SBT-GW-4800	Bringelly SF	Residual/ Bedrock	71.432	Six Monthly	✓	
SBT-GW-4801	Bringelly SF	Residual/ Bedrock	71.372	Six Monthly	✓	
SBT-GW-4802	Bringelly SF	Bedrock	74.348	Six Monthly	✓	
SBT-GW-4008	Aerotropolis	Bedrock	78.3	As required [2]	✓	
SBT-GW-4010	Aerotropolis	Bedrock	78.8	As required [2]	✓	
SBT-GW-4014	Aerotropolis	Residual/Bedrock	73.9	Six Monthly	✓	PFAS
SBT-GW-4017	Aerotropolis	Residual	71.3	Six Monthly	✓	TPH/BTEXN, PFAS
SBT-GW-4021	Aerotropolis	Alluvium/Bedrock	62.8	Six Monthly	✓	
SBT-GW-4803	Aerotropolis	Bedrock	72.7	Six Monthly	✓	

Note: *Italic* denotes bore detail unknown as not installed by CPBG

1. Refer St Marys Station Remediation Action Plan and reported separately in Monthly Mitigation Reports
2. Monthly sampling during cross passage construction
3. SBT-3003C was destroyed during the monitoring period, available groundwater levels are reported and this will be removed from the GMP

2.4 Groundwater quality monitoring

All groundwater quality monitoring was undertaken by CPBG trained personnel, and is understood to have been completed in accordance with the methodology detailed in Section 7.4 of the GMP.

2.4.1 Sampling procedure

Prior to sampling for water quality, groundwater levels were manually gauged.

Groundwater samples were collected using the Hydrasleeve™ method. A Hydrasleeve captures a core of water, typically 1 litre, from the screened interval of the well. The Hydrasleeve™ is deployed to a target depth based on screened interval and rationale for sampling and left until conditions are considered to have stabilised. The time to stabilisation depends on the transmissivity of the aquifer, with more transmissive aquifer stabilising more rapidly. It is understood that the methodology provided in the GMP was followed by CPBG, with the hydrasleeves allowed a minimum of five days to stabilise given most of the wells are screened within the bedrock aquifer.

The Hydrasleeve™ is sealed except during sample collection when it is pulled up through the sampling interval, and re-seals once full. Therefore, only groundwater from the target depth interval is sampled and recovered.

Groundwater sampling and field testing was carried out in select monitoring wells as detailed in Appendix A of the GMP, and Table 2-1 of this report where sampling locations were accessible.

Groundwater samples were collected in appropriate laboratory supplied bottles and sent to a National Association of Testing Authorities (NATA) accredited laboratory for analysis under the Chain of Custody (COC) process.

The analytical suites are outlined in Table 2-2 below.

Table 2-2: Analytical schedule for monitoring bores

Program	Analysis suites
Construction Monitoring - Base Analytical Suite	General indicators (pH, EC, TDS)
	TOC
	Major cations (calcium, magnesium, sodium, potassium)
	Major anions (chloride, sulphate) and speciated alkalinity (bicarbonate, carbonate, hydroxide)
	Dissolved metals (aluminium, arsenic, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, zinc) and Total metals (aluminium, cobalt, iron, manganese)
	Nutrients (ammonia, nitrate, nitrite, total kjeldahl nitrogen, total nitrogen, total phosphorous, reactive phosphorous)
Additional analytes – included for select wells where compounds were detected and/or exceeded adopted criteria in the Baseline Assessment (refer Table 2-1 for relevant wells)	Total Recoverable Hydrocarbons (TRH)
	Benzene, Toluene, Ethylbenzene, Xylene, Naphthalene (BTEXN)
	Volatile Organic Compounds (VOCs)
	Phenols
	Per- and Polyfluoroalkyl Substances (PFAS) (short suite)

2.4.2 Decontamination

Decontamination of re-useable sampling equipment was conducted between each sampling location. Equipment was rinsed with tap water, cleaned with Liquinox (or equivalent), further rinsed with tap water and then deionised water. Equipment was then allowed to dry before being used.

2.4.3 Quality assurance and quality control

Quality assurance (QA) and quality control (QC) measures during sampling and field data collection to ensure data integrity are detailed in Section 7 of the GMP. The measures outlined in the GMP included:

- Use of NATA accredited laboratories for sample analysis;
- Use of Chain of Custody (CoC) procedures between sample collection in the field and subsequent reception of the sample by the laboratory. CoC documentation included the sample type and code, analysis required, collection data, sampler and sample receiver(s);
- Appropriate sample handling and storage including using laboratory supplied containers, keeping samples chilled during storage and transport, ensuring samples are received in good condition within specified holding times by the laboratory;
- A consistent program of quality control sampling be adopted for fieldwork, including:
    - Collection of duplicate and triplicate samples at an average frequency of one sample per twenty primary samples (an overall ratio of 1:10 where PFAS sampled in accordance with NEMP 2.0);
    - Collection of rinsate blanks to measure the effectiveness of decontamination procedures; and
    - Collection of trip blanks to assess the adequacy of sample storage and transport procedures in preventing cross contamination.

As detailed in Section 7.10 of the GMP, a data validation assessment was completed of samples collected for the groundwater monitoring up to November 2023, and is provided in Annexure F.

2.4.4 Recording and documentation of field results

CPBG protocols were applied for field works. Field forms are understood to have included the following detail:

- Bore location and condition;
- Summary of climatic setting including weather;
- Type of equipment used and equipment serial numbers/calibration certificates;
- Method of sampling (Hydrasleeve deployment and retrieval dates);
- Details of the sampler;
- Field parameters, groundwater level, odour, colour and any other observations made during sampling; and
- Date and time of sampling.

A summary of field monitoring and sampling results provided by CPBG is included as Annexure A.

3 Compliance review

A review of monitoring works indicated that groundwater monitoring was generally in line with the requirements of construction monitoring as outlined in the GMP, Revision 2.0. Deviations from the the GMP are summarised in Tables 3-1 and 3-2.

3.1 Groundwater levels and GDE

Table 3-1: Variation from Water Quality Sampling Plan in GMP

Location ID [1]	Monitoring Zone	Reason for being not monitored	Action to be taken
SBT-GW-1019R	St Marys	Well was inaccessible. On private property and resident had planted tree in area.	Access has been re-established, well will be included in next round
SBT-GW-4017	Aerotropolis	Well destroyed	To be redrilled and reinstalled at same location and same screen interval
SWD-TU150-22010-VWP04	Orchard Hills	Well destroyed	To be removed from GMP – refer discussion below and in Section 6.1
SBT-GW-1028	Claremont Meadows	Well was not located until after monitoring period.	Well has been located, EC data will be included in next round.

SWD-TU150-22010-VWP04 which has been destroyed, was primarily for monitoring pore water pressure behind the wall during construction. This location will be removed from the GMP based in confirmation from the CPBG construction team via email correspondence on 28/11/2023 that data from this VWP is not required for construction purposes (e.g. retention performance, confirmation of drawdown profiles, etc.).

Four VWPs at Aerotropolis which have also been destroyed were primarily for monitoring levels during excavation for design purposes and are understood to no longer be required. These locations will also be removed from the GMP based in confirmation from the CPBG construction team via email correspondence on 28/11/2023. It is recommended AEC-SN450-EW-VWP07 be added to GMP to confirm if levels in this location decrease further;

SBT-GW-1028, which is primarily for level and EC monitoring to monitor the risk posed to GDE health by altered groundwater quality and levels, was unable to be located during the monitoring period. Level data obtained from SBT-GW-1028 (VWPs SWD-TU100-20071-VWP07-A and SWD-TU100-20071-VWP07-B) indicate that GDE trigger levels were not breached during the monitoring period (refer to Annexure C). However, no EC data was able to be obtained for this monitoring period.

3.2 Groundwater quality

Analysis was incomplete in 6 trigger wells, as detailed in Table 3-2 below.

Table 3-2: Missing analysis for groundwater quality

Location ID	Monitoring Zone	Total PFAS	TPH>C10	Toluene	VC	Phenol
SBT-GW-1021	St Marys					NA
SBT-GW-1805	Claremont Meadows SF	NA				
SBT-GW-3022	Airport Terminal		NA			
SBT-GW-4000	Western Sydney Airport		NA	NA		
SMGW-BH-C321	Western Sydney Airport	NA				
SBT-GW-4005	Bringelly SF	NA				

NA: Not analysed

No trigger exceedances were reported in the wells listed above with missing analysis. Although this does not replace the analysis, the absence of other exceedances indicates that conditions have not significantly changed in these locations.

Three of these locations (SBT-GW1021, SMGW-BH-C321 and SBT-GW-4005) had only the base analytes listed in the GMP. It is recommended that the GMP be updated to make sure that wells with trigger values are being sampled for those analytes.

The groundwater sampling compliance and quality control is discussed in the Quality Assurance Report in Annexure F.

Issues identified include:

- No blank field quality control samples were collected during the current monitoring period. Although not compliant, the absence of significant trigger exceedances (discussed in Section 5.3.1) indicates that cross-contamination between samples was not an issue. It is also noted that where mitigation measures have been implemented to manage potential groundwater associated risk at St Marys, field blanks have consistently been taken, and have not identified any issues with the sampling methodology.
- Sample turbidity should be considered when interpreting total metal concentrations as the presence of particulates may result in higher total concentrations being reported.

Recommendations for future monitoring events include:

- Collection of field blanks, trip blanks, rinsate blanks and inter-laboratory duplicates consistent with the GMP;
- Field quality control replicate samples include locations where the broader suite of analysis is assessed.

Overall, the percentage of issues identified in the quality assessment (0.6%) indicates that the dataset is acceptable, and of appropriate quality for use.

4 Performance Criteria

4.1 Groundwater Level Triggers

Groundwater trigger levels were developed to manage potential impacts associated with drawdown propagation during construction. The trigger levels were based on the modelled response (Project-wide groundwater modelling report, Tetra Tech Major Projects (2023) Ref: SMWSASBT-CPG-SWD-SW000-GE-RPT-040402)

The project groundwater model was used to define the trigger levels during construction (provided in Table 4-2), with actual groundwater level responses assessed against the predicted water levels, and trigger values assessed and/or revised as construction progresses and the groundwater response to excavation is better understood.

A traffic light system has been adopted based on baseline groundwater conditions and anticipated groundwater level drawdown from the works, with Table 4-1 summarising proposed actions when the specific trigger level is activated.

Table 4-1: Traffic light trigger level system

Trigger level	Action
Green	Groundwater levels observed are within the target / green trigger level range and require no additional action.
Amber	• Investigation to the possible reason for the drawdown or drawdown trend. • Possible increase in monitoring frequency to confirm trend. • Checks on instrumentation / monitoring equipment. • Consideration for need of application of mitigation (i.e. targeted recharge) where drawdown is not found to be a seasonal variation, and is identified to be due to Project activities.
Red	• Investigation to the possible reason for the drawdown or drawdown trend. • Increase in monitoring frequency to confirm trend. • Changes to groundwater level management where trend is deemed to be a function of the Project activities. May include implementation of localised recharge or other hydraulic control.

Table 4-2: Groundwater trigger levels

Area	Location ID	Monitoring bore screen or VWP sensor elevation (m AHD)	Pre-development groundwater level range (mAHD)	Trigger levels based on anticipated groundwater level at completion of excavation and tunnelling		
				Green Trigger (m AHD)	Amber Trigger (m AHD)	Red Trigger (m AHD)
St Marys	SWD-TU100-17275-VWP01-A	15.15	42 to 43.3	35.0	34.5	34.0
St Marys	SWD-TU100-17275-VWP01-B	20.15	42 to 43.3	35.0	34.5	34.0
St Marys	SWD-TU100-17351-VWP02	14.72	28.2 to 31.6	Note 1		
St Marys	SWD-TU100-17443-VWP03-A	13.56	26.6 to 32.8	19.9	19.4	18.9
St Marys	SWD-TU100-17443-VWP03-B	18.56	28 to 34	21.3	20.8	20.3
St Marys	SWD-TU100-17720-VWP04	13.41	31.7 to 32	Note 1		
TBM Tunnel - South Creek	SMGW-BH-A105S	14.6 to 20.6	19 to 19.8	18.9	18.4	17.9
TBM Tunnel - South Creek	SMGW-BH-A107	-4.44 to 3.46	20.9 to 21.6	20.8	20.3	19.8
TBM Tunnel - South Creek	SBT-GW-1804	16.0 to 19.0	18.7 to 19	18.5	18.0	17.5
Claremont Meadows SF	SBT-GW-1805	18.3 to 24.3	24.7 to 25.6	22.0	21.5	21.0
Claremont Meadows	SWD-TU100-19992-VWP06-01	5.998	20.2 to 25	Note 1		
Claremont Meadows	SWD-TU100-19992-VWP06-02	11	20.2 to 25	Note 1		
Claremont Meadows	SWD-TU100-19992-VWP06-03	17.5	20.6 to 25	Note 1		
Claremont Meadows	SWD-TU100-20071-VWP07-A	2.813	26.9 to 27	25.4	24.9	24.4
Claremont Meadows	SWD-TU100-20071-VWP07-B	7.813	27.1 to 27.3	25.6	25.1	24.6
Claremont Meadows	SBT-GW-1028	22.5 to 27.5	26.7 to 26.5	25.2	24.7	24.2
Orchard Hills	SWD-TU150-21965-VWP01-A	16.6	37.8 to 38.5	36.0	35.5	35.0
Orchard Hills	SWD-TU150-21965-VWP01-B	21.6	36.8 to 37.5	35.0	34.5	34.0
Orchard Hills	SWD-TU150-22010-VWP02	22.81	33.8 to 35.3	31.5	31.0	30.5
Orchard Hills	SWD-TU150-22115-VWP03	23.58	35.2 to 37.6	Note 1		
Orchard Hills	SWD-TU150-22120-VWP04	21.9	35.5 to 35.6 Note 2	31.5	31	30.5
Orchard Hills	SBT-GW-1042	32.1 to 38.1	37.7 to 37.8	33.5	33.0	32.5

Area	Location ID	Monitoring bore screen or VWP sensor elevation (m AHD)	Pre-development groundwater level range (mAHD)	Trigger levels based on anticipated groundwater level at completion of excavation and tunnelling		
				Green Trigger (m AHD)	Amber Trigger (m AHD)	Red Trigger (m AHD)
Orchard Hills	SWD-TU150-22193-VWP05-A	20.499	33.7 to 34.9	Note 1		
Orchard Hills	SWD-TU150-22193-VWP05-B	25.499	34.5 to 35.7	Note 1		
Orchard Hills	SWD-TU150-22205-VWP06	24.28	32.5 to 35	Note 1		
Orchard Hills	SWD-TU150-22333-VWP07	24.795	35.5 to 37.3	Note 1		
Orchard Hills	SMGW-BH-A315	32.3 to 38.3	38.8 to 40	37.4	36.9	36.4
Orchard Hills	SBT-GW-1063	20.6 to 29.6	25.4 to 25.7	24.8	24.3	23.8
Airport Portal	SWD-TU300-33565-VWP02	52.466	55.2 to 64	50.3	49.8	49.3
Airport Terminal	ABP-TD300-VWP03	56.296	60 to 62.2	Note 1		
Airport Terminal	ABP-TD300-VWP02	56.277	59.8 to 61.7	Note 1		
Airport Terminal	ABP-TD300-VWP01	55.1	59.3 to 62.9	Note 1		
Airport Terminal	ABP-TD300-VWP04	55.123	60.5 to 62.7	Note 1		
Airport Portal	SWD-TU300-33586-VWP01	50.723	60.3 to 63.9	54.8	54.3	53.8
Portal / Cross passage XPS01	SBT-GW-3003-A	62.7 to 65.7	63.7 to 63.9	60.0	59.5	59.0
Portal / Cross passage XPS01	SBT-GW-3003-B	54.4 to 57.4	55 to 63	51.3	50.8	50.3
Portal / Cross passage XPS01	SBT-GW-3003-C	45.3 to 48.3	59.4 to 59.6	55.7	55.2	54.7
Airport Terminal	SBT-GW-3006	49.3 to 55.3	72.9 to 74.6	65.0	64.5	64.0
Airport Terminal	ATL-SN350-VWP01-01	60	69.2 to 75	56.9	56.4	55.9
Airport Terminal	ATL-SN350-VWP01-02	64	69.1 to 75.1	56.8	56.3	55.8
Airport Terminal	ATL-SN350-VWP01-03	67.999	69.1 to 75.1	56.8	56.3	55.8
Airport Terminal	ATL-SN350-VWP01-04	72.998	73 to 74.1	60.7	60.2	59.7
Airport Terminal	SWD-TU300-34874-VWP03-01	60	74.2 to 74.6	Note 1		
Airport Terminal	SWD-TU300-34874-VWP03-02	64	74.2 to 74.6	Note 1		
Airport Terminal	SWD-TU300-34874-VWP03-03	68	74.4 to 74.6	Note 1		

Area	Location ID	Monitoring bore screen or VWP sensor elevation (m AHD)	Pre-development groundwater level range (mAHD)	Trigger levels based on anticipated groundwater level at completion of excavation and tunnelling		
				Green Trigger (m AHD)	Amber Trigger (m AHD)	Red Trigger (m AHD)
Airport Terminal	SWD-TU300-34874-VWP03-04	73	74.8 to 75.2	Note 1		
Airport Terminal	SWD-TU300-34893-VWP04-04	73	74 to 74.7	62.6	62.1	61.6
Airport Terminal	SWD-TU300-34893-VWP04-01	60	72.7 to 73.7	61.3	60.8	60.3
Airport Terminal	SWD-TU300-34893-VWP04-02	64	72.7 to 73.7	61.3	60.8	60.3
Airport Terminal	SWD-TU300-34893-VWP04-03	68	73 to 73.8	61.6	61.1	60.6
Airport Terminal Temp Shaft	SWD-TU351-35209-VWP01	58.1	77 to 78.1	Note 1		
Airport Terminal Temp Shaft	SWD-TU351-35240-VWP02	57.8	77.1 to 77.8	Note 1		
Western Sydney Airport	SBT-GW-4000	59.2 to 69.7	70.5 to 70.9	70.5	70.0	69.5
Bringelly SF	SWD-TU351-37371-VWP04	50.313	62.5 to 67.1	50.6	50.1	49.6
Bringelly SF	SWD-TU351-37377-VWP05	52.53	64.5 to 67.2	56.0	55.5	55.0
Bringelly SF	SWD-TU351-37471-VWP06	52.516	67.6 to 68	62.5	62.0	61.5
Aerotropolis	SBT-GW-4008	50.3 to 56.3	72 to 72.2	71.8	71.3	70.8
Aerotropolis	SBT-GW-4010	62 to 68	73.3 to 73.8	73.0	72.5	72.0
Aerotropolis	SWD-TU400-39287-VWP01	57.506	67 to 67.6	60.3	59.8	59.3
Aerotropolis	SWD-TU400-39340-VWP02	55.831	65.6 to 66.8	55.6	55.1	54.6
Aerotropolis	SWD-TU400-39532-VWP03 Note 2	55.167	67.4 to 71.2	59.0	58.5	58.0
Aerotropolis	SWD-TU400-39565-VWP04-A Note 2	47.749	66.2 to 68	59.3	58.8	58.3
Aerotropolis	SWD-TU400-39565-VWP04-B Note 2	50.749	66.8 to 68.6	59.9	59.4	58.9
Aerotropolis	SWD-TU400-39606-VWP05 Note 2	44.535	66 to 66.1	57.7	57.2	56.7
Aerotropolis	SBT-GW-4021	51.9 to 60.9	59.8 to 59.9	59.6	59.6	58.6

Notes: (1) Purpose of monitoring asset is wall design where drawdown is not the critical design case.

(2) Location was destroyed and will be removed from the GMP

4.2 GDE Trigger Values

Site specific trigger values (SSTVs) to monitor the risk posed to GDE health by altered groundwater quality and levels were developed using baseline data in key wells in the vicinity of GDEs. SSTVs for EC and level as detailed in the GMP are listed in Table 4-3 and 4-4 below. Groundwater level related SSTVs are equivalent to the amber groundwater level values in the groundwater trigger table (Table 4-2).

Table 4-3: SSTVs for continuous EC monitoring of GDEs

Area	Bore ID	Screened unit	Screen depth (mbgl)	Baseline EC range (µS/cm)	Preliminary EC SSTV (µS/cm)
Claremont Meadows	SBT-GW-1805	Residual	3 - 9	2,480 – 3,100	3,650
Claremont Meadows	SBT-GW-1028	Residual	3 - 6	No sampling as in asbestos exclusion zone	
Orchard Hills	SBT-GW-1042	Alluvium	2 - 8	11,900 – 12,400	18,600
Orchard Hills	SBT-GW-1063	Alluvium/Bedrock	2 -11	11,650 – 13,293	19,940
Orchard Hills	SMGW-BH-A315	Alluvium/Bedrock	4 -10	1,842 – 2,878	4,317
Aerotropolis	SBT-GW-4021	Alluvium/Bedrock	2 - 11	21,400 – 22,000	33,000

Table 4-4: Level SSTVs for continuous level monitoring of GDEs

Area	Bore ID	Screened unit	Screen/sensor depth (mbgl)	Baseline level range (mAHD)	Preliminary Level SSTV (mAHD) *
Claremont Meadows	SBT-GW-1805	Residual	3 - 9	24.7 - 25.6	21.5
Claremont Meadows	SBT-GW-1028	Residual	3 - 6	26.5 – 26.7	24.7
Orchard Hills	SBT-GW-1042	Alluvium	2 - 8	37.7 – 37.8	33.0
Orchard Hills	SWD-TU150-22010-VWP02	Bedrock	16 (VWP)	33.8 – 35.3	31.0
Orchard Hills	SBT-GW-1063	Alluvium/Bedrock	2 -11	25.4 - 25.7	24.3
Orchard Hills	SMGW-BH-A315	Alluvium/Bedrock	4 -10	38.8 - 40	36.9
Aerotropolis	SBT-GW-4021	Alluvium/Bedrock	2 - 11	59.8 - 59.9	59.1

* Based on Amber Trigger Level as presented in Table 4-2

As outlined in the GMP, the EC and level data is intended to be downloaded monthly and assessed against the SSTVs to identify where conditions are not as expected or predicted

The SSTVs will provide an identifiable indication of a potential change in salinity, with a management response to be initiated if any of the following occurs:

- EC data continuously exceeds the SSTV over a period of three months and displays a rising trend
- EC data exceeds the SSTV at any time by more than 150%.

If one or both of the above EC triggers are observed a review will be initiated to determine the significance of the exceedance(s) and possible causes, including a review to assess the historical and surrounding monitoring bore data, and modelling predictions (refer to Section 7.2 of the SWMP). Where high saline areas are identified, measures such as planting, regenerating and maintaining native vegetation and good ground cover in recharge, transmission and discharge zones would be implemented where possible.

As noted in Section 6.4.1 of the GMP, a review of the monitoring program has been completed after the first 6 months of construction monitoring (refer Section 5.2.1) to determine the efficiency of the monitoring program for GDEs and whether any required changes.

The EC SSTVs will continue to be refined over time as additional data is available, and existing variability including seasonal trends and vertical stratification can further assessed.

4.3 Groundwater Quality Triggers

Site-specific groundwater quality action triggers have been developed for select locations where the baseline assessment identified groundwater contamination may be within the area predicted to be influenced by construction related drawdown, and either:

- Above detect for TPH or PFAS, or
- 10 x EPL for COPCs which typically exceed the EPL along the alignment (i.e aluminium, cadmium, copper, zinc, total nitrogen and total phosphorus)

Site specific triggers are outlined in the GMP, and summarised below in Table 4-5. Triggers are based on detection of COPC concentration above the baseline maximum, with metal action triggers relating to filtered metal concentrations.

This approach acknowledges that existing groundwater conditions exceed of EPL limits for a number of parameters in groundwater along the alignment. Any adverse change in risk will therefore likely to be due to where high concentrations already exist, (as reported in the baseline assessment), with the intent of the triggers to identify where conditions have changed.

For select sentinel wells, and for analytes where baseline concentrations are less than 10 x the EPL limits, but exceed the initial screening criteria, a potential adverse change in conditions is identified by statistical trend assessment (Mann Kendall Statistic), rather than via well and analyte specific action triggers. As trend analysis requires a minimum of four values, and many construction sampling locations have three or less baseline values, the trend analysis has been undertaken using the two most recent values from the baseline assessment, and construction monitoring phase data.

Where a statistically increasing trend is reported, the baseline data range will be reviewed, and a trigger reported if the construction monitoring concentration is greater than 250% of the maximum historical concentration.

Where a trigger is exceeded, or a statistically increasing trend is identified for select analytes (see Table 4-5 and concentrations exceed the initial screening criteria, then an investigation will be carried out which may include:

- Further monitoring to confirm groundwater conditions (increased frequency).

- Assessment to identify if the exceedance represents an adverse change in risk profile and a remedial response is required (refer to Section 7.9.1 of the SWMP), or if the Action Trigger should be revised or implemented in a sentinel well or for the COPC triggered.

Where trigger exceedances were identified, and concentrations are outside the background range for groundwater along the alignment, the monitoring program will also be reviewed as updated as required.

Table 4-5: Groundwater Quality Triggers

Location ID [1]	Monitoring Zone	Aluminium	Cadmium	Copper	Zinc	pH	Total N	Total P	Total PFAS	TRH/BTEXN	Other	Trends only
MW1	St Marys								PFOS >1.07ug/L		cis 1,2 DCE >4.7mg/L PCE >0.98mg/L VC > 0.32mg/L	
SBT-GW-0001 *	St Marys											✓
SBT-GW-1001	St Marys	>14.7mg/L		>81ug/L	>1,750ug/L	<4.5						
SBT-GW-1002	St Marys	>2.1mg/L		>29ug/L	>172ug/L	<4.0						
SBT-GW-1005	St Marys											✓
SBT-GW-1012*	St Marys											✓
SBT-GW-1013*	St Marys											✓
SBT-GW-1014*	St Marys											✓
SBT-GW-1016	St Marys				>236ug/L		>29.8mg/L	>10.1mg/L	>0.032ug/L	BTEXN >9ug/L		
SBT-GW-1017	St Marys						>47.4mg/L	>33.2mg/L	>0.0102ug/L	TPH >C10 >500ug/L		
SBT-GW-1019R	St Marys						>13mg/L	>5.6mg/L	>0.0066ug/L		PCE >203ug/L	
SBT-GW-1021	St Marys										Phenol >31ug/L	
SBT-GW-1022	St Marys											✓
SBT-GW-1803	St Marys											✓
SBT-GW-1347C*	St Marys											✓
SBT-GW-1348C*	St Marys											✓
SMGW-BH-A401	St Marys	>3mg/L		>3,240ug/L	>235ug/L	pH <4.6		>2.5mg/L	>0.021ug/L			
SMGW-GW02	St Marys								>0.2ug/L		PCE >1,900ug/L cis1,2 DCE >17ug/L	
SBT-GW-1804	TBM Tunnel - South Creek											✓
SMGW-BH-A107	TBM Tunnel - South Creek											✓
SBT-GW-1030	Cross passage / Tunnel (XPN13)	>7.5mg/L		>26ug/L	>542ug/L	pH <4.4			>0.13ug/L			

Location ID [1]	Monitoring Zone	Aluminium	Cadmium	Copper	Zinc	pH	Total N	Total P	Total PFAS	TRH/BTEXN	Other	Trends only
SBT-GW-1031	Cross passage / Tunnel (XPN14)											✓
SBT-GW-1024	Claremont Meadows SF								>0.09ug/L	TPH C6-C9 > 2,100ug/L		
SBT-GW-1805	Claremont Meadows SF							>6.6mg/L	>19.9mg/L			
SBT-GW-1806	Orchard Hills		>8.1ug/L	47ug/L		pH (11-11.2)				BTEXN >4ug/L		
SBT-GW-1807	Orchard Hills											✓
SBT-GW-1808	Orchard Hills	>2,260ug/L		>79ug/L	>478ug/L	pH <3.65						
SMGW-BH-A315	Orchard Hills				>240ug/L				>0.034ug/L	TPH >C10 > 260ug/L		
SBT-GW-1042	Orchard Hills	>1,900ug/L			>2,182ug/L	pH < 5	183mg/L					
SBT-GW-1048	Orchard Hills		>2.7ug/L		>833ug/L							
SBT-GW-3003-A	Portal / Cross passage XPS01											✓
SBT-GW-3003-B	Portal / Cross passage XPS01											✓
SBT-GW-3006	Airport Terminal											✓
SBT-GW-3012-A	Airport Terminal											✓
SBT-GW-3012-B	Airport Terminal											✓
SBT-GW-3012-C	Airport Terminal											✓
SBT-GW-3022	Airport Terminal									TPH >C10 >3,300ug/L		
SBT-GW-4000	Western Sydney Airport							>5.4mg/L		TPH >C10 >1,620ug/L Toluene > 46ug/L		
SMGW-BH-C320	Western Sydney Airport								> 0.5ug/L	Toluene > 34ug/L		
SMGW-BH-C321	Western Sydney Airport								> 0.046ug/L			

Location ID [1]	Monitoring Zone	Aluminium	Cadmium	Copper	Zinc	pH	Total N	Total P	Total PFAS	TRH/BTEXN	Other	Trends only
SMGW-BH-C330	Western Sydney Airport	>5,310ug/L			>1,090ug/L	pH <4.9						
SBT-GW-4003	Bringelly SF									TPH C6-C9 > 20ug/L		
SBT-GW-4005	Bringelly SF								>0.01ug/L			
SBT-GW-4800	Bringelly SF							2.2mg/L				
SBT-GW-4801	Bringelly SF											✓
SBT-GW-4802	Bringelly SF											✓
SBT-GW-4008	Aerotropolis											✓
SBT-GW-4010	Aerotropolis											✓
SBT-GW-4014	Aerotropolis								>0.002ug/L			
SBT-GW-4017 [1]	Aerotropolis								>0.0145ug/L	TPH >C10 >880ug/L TPH C6-C9 > 40ug/L		
SBT-GW-4021	Aerotropolis						28.3mg/L	>16.2mg/L				
SBT-GW-4803	Aerotropolis											✓

* Monitored under the St Marys RAP, and reported separately in Monthly mitigation reports

1. Well destroyed, will be replaced

5 Groundwater Monitoring Results

The sampling and monitoring results from the first six months of construction monitoring to the end of November 2023 are included in the following Annexures:

- Annexure A – Summary of Groundwater quality results, with full laboratory reports as provided by CPBG in Annexure B
- Annexure C – VWP hydrographs showing groundwater levels and triggers for each location
- Annexure D – Groundwater level and EC for continuous monitoring wells, with SSTVs shown for GDE monitoring locations
- Annexure E – Statistical analysis of groundwater COPC concentrations for wells with triggers based on trend analysis

All trigger exceedances identified and discussed in the section below.

5.1 Groundwater Levels

Groundwater levels results in detail are shown in Annexure C and Annexure D.

5.1.1 Trigger Exceedances

Groundwater trigger levels based on anticipated groundwater levels at the completion of excavation and tunnelling were exceeded at 11 locations which are summarised in Table 5-1 and discussed in Table 5-2.

Levels have decreased in other locations where there is no breach of triggers, with levels in most locations now stable.

Table 5-1: GW Level Trigger Exceedances - summary

Monitoring Zone	Location ID	Screen interval or VWP sensor elevation (m AHD)	Pre-development groundwater level range (mAHD)	**Green Trigger Level (m AHD)**	**Amber Trigger Level (m AHD)**	**Red Trigger Level (m AHD)**	Latest Reading Date	Latest Reading (m AHD)
GDE Locations with SSTVs (please note Amber trigger corresponds to Groundwater Level GDE SSTV)								
TBM Tunnel - South Creek	SMGW-BH-A105S	14.6 to 20.6	19 to 19.8	18.9	18.4	17.9	5-10-23	**18.87**
TBM Tunnel - South Creek	SMGW-BH-A107	-4.44 to 3.46	20.9 to 21.6	20.8	20.3	19.8	5-10-23	**20.6**
Claremont Meadows SF	SBT-GW-1805	18.3 to 24.3	24.7 to 25.6	22	21.5	21	26-10-23	**21.9**
Other Groundwater Monitoring Locations with level exceedances								

Monitoring Zone	Location ID	Screen interval or VWP sensor elevation (m AHD)	Pre-development groundwater level range (mAHD)	**Green Trigger Level (m AHD)**	**Amber Trigger Level (m AHD)**	**Red Trigger Level (m AHD)**	Latest Reading Date	Latest Reading (m AHD)
Orchard Hills	SWD-TU150-22010-VWP02	22.81	33.8 to 35.3	31.5	31.0	30.5	17-11-23	**30.2**
Portal / Cross passage XPS01	SBT-GW-3003-C	45.3 to 48.3	59.4 to 59.6	55.7	55.2	54.7	25-9-23	**52.5**
Western Sydney Airport	SBT-GW-4000	59.2 to 69.7	70.5 to 70.9	70.5	70	69.5	25-9-23	**69.8**
Bringelly SF	SWD-TU351-37371-VWP04	50.313	62.5 to 67.1	50.6	50.1	49.6	09-11-23	**50.4**
Aerotropolis	SWD-TU400-39532-VWP03	55.167	67.4 to 71.2	59.0	58.5	58.0	20-9-23	**56.6**
Aerotropolis	SWD-TU400-39565-VWP04-A	47.749	66.2 to 68	59.3	58.8	58.3	3-10-23	**57.2**
Aerotropolis	SWD-TU400-39565-VWP04-B	50.749	66.8 to 68.6	59.9	59.4	58.9	3-10-23	**57.9**
Aerotropolis	SBT-GW-4021	51.9 to 60.9	59.8 to 59.9	59.6	59.1	58.6	1-11-23	**58.6**

Table 5-2: GW Level Trigger Exceedances - recommendations

Area	Location ID	**Green Trigger Level (m AHD)**	**Amber Trigger Level (m AHD)**	**Red Trigger Level (m AHD)**	Latest Reading Date	Latest Reading (m AHD)	**Comments/Recommendation**
TBM Tunnel - South Creek	SMGW-BH-A105S	18.9	18.4	17.9	5-10-23	**18.87**	Minor exceedance of green trigger level (3mm). No action required, continue to monitor.
TBM Tunnel - South Creek	SMGW-BH-A107	20.8	20.3	19.8	5-10-23	**20.6**	Minor exceedance of green trigger (20mm). No action required. Continue to monitor.
Claremont Meadows SF	SBT-GW-1805	22	21.5	21	26-10-23	**21.9**	Minor exceedance of green trigger, with levels intermittently above and below green trigger indicating typical groundwater range. Decrease all triggers by 0.5m. Continue to monitor.
Orchard Hills	SWD-TU150-22010-VWP02	31.5	31.0	30.5	17-11-23	**30.2**	Red trigger trigger level breached in August 2023 following rapid decrease in levels from ~35mAHD to 30mAHD. Levels stabilising at ~30mAHD until early November 2023. Decrease all triggers by 1m. Continue to monitor.
Portal / Cross passage XPS01	SBT-GW-3003-C	55.7	55.2	54.7	25-9-23	**52.5**	Adjacent to SBT-GW-3003-A and 3003-B which both are above trigger levels. Refer discussion in Section 3.
Western Sydney Airport	SBT-GW-4000	70.5	70	69.5	25-9-23	**69.8**	Groundwater levels steadily decreasing by ~0.1m per month, with exceedance of amber trigger in August 2023. Note that limited groundwater level data was available to set triggers. The steady decrease in combination the no construction

Area	Location ID	Green Trigger Level (m AHD)	Amber Trigger Level (m AHD)	Red Trigger Level (m AHD)	Latest Reading Date	Latest Reading (m AHD)	Comments/Recommendation
							yet in this area, suggests that the decreasing levels are associated with equipment drift. It is recommended that a comparison with manual groundwater levels is undertaken to determine if this datalogger needs maintenance.
Bringelly SF	SWD-TU351-37371-VWP04	50.6	50.1	49.6	09-11-23	**50.4**	Minor exceedance of trigger level (20mm) after a decrease of ~17m from January 2023 to June 2023, with groundwater levels relatively stable since June 2023. No action required, continue to monitor.
Aerotropolis	SWD-TU400-39532-VWP03	59.0	58.5	58.0	20-9-23	**56.6**	Red trigger level breached in September 2023 following rapid decrease from 60mAHD to ~57mAHD (from baseline level of ~71mAHD in May 2023). Levels potentially starting to flatten in October 2023. **Decrease consistent with construction in this area commencing in March 2023 and completion at the end of September. Location destroyed**
Aerotropolis	SWD-TU400-39565-VWP04-A	59.3	58.8	58.3	3-10-23	**57.2**	Green triggers breached in July 2023, with amber and red breached in August 2023. Levels have stabilised at ~57mAHD since September 2023. **Decrease consistent with construction in this area commencing in March 2023 and completion at the end of September. Location destroyed**
Aerotropolis	SWD-TU400-39565-VWP04-B	59.9	59.4	58.9	3-10-23	**57.9**	
Aerotropolis	SWD-TU400-39606-VWP05	57.5	57.2	56.7	3-10-23	**54.9**	Location destroyed..Installed to assist with comparison to design criteria. **To be replaced with AEC-SN450-EW-VWP07. Triggers to be revised by 2.5m to identify further decreases in levels.**
Aerotropolis	SBT-GW-4021	59.6	59.1	58.6	1-11-23	**58.6**	Close to the red trigger level in May, with decrease of ~0.2m since August with red trigger breach. Limited data available to inform triggers (refer Table 8-4 of Baseline Assessment). Current levels considered to represent seasonal variability. Triggers revised by 1m.

5.2 EC Results

Groundwater ECs recorded in GDE trigger wells to November 2023 are shown with pre-construction data in charts as part of Annexure D, and a summary and discussion of trigger exceedances are shown in Table 5-3 below.

5.2.1 Trigger Exceedances

Where two exceedances of EC triggers were reported, field readings during water quality sampling were reviewed and confirmed that no exceedance had occurred, and logger maintenance was required.

Based on review of results from the first six months of construction monitoring, no revisions to the EC SSTVs are required.

Table 5-3 : EC results in GDE trigger wells

Area	Bore ID	Preliminary EC SSTV (µS/cm)	Latest EC	Comments
Claremont Meadows	SBT-GW-1805	3,650	Logger reading: **23,124 uS/cm** 2,070uS/cm when sampled in October 2023	Error with EC logger. Instrument has been reset. Continue to monitor. Field reading confirms no breach of EC trigger.
Claremont Meadows	SBT-GW-1028	Inaccessible – refer to Section 3.1		
Orchard Hills	SBT-GW-1042	18,600	Logger reading: **32,000 uS/cm** 13,700uS/cm when sampled in September 2023	Trigger indicates error with EC logger. Instrument requires maintenance/calibration. Continue to monitor. Field reading confirms no breach of EC trigger.
Orchard Hills	SBT-GW-1063	19,940	13,349	Below trigger, slight increase from baseline. No action required, continue to monitor.
Orchard Hills	SMGW-BH-A315	4,317	4,165	Steadily increasing, close to trigger. Continue to monitor.
Aerotropolis	SBT-GW-4021	33,000	15,870	Below trigger relatively stable. Continue to monitor.

5.3 Groundwater Quality Results

5.3.1 Trigger exceedances and increasing trends.

Groundwater quality data collected as of October 2023 from GMP wells was compared to the groundwater quality triggers (detailed in Table 4-5), with exceedances summarised in 4, and discussed below in Section 5.3.2.

Table 5-4: Groundwater Quality Trigger Exceedances

Location ID [1]	Monitoring Zone	Aluminium mg/L		Zinc ug/L		pH		Total P mg/L		PCE mg/L	
		Trigger	Latest Result	Trigger	Latest Result	Trigger	Latest Result	Trigger	Latest Result	Trigger	Latest Result
MW1	St Marys									>0.98	2.16
SBT-GW-1001	St Marys	>14.7	16.3	>1750	1,760	<4.5	4.4				
SBT-GW-1002	St Marys	>2.1	5.39								
SMGW-BH-A401	St Marys							>2.5	5.19		
SBT-GW-1042	Orchard Hills					<5.0	4.8 Field 4.9 Lab				

Minor exceedance Moderate exceedance >250% exceedance

Mann-Kendall statistical analysis was used to assess trends for selected COPC as detailed in Table 4-5. COPCs with increasing trends are summarised in Table 5-5, including previous highest concentration.

At three locations the pH was observed to be statistically increasing, however the changes were minor and well within the expected range and are not discussed in detail in Section 5.3.2.

Statistical trend analysis results where increasing trends were observed are provided in Table 5-6; locations in grey in these tables do not yet have sufficient data points for trend analysis. The full table of locations is provided in Annexure E.

Table 5-5: Triggers based on increasing COPC trends

Location Code	Monitoring Zone	COPC	Latest Concentration (mg/L)	Previous Highest Concentration (mg/L)	Trend
MW1	St Marys	PCE	2.160	0.979	Increasing
MW1	St Marys	Nitrogen	31.0	7.9	Increasing
MW1	St Marys	TPH C_6 - C_9	3.77	2.67	Increasing
SBT-GW-1017	St Marys	Zinc	0.080	0.084	Increasing
SBT-GW-1001	St Marys	Aluminium	*16.30*	*14.70*	*Probably Increasing*
SBT-GW-1001	St Marys	Cadmium	*0.0021*	*0.0019*	*Probably Increasing*
SBT-GW-1001	St Marys	Zinc	*1.76*	*1.75*	*Probably Increasing*

Table 5-6: Monitoring locations and COPC where an increasing trend was reported

Monitoring Zone	Location ID	Aluminium	C10 - C40 (Sum of total)	C6 - C9	Cadmium	Copper	Naphthalene	Nitrogen	pH (Lab)	Phenol	Phosphorus	Sum of PFASs (n=28)	Tetrachloroethene	Toluene	Zinc
St Marys	MW1	0.1 mg/L	100 ug/L	3770 ug/L	0.0001 mg/L	0.003 mg/L	0.002 mg/L	31 mg/L	7.04 pH_unit	2 µg/L	0.16 mg/L	1.14 µg/L	2.16 mg/L	0.005 mg/L	0.014 mg/L
	SBT-GW-1001	16.3 mg/L	100 ug/L	20 ug/L	0.0021 mg/L	0.037 mg/L	0.002 mg/L	0.9 mg/L	4.4 pH_unit	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	1.76 mg/L
	SBT-GW-1002	3.29 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.026 mg/L	0.002 mg/L	0.6 mg/L	4.4 pH_unit	2 µg/L	0.16 mg/L	0.0008 µg/L	0.005 mg/L	0.002 mg/L	0.162 mg/L
	SBT-GW-1017	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	31.8 mg/L	6.86 pH_unit	2 µg/L	0.16 mg/L	0.008 µg/L	0.005 mg/L	0.002 mg/L	0.051 mg/L
	SBT-GW-1019_R	0.01 mg/L	100 ug/L	270 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	13 mg/L	7.73 pH_unit	2 µg/L	0.16 mg/L	0.0008 µg/L	0.203 mg/L	0.002 mg/L	0.245 mg/L
	SMGW-BH-A401	2.01 mg/L	100 ug/L	20 ug/L	0.0002 mg/L	0.752 mg/L	0.002 mg/L	2.2 mg/L	5.18 pH_unit	2 µg/L	0.16 mg/L	0.0207 µg/L	0.005 mg/L	0.002 mg/L	0.154 mg/L
	SBT-GW-1048	0.14 mg/L	100 ug/L	20 ug/L	0.0028 mg/L	0.01 mg/L	0.002 mg/L	1.5 mg/L	6.2 pH_unit	2 µg/L	0.16 mg/L	0.0006 µg/L	0.005 mg/L	0.002 mg/L	0.559 mg/L
	SMGW-BH-A315	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.001 mg/L	1.8 mg/L	6.81 pH_unit	2 µg/L	0.16 mg/L	0.0134 µg/L	0.001 mg/L	0.002 mg/L	0.005 mg/L
	SMGW-BH-A107	0.07 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	2 mg/L	7.84 pH_unit	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.005 mg/L

Legend

- Red - Review trigger and system operation if required
- Amber - Review data if required
- Green - No action required
- Grey - Insufficient data for trend

5.3.2 Discussion of Groundwater Quality trigger exceedances and increasing trends

Groundwater quality triggers were exceeded at five of 52 locations monitored to assess groundwater quality during construction. Four of these wells are located at St Marys, where contamination is known to be present and is being currently managed, and one at Orchard Hills (pH only).

The exceedances are discussed below with respect to historical concentrations and contamination in the area.

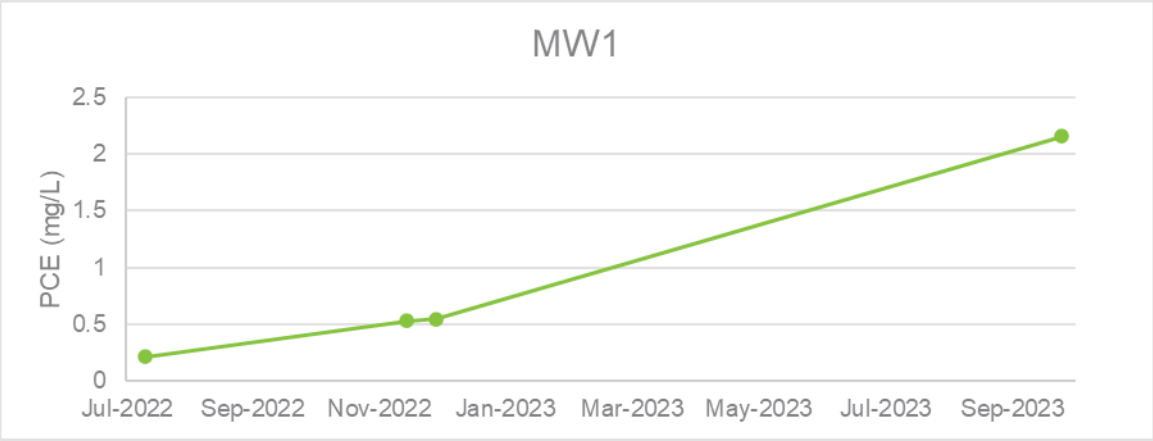


Figure 5-1: PCE concentrations in MW1, St Marys

PCE concentrations at MW1 exceeded the trigger for PCE and was also identified as statistically increasing. PCE concentrations in MW1 based on CPBG data are shown on Figure 5-1. Historical data from earlier assessments is also available for MW1, where PCE concentrations of up to 13,000ug/L were reported (EES 2015, as reported in the HHERA, Tetra Tech 2023). In addition to being below the historical maximum PCE concentration reported, the current concentration of 2.16mg/L of PCE in MW1 is also below the Health Based Criteria for tunnel workers (Table 5-7, as extracted from the HHERA).

Table 5-7: Estimated Lifetime Risk of Cancer, Tunnel Workers in Contaminated Zone

Compound	Health Based Criteria (Vapour inhalation and direct contact)	Odour Threshold	Trigger Value
PCE	12 mg/L	0.3 mg/L	0.3 mg/L
TCE	0.22 mg/L	0.31 mg/L	0.055 mg/L
Cis 1,2 DCE	1 mg/L	0.26 mg/L	0.25 mg/L
VC	0.8 mg/L	3.4 mg/L	0.2 mg/L

Increasing trends were also identified in MW01 for Nitrogen and TRH (C6 - C9). The TRH C6-C9 exceedance is attributable to PCE concentrations, and so is the same exceedance as discussed above. The increasing concentration of nitrogen does not yet exceed the AWQG guideline and therefore does not indicate a change in risk. If nitrogen concentrations continue to increase then further investigation and the addition of a well specific trigger to the GMP may be required.

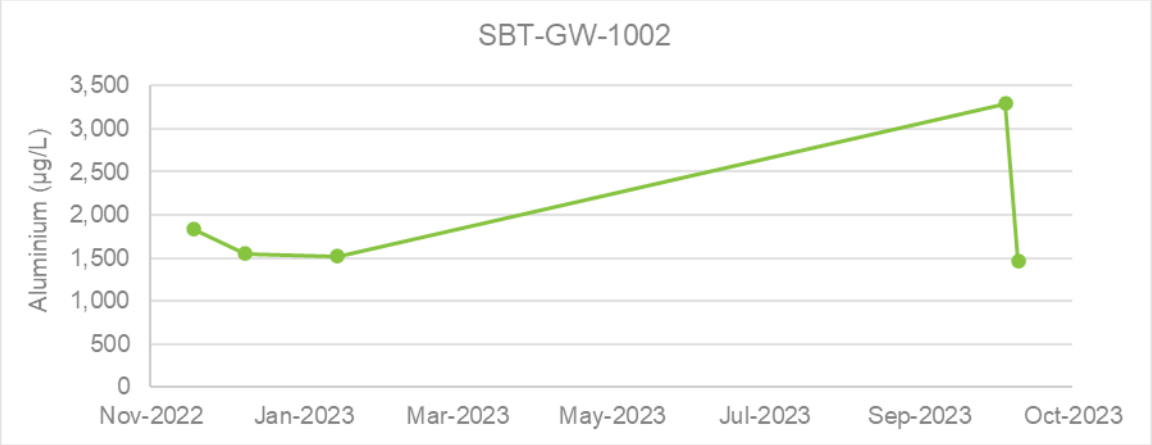


Figure 5-2: Aluminium concentrations in SBT-1002

Following the trigger exceedance for aluminium for SBT-GW-1002 in October 4th, the location was again sampled on 9th October, when concentrations were below the trigger. Sample comments confirmed that the sample taken on 4th October differed from historical samples with a sulphuric odour that was not observed at other times. Based on the re-sample result, there is no trigger exceedance.

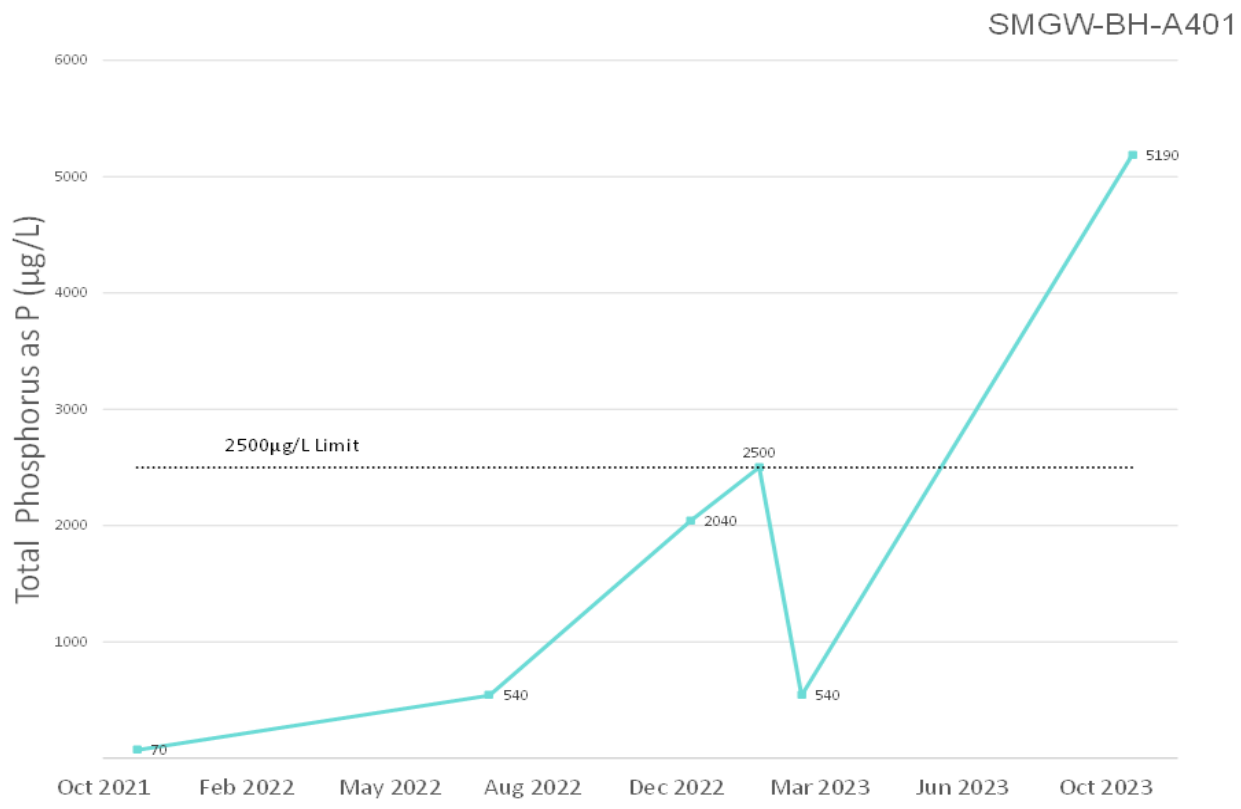


Figure 5-3: Phosphorus concentrations in SMGW-BH401

The trigger level for phosphorus was set at the concentration observed in March 2023, instead of the 150% of the maximum baseline concentration (Figure 5-5). Regardless, the current concentration of 5.19mg/L would exceed the revised trigger of 3.75mg/L. If concentrations are confirmed to be elevated when sampled in the next monitoring event then further investigation into this location is recommended.

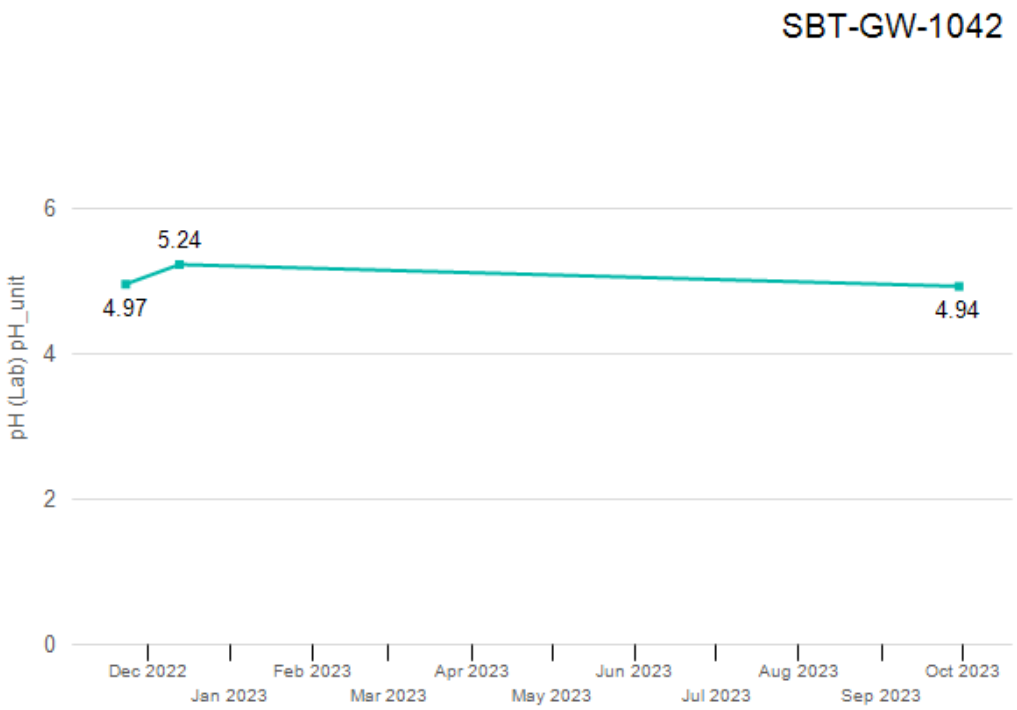


Figure 5-4: Groundwater pH in SBT-GW-1042

The trigger for pH at SBT-GW-1042 was initially set at the baseline value. As pH appears to be low in this area it is recommended that the trigger be revised to 4.5. Field and laboratory observations of pH were consistent at this location, with the field pH at 4.85 and the lab pH of 4.94.



Figure 5-5: Zinc concentrations in SBT-GW-1017

An increasing trend in zinc concentration has been observed at SBT-GW-1017 (Figure 5-7), however, the previous rounds of sampling have multiple depths with varied concentrations. The current concentration is within historical ranges and does not indicate a change in groundwater quality.

Monitoring Zone	Location Code	Field ID	Depth	Date	Zinc (filtered) (µg/L)
St Marys	SBT-GW-1017	GW1017 - 2.0	2	21 Oct 2022	51

Monitoring Zone	Location Code	Field ID	Depth	Date	Zinc (filtered) (µg/L)
St Marys	SBT-GW-1017	GW1017 - 4.0	4	21 Oct 2022	48
St Marys	SBT-GW-1017	GW1017_2	2	28 Oct 2022	33
St Marys	SBT-GW-1017	GW1017_4	4	28 Oct 2022	80
St Marys	SBT-GW-1017	SBT-GW-1017S	2	25 Nov 2022	53
St Marys	SBT-GW-1017	SBT-GW-1017D	4	25 Nov 2022	53
St Marys	SBT-GW-1017	SBT-GW-1017A		12 Dec 2022	84
St Marys	SBT-GW-1017	SBT-GW-1017B		12 Dec 2022	64
St Marys	SBT-GW-1017	SBT-GW-1017		04 Oct 2023	80

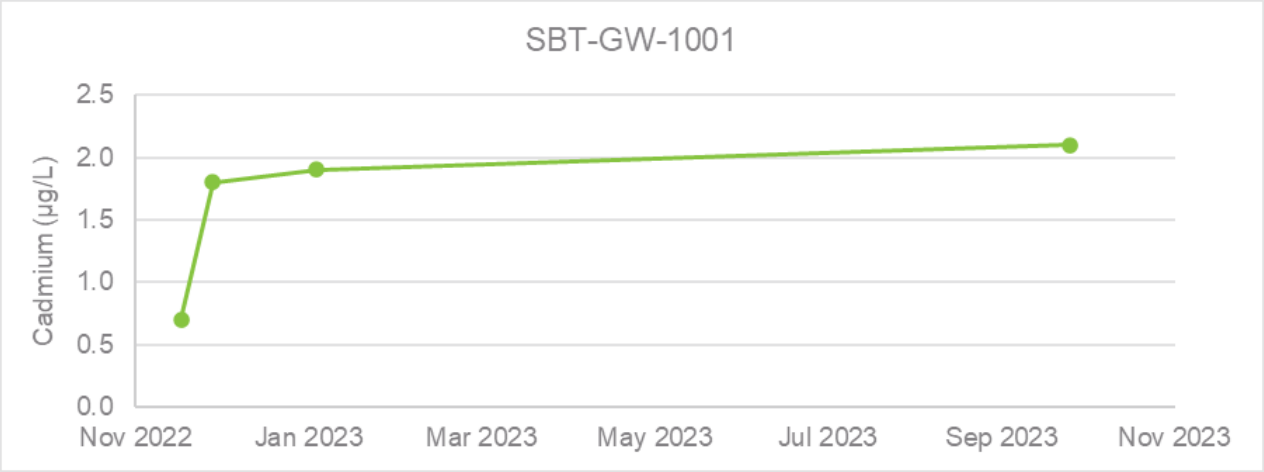


Figure 5-6: Cadmium concentrations in SBT-GW-1001

In addition to trigger exceedances for zinc and aluminium, cadmium concentrations in SBT-GW-1001 are also statistically increasing.

Although increasing, values remain close to historical concentrations, and no further action is currently recommended (Figure 5-8).

In the three wells where groundwater pH was statistically increasing values were still well within the expected range, and within the drinking water (ADWG) range of 6.5 - 8.5, therefore no action is required.

6 Construction Groundwater Inflow and EC monitoring

A summary of inferred groundwater inflows and wastewater treatment plant (WTP) discharges is provided below, consistent with the reporting schedule as outlined in Table 8-1 of the GMP.

The WTP effluent, reuse and disposal associated with the project is summarised in Table 6-1 along with reporting completed.

Table 6-1: Summary of waste water treatment, reuse and disposal and reporting

Water Treatment Plant	WTP Effluent Reuse / Disposal during Reporting Period	Reporting
St Marys	Discharge to Sydney Water asset under Trade Waste Agreement 52722. Volumes and EC shown in Section 6.1. Note: St Marys WTP was handed over to SSTOM Contractor on 15 November 2023. All discharges after 15 November are managed by the SSTOM Contractor.	Samples at Trade Waste discharge point collected on 3 June 2023 and every 22 days thereafter. Results provided directly to Sydney Water within 21 days of sampling event.
Claremont Meadows	Discharge to Sydney Water asset under Trade Waste Agreement 52828. Flows at Claremont Meadow are measured at two locations; the offsite tanks which collect water from the site, and the tradewaste flow, which includes water from the site and also water transferred from other sites.	Samples at Trade Waste discharge point collected on 3 June 2023 and every 8 days thereafter. Results provided directly to Sydney Water within 21 days of sampling event.
Orchard Hills	Transported to Claremont Meadows for Discharge to Sydney Water asset under Trade Waste Agreement 52828. Reuse as dust suppression on spoil conveyor.	Samples at Trade Waste discharge point collected on 3 June 2023 and every 8 days thereafter. Results provided directly to Sydney Water within 21 days of sampling event.
Airport Business Park	Re-use on-Airport for dust suppression and soil conditioning	N/A
Airport Terminal	Not operational during reporting period	N/A
Bringelly	Transport to Claremont Meadows for Discharge to Sydney Water asset under Trade Waste Agreement 52828. Disposal at licensed waste facility	Samples at Trade Waste discharge point collected on 3 June 2023 and every 8 days thereafter. Results provided directly to Sydney Water within 21 days of sampling event.
Aerotropolis	Reuse for onsite dust suppression Note: Aerotropolis site handed over to SSTOM Contractor on 11 October 2023. All discharges thereafter are managed by the SSTOM Contractor.	N/A

WTP daily and cumulative volumes have been used as a surrogate for groundwater inflows, noting that the volumes may also capture additional inflows from rainfall over the excavation footprints, and any water generated by construction and washdown activities.

In general, the timing of inflows matches well to when excavations began extending below the water table, consistent with groundwater contributing the majority of volumes. The EC of inflow has also been assessed and compared to groundwater EC ranges reported for each area during the Baseline Groundwater Assessment (Tetra Tech Major Projects, 2023).

6.1 St Mary's

Excavation at St Mary's Station Box started 13th January 2023 and finished 7th September 2023. Flow into the WTP at St Marys commenced mid-May 2023, when excavation below the water table began. The average measured daily inflow was 46.8kL/day, however rates were variable depending on excavation, ranging from <25KL/day up to a maximum of 197kL/day (Figure 6-1).

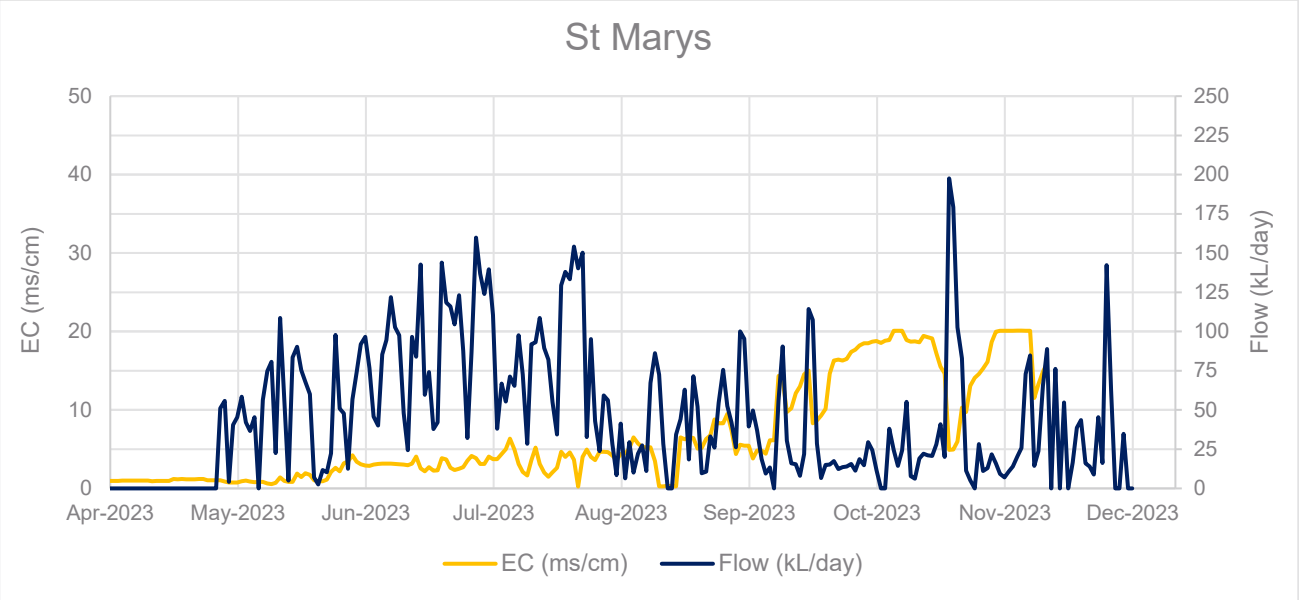


Figure 6-1: Daily inflows and EC at St Marys WTP

Electrical conductivity data indicates that inflows to the excavation were initially fresh (<1mS/cm), and increased over time to 20mS/cm. The reported EC is consistent with initial inflows due to fresher water from the alluvium, with EC increasing as the inflows are increasingly due groundwater from the residual and bedrock aquifers (Table 6-2).

Table 6-2: St Marys EC Baseline Values

St Marys Alluvium EC (mS/cm)			St Marys Residual EC (mS/cm)			St Marys Bedrock EC (mS/cm)		
Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean
0.07	11.5	2.4	1.6	32.9	18.0	0.6	29.3	14.2

(from Baseline Groundwater Assessment, Tetra Tech Major Projects 2023)

In total there has been nearly 12ML of groundwater inflows to the St Marys station box excavation (Figure 6-2).

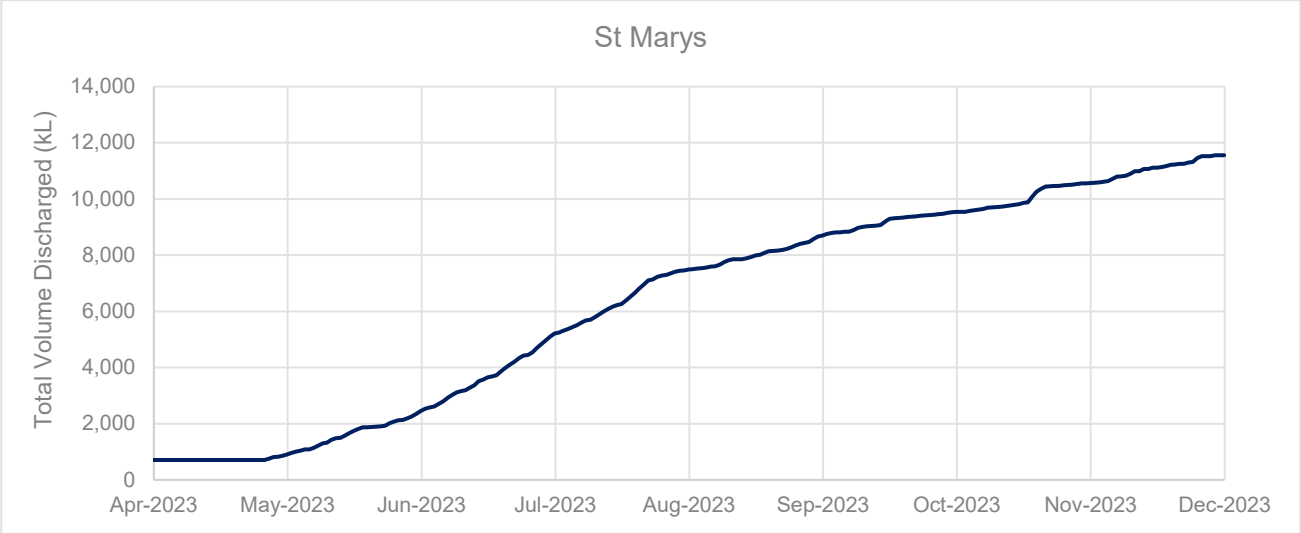


Figure 6-2: Cumulative WTP volumes at ST Marys

6.2 Claremont Meadows

Claremont Meadows (CLM), shaft excavation started 16th December 2022 and finished 12th September 2023.

Flow into the excavation at CLM were negligible until April 2023. The average daily inflow was 40,124 L/day and a maximum of 53,3864L/day. Electrical conductivity data indicates that excavation inflows were initially fresh (<1mS/cm), and increased over time to >20mS/cm (assumed to be the maximum range for the sensor based on flatline), and then decreased to around 5-10mS/cm. The EC trends are consistent with fresher water from the alluvium flowing in while the excavation was shallow, with increasing contribution from groundwater in the residual and bedrock aquifer as the excavation deepened (Table 6-3).

The flows provided below are understood to be from the site, noting that tradewaste discharge from Claremont Meadows also includes water from Orchard Hills and Bringelly as this is transported in trucks to the Claremont Treatment Plant (refer Table 6-1).

In total there has been approximately 11ML of inflow to the Claremont Meadow shaft.

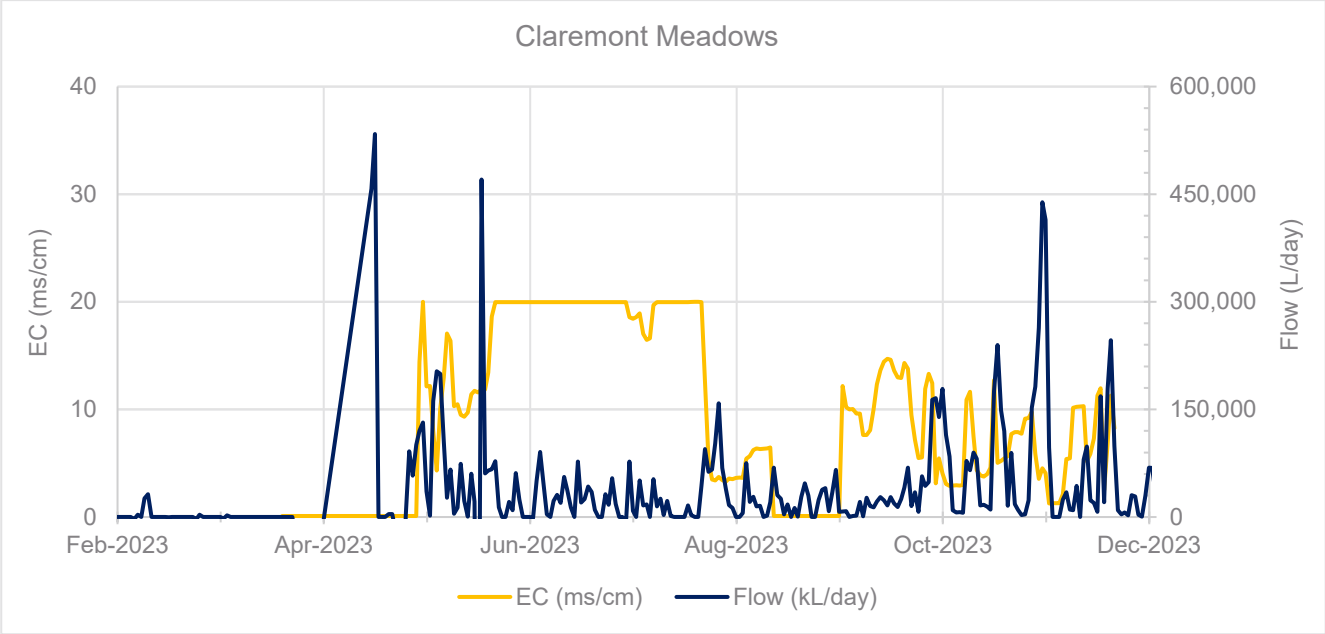


Figure 6-3: Daily inflows and EC at Claremont Meadows Offsite Tanks

Table 6-3: Claremont Meadows groundwater EC baseline groundwater values

CLM Alluvium EC (mS/cm)			CLM Residual EC (mS/cm)			CLM Bedrock EC (mS/cm)		
Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean
5.9	8.8	7.7	0.9	34.1	12.1	1.8	26.1	16.4

(from Baseline Groundwater Assessment, Tetra Tech Major Projects 2023)

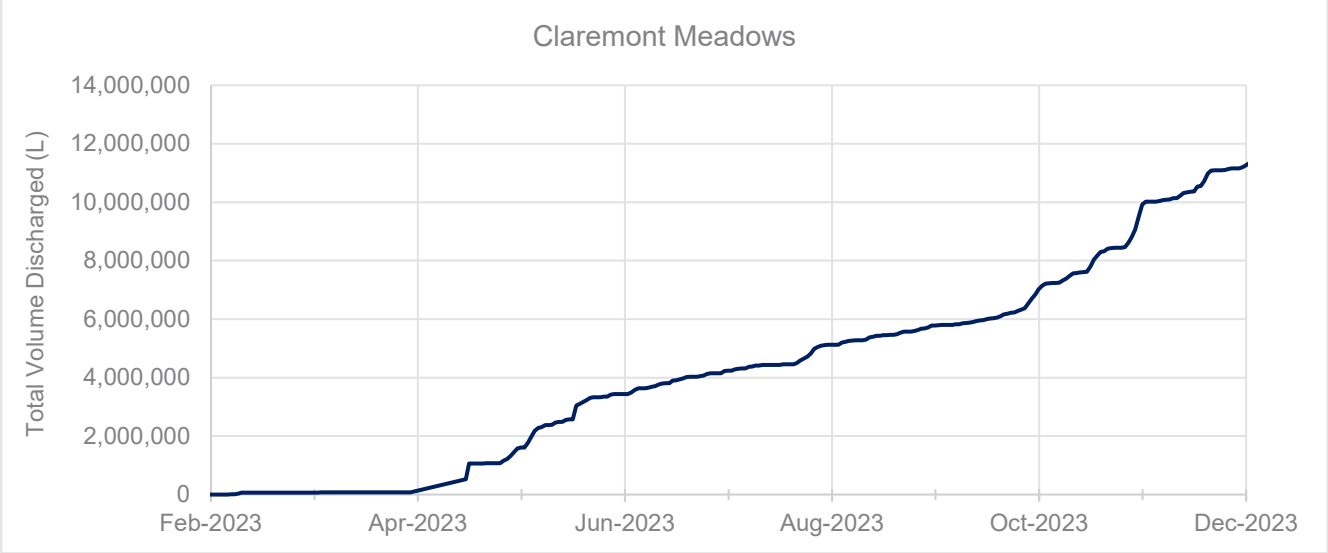


Figure 6-4: Cumulative volumes to Offsite Tanks at Claremont Meadows

6.3 Orchard Hills 1

Flow into the excavation at Orchard Hills commenced early April 2023, although volumes were minor until mid-June.

Water from Orchard Hills 1 is either transported to Claremont Meadows or the recycle tank which is used for dust suppression. The average measured daily flow at Orchard Hills 1 was 111.2kL/day at measurement point and a maximum of 625.9kL/day (Figure 6-5).

Water from Orchard Hills 2 is fed into the plant (included in OH1) of offsite tanks at Airport Dive to be used for dust suppression (Figure 6-6).

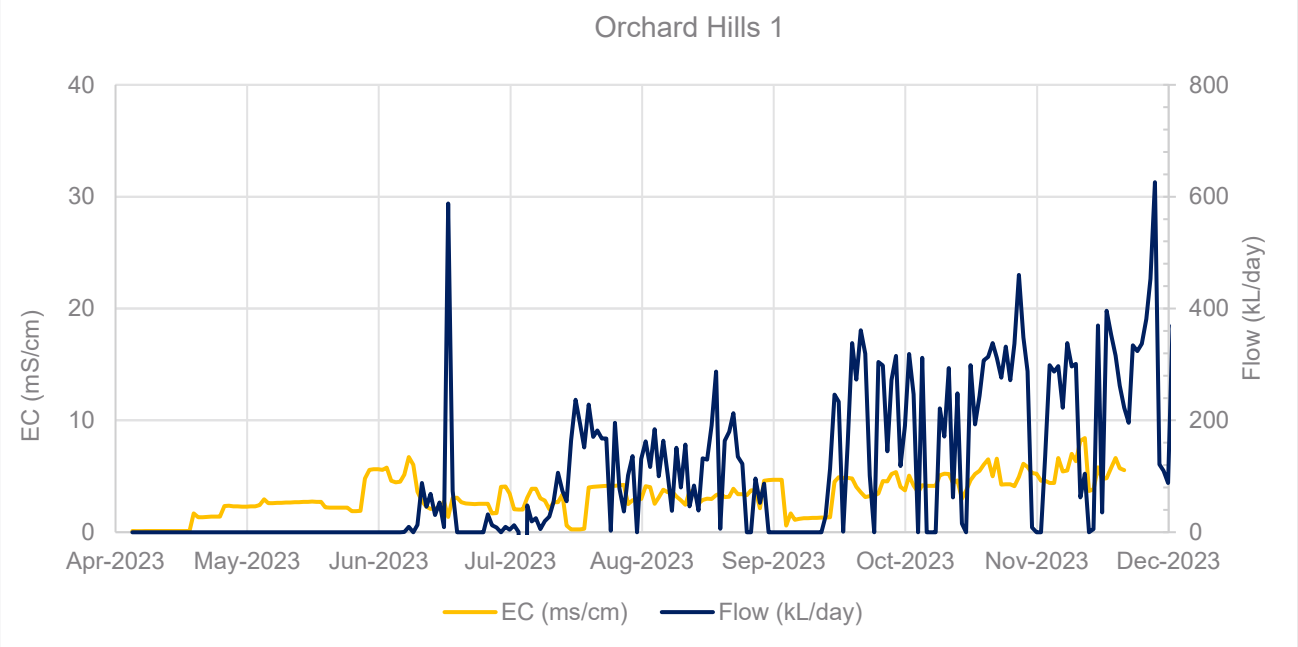


Figure 6-5: Daily inflows and EC at Orchard Hills WTP feed

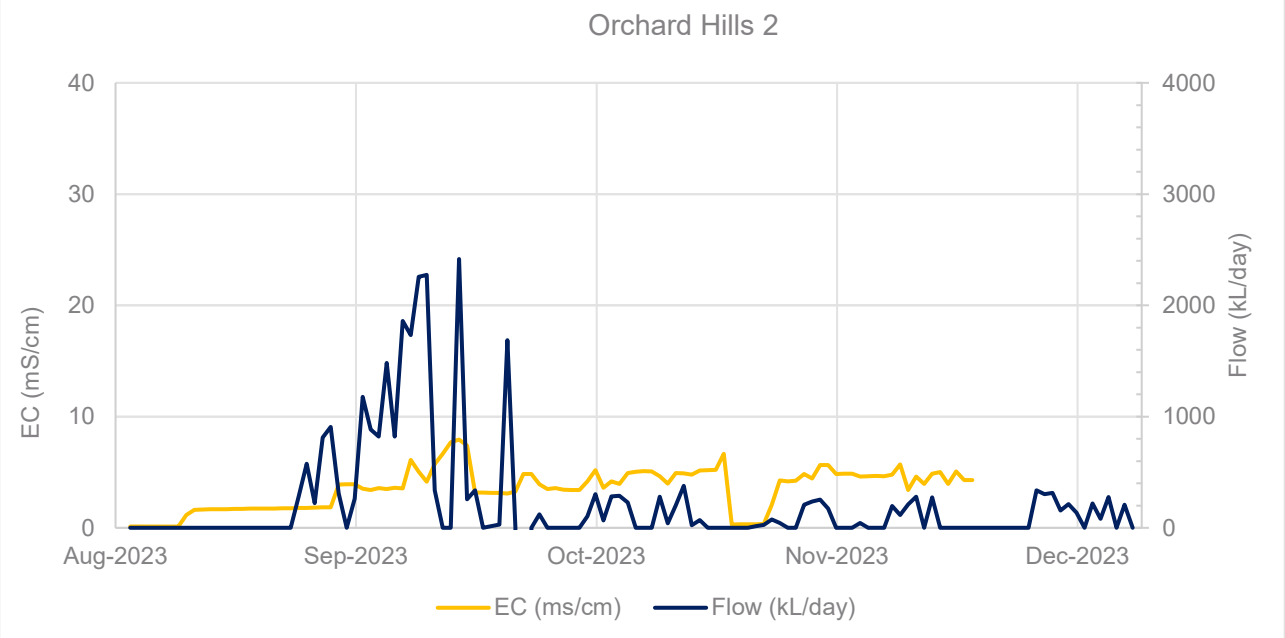


Figure 6-6: Daily plant feed flows and EC at Orchard Hills

Electrical conductivity data indicates that excavation inflows were relatively fresh (~2mS/cm), and increased slightly over time to around 5 – 7 mS/cm, which is lower than expected based on average groundwater EC in all aquifers (Table 6-4).

Table 6-4: Orchard Hills groundwater EC baseline values

OHE Alluvium EC (mS/cm)			OHE Residual EC (mS/cm)			OHE Bedrock EC (mS/cm)		
Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean
8.3	37.0	18.0	11.5	31.9	23.5	1.8	32.7	24.3

(from Baseline Groundwater Assessment, Tetra Tech Major Projects 2023)

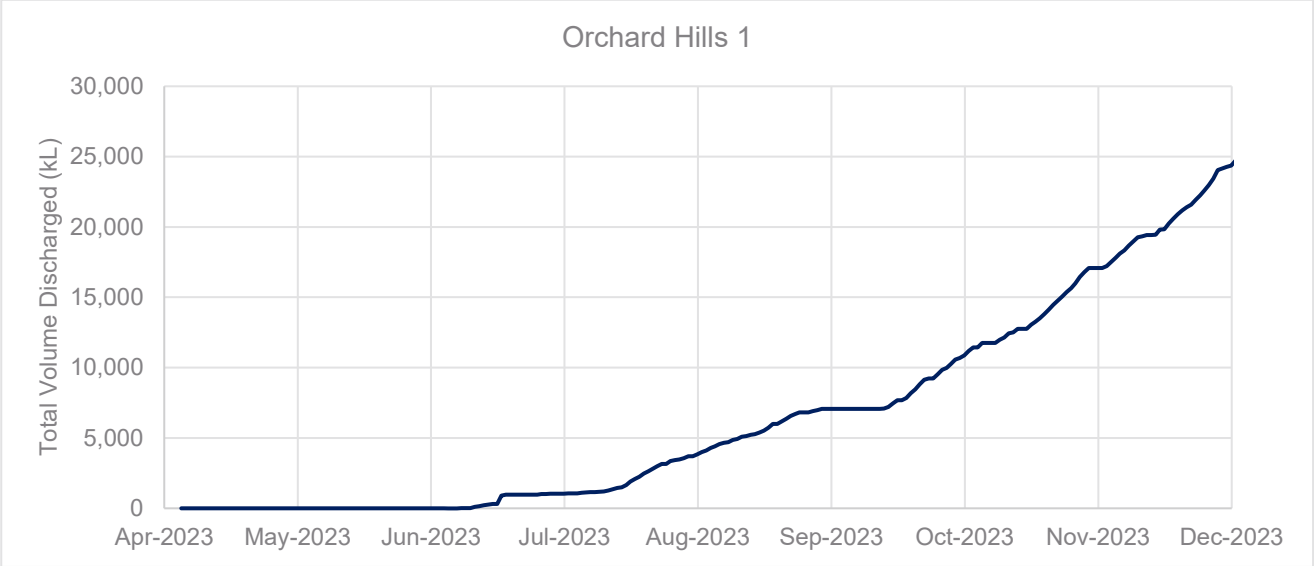


Figure 6-7: Cumulative inflows at Orchard Hills WTP feed

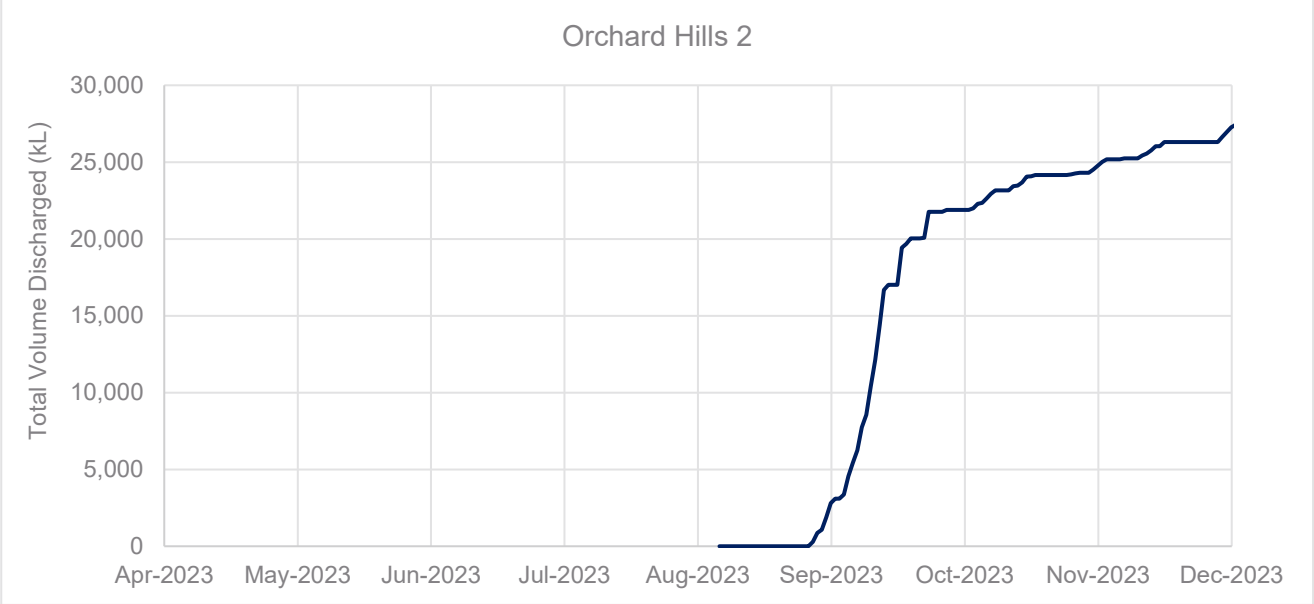


Figure 6-8: Cumulative plant feed volumes to Orchard Hills 2

A total of nearly 25ML has been recorded at Orchard Hills 1, with flow relatively constant since mid-June 2023 (Figure 6-7). Total volumes at Orchard Hills 2, have been similar (~27ML), with the majority of flow in September 2023 (Figure 6-8).

6.4 Bringelly

Bringelly Shaft excavation started 22nd December 2022 and finished 5th September 2023.

Flow into the excavation at Bringelly commenced May 2023, with an average measured daily inflow of 11.5kL/day and a maximum of 48.5kL/day. Electrical conductivity data indicates that excavation inflows rapidly increased to >20mS/cm (assumed to be the maximum range for the sensor), decreasing slightly after excavation finished in September to around 17mS/cm, similar to the baseline EC range for the area (Table 6-5).

As with Orchard Hills, the flow from Bringelly is then transported to CLM.

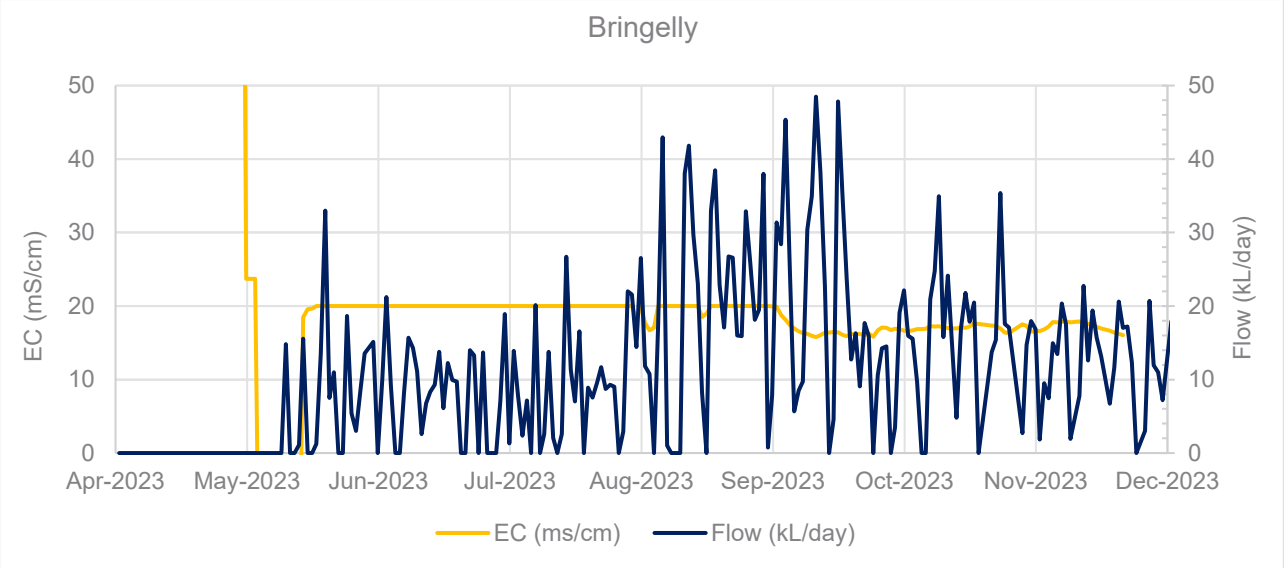


Figure 6-9: Daily inflows and EC at Bringelly WTP feed

Table 6-5: Bringelly groundwater EC baseline values

Bringelly Alluvium EC (mS/cm)			Bringelly Residual EC (mS/cm)			Bringelly Bedrock EC (mS/cm)		
Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean
21.0	21.0	21.0	23.4	23.9	23.6	21.0	26.0	22.5

(from Baseline Groundwater Assessment, Tetra Tech Major Projects 2023)

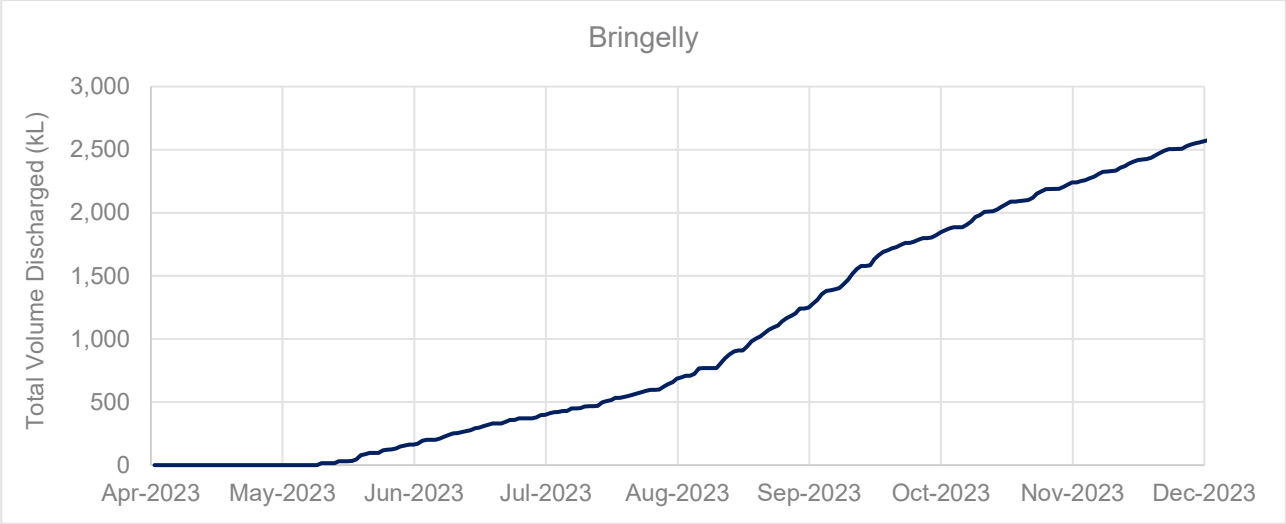


Figure 6-10: Cumulative volume at Bringelly WTP feed

Total volumes discharged from Bringelly to December 2023 were approximately 2.5ML.

6.5 Aerotropolis

Aerotropolis Station Box Excavation started 16th February 2023 and finished 22nd September 2023.

Flow into the excavation at Aerotropolis commenced in July 2023, with an average measured daily inflow of 19.8kL/day and a maximum of 323.2kL/day recorded soon after excavation began below the water table. Inflows have decreased since excavations finished in September, with a few inflow spikes in late November and Early December (Figure 6-11).

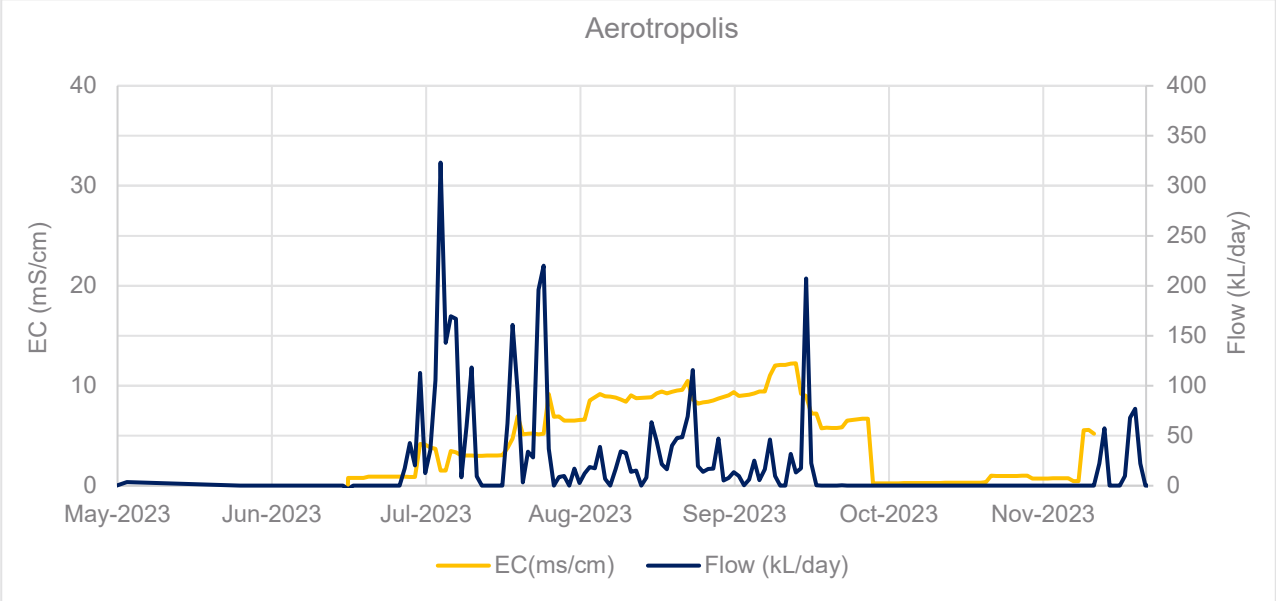


Figure 6-11: Daily inflows and EC at Aerotropolis WTP feed

Electrical conductivity data indicates that excavation inflows slowly increased to above 10mS/cm in early September, then decreased to ~6mS/cm in late September. Inflow ECs were mostly slightly less than the mean EC reported in all aquifers for the baseline groundwater assessment (Table 6-6).

Table 6-6: Aerotropolis groundwater EC Baseline Values

Aerotropolis Alluvium EC (mS/cm)			Aerotropolis Residual EC (mS/cm)			Aerotropolis Bedrock EC (mS/cm)		
Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean
15.00	24.60	20.86	11.00	20.00	15.15	0.45	23.60	13.66

(from Baseline Groundwater Assessment, Tetra Tech Major Projects 2023)

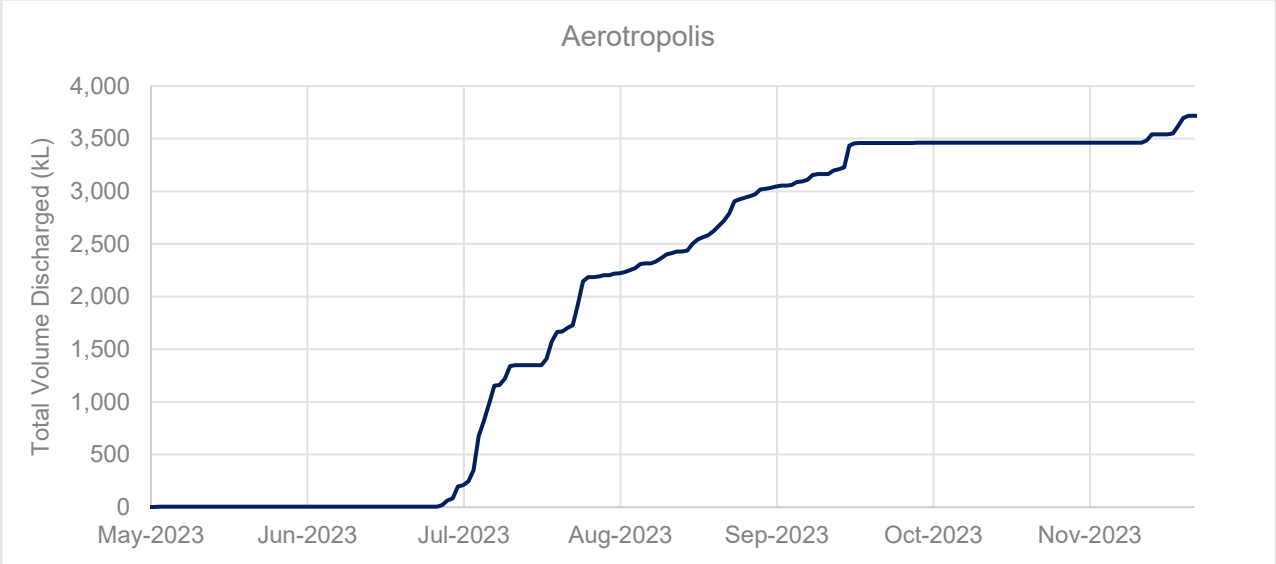


Figure 6-12: Cumulative discharge volume at Aerotropolis

Total discharge volumes at Aerotropolis to December 2023 were approximately 3.7ML.

7 Conclusions and recommendations

7.1 Conclusions

Trigger exceedance for groundwater levels and quality were identified in the first construction monitoring period, however no triggers indicated an adverse change in groundwater conditions.

Six VWPs or wells have been lost or destroyed;

- Four VWPs at Aerotropolis, which are understood to have been for design purposes and so do not need to be replaced, with AEC-SN450-EW-VWP07 to be added to GMP to confirm if levels decrease further;
- SBT-GW-4017 at Aerotropolis, location required to monitor existing contamination and groundwater quality and will be redrilled,
- SWD-TU150-22010-VWP04 at Orchard Hills which is also understood to have been for design purposes and does not need to be replaced, and will be removed from the GMP.

Where groundwater level triggers were exceeded at other locations the exceedance was either minor or indicated that triggers should be revised (see below).

Assessment of water quality is relevant for the project, as outlined in the NSW Aquifer Interference Policy (AIP). Table 1 of *Minimal Impact Consideration for Aquifer Interference Activities* for fractured rock water sources indicates the relevant consideration with respect to water quality consists of: “Any change in the groundwater quality should not lower the beneficial use category of the groundwater source beyond 40m from the activity.”

Based on the results of the first six monthly monitoring event there has been no adverse change in groundwater conditions or the beneficial use of groundwater.

7.2 Recommendations

Five locations where VWPs have been destroyed are recommended for removal from the GMP as listed in Table 7-1.

Table 7-1 Locations to be removed from GMP

Location ID	Monitoring Zone	Reason for being not sampled	Comment
SWD-TU150-22010-VWP04	Orchard Hills	Well destroyed	To be removed from GMP
SWD-TU400-39532-VWP03	Aerotropolis	Well destroyed	To be removed from GMP
SWD-TU400-39565-VWP04-A	Aerotropolis	Well destroyed	To be removed from GMP
SWD-TU400-39565-VWP04-B	Aerotropolis	Well destroyed	To be removed from GMP
SWD-TU400-39606-VWP05	Aerotropolis	Well destroyed	To be removed from GMP and replaced by AEC-SN450-EW-VWP07

Recommended modifications to groundwater level triggers are summarised in Table 7-2.

Table 7-2 Recommended groundwater level trigger revisions

Location ID	Monitoring Zone	Reason for being not sampled	Comment
SBT-GW-1805	Claremont Meadows	Decrease trigger levels by 0.5m: Green trigger: 21.5mAHD Amber trigger 21.0mAHD Red trigger 20.5mAHD	Adjustment made on additional data being used to define existing groundwater level variation.
SWD-TU150-22010-VWP02	Orchard Hills	Decrease trigger levels by 1m: Green trigger: 30.5mAHD Amber trigger 30.0mAHD Red trigger 29.5mAHD	Adjustment made to identify further decreases in levels (currently appear to be stabilising)

AEC-SN450-EW-VWP07	Aerotropolis	Green trigger: 55mAHD Amber trigger 54.5mAHD Red trigger 54mAHD	Replacement for SWD-TU400-39606-VWP05. Triggers may require further refinement.
SBT-GW-4021	Aerotropolis	Decrease trigger levels by 1m: Green trigger: 58.6mAHD Amber trigger 58.1mAHD Red trigger 57.6mAHD	Adjustment made on additional data being used to define existing groundwater level variation.

A summary of recommendations for GMP updates based on trigger exceedances and observed increasing trends, is provided in Table 7-3.

Table 7-3: Recommended actions to groundwater quality trigger exceedances

Location ID	Monitoring Zone	Aluminium	Zinc	pH	Total P	PCE	Nitrogen	TRH	Cadmium
MW1	St Marys						Trigger may be required if further increases		
SBT-GW-1001	St Marys	Revise Trigger to 24.4mg/L	Revise Trigger to 2.6mg/L						No change
SMGW-BH-A401	St Marys				Revise Trigger to 3.75mg/L. Investigate if concentrations are elevated in next monitoring round.				
SBT-GW-1042	Orchard Hills			Revise trigger to 4.5					

Other recommendations include:

- During the next 6 months of sampling, triplicate samples be taken and sent to a secondary laboratory to comply with the ratio up to 1 per twenty samples as required for field QC samples and as outlined in the GMP.
- The EC logger in SBT-GW-1042 appears to be malfunctioning. Maintenance/recalibration is required.
- The level logger in SBT-GW-4000 appears to be experiencing drift, levels should be checked using manual water level monitoring and equipment reset/calibrated as required.
- The GMP be updated so that wells with trigger values are sampled for those analytes. Three locations with triggers (SBT-GW1021, SMGW-BH-C321 and SBT-GW-4005) had only the base analytes listed in the GMP.

8 References

- AS/NZS 5667.11:1998: Water Quality – Sampling Part 11: Guidance on Sampling of Groundwaters (Reconfirmed 2016)
- AS/NZS 5667.1:1998: Water Quality – Sampling Part 1: Guidance on the Design of Sampling Programs, Sampling Techniques and the Preservation and Handling of Samples (Reconfirmed 2016)
- Sundaram, B., Feitz, A., Caritat, P. de, Plazinska, A., Brodie, R., Coram, J. and Ransley, T., 2009. Groundwater Sampling and Analysis – A Field Guide. Geoscience Australia, Record 2009/27 95 pp.
- Tetra Tech Major Projects (2023) Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works Project-wide Groundwater Modelling Report Ref: SMWSASBT-CPG-SWD-SW000-GE-RPT-040402
- Tetra Tech Major Projects (2023) Former Dry Cleaner, 1-7 Queen St – Assessment of Human Health Risk and Mitigation Options report (Ref: SMWSASBT-CPG-SWD-SW000-GE-RPT-040540)
- Tetra Tech Major Projects (2023) Baseline Groundwater Report (Ref: SMWSASBT-CPG-SWD-SW000-GE-RPT-040405, Rev B, 29 August 2023)
- Tetra Tech Major Projects (2023) Groundwater Monitoring Plan (Ref: SMWSASBT-CPG-SWD-SW000-GE-RPT-040404, Rev 2.01, 30 August 2023)

Annexure A Water quality data summary August to November 2023

Well Details		Field data										
		dd_mm_yy 0:00	mBTOC	mAHD	NTU	µS/cm	oC	ppt	g/L	mV	% saturation	
Location ID	Monitoring Zone	Sampled_Date_Time	Depth to Water	Groudnmwater Level	Turbidity	Electrical Conductivity	Temperature	Salinity	Total Dissolved Solids	Redox Potential	Dissolved Oxygen	pH field
SBT-GW-4803	Aerotropolis	25.09.2023	12.96	59.697	>1000	11900	22.7	6.77	7.36	-60	18.56	7.65
SBT-GW-4010	Aerotropolis - Bringelly	20.09.2023	5.6	73.179	5.05	42700	24.41	5.72	-218	57	57	9.07
SBT-GW-4014	Aerotropolis Station	25.09.2023	13.25	60.652	276	8880	23.45	5.03	5.59	-94	131.6	7.41
SBT-GW-4017	Aerotropolis Station	-	-	#VALUE!	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	25.09.2023	3.11	59.737	984	8810	22.51	4.95	5.14	88	137.8	7.4
SBT-GW-3012-A	Airport Terminal	20.09.2023	7.13	76.828	1000	3370	21.65	1.76	2.16	119	6.13	6.83
SBT-GW-3012-B	Airport Terminal	25.09.2023	13.84	70.06	1000	16700	21.49	9.81	10.4	117	121.3	6.8
SBT-GW-3012-C	Airport Terminal	25.09.2023	21.2	62.577	1000	16200	22.64	9.45	10	125	104.9	7.03
SBT-GW-3006	Airport Terminal	12.10.2023	27	57.305	>1000	610	22.22	0.29	0.39	12	78.5	8.62
SBT-GW-3022	Airport Terminal	21.09.2023	11.13	66.646	575	12700	16.95	7.28	7.89	72	77.5	8
SBT-GW-4003	Bringelly SF	21.09.2023	10.92	61.012	1000	13900	20.83	8.62	8.62	123	99	7.59
SBT-GW-4801	Bringelly SF	09.10.23	12.21	59.162	445	13900	21.95	8.02	8.62	119	68.5	7.56
SBT-GW-4802	Bringelly SF	21.09.2023	15.62	58.728	767	15600	21.69	9.1	9.68	139	49	7.62
SBT-GW-4800	Bringelly SF	21.09.2023	7.68	63.752	1000	10500	1000	5.91	6.49	-117	42.8	7.62
SBT-GW-4005	Bringelly SF	21.09.2023	9.4	64.213	144	1840	21.97	0.93	1.15	127	161.9	6.84
SBT-GW-1805	Claremont Meadows SF	09.10.23	2.68	24.616	>1000	2070	21.46	1.1	1.32	93	255.7	9.28
SBT-GW-1024	Claremont Meadows SF	09.10.23	6.75	21.756	35.5	8690	22.15	4.8	5.47	178	193.3	6.02
SBT-GW-4008	Cross passage / Tunnel	20.09.2023	-	#VALUE!	30.1	12000	24.37	6.88	7.43	-274	45.2	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	29.09.23	4.78	32.027	518	31900	21.98	20	19.6	128	53	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	14.11.23	4.89	35.918	74.7	4650	22.35	2.5	2.98	143	107.9	7.72
SMGW-BH-A315	Orchard Hills	22.09.23	2.7	39.58	436	2006	19.36	1.05	1.32	-165	43.6	7.82
SBT-GW-1806	Orchard Hills	22.09.23	15.24	27.717	1000	14500	21.05	8.43	9.01	30	31.6	8.29
SBT-GW-1807	Orchard Hills	22.09.23	9.07	28.409	486	19900	18.39	11.85	12.4	-19	100.9	7.47
SBT-GW-1808	Orchard Hills	22.09.23	2.24	35.215	486	19900	18.39	11.85	12.4	-19	100.9	7.47
SBT-GW-1042	Orchard Hills Station	29.09.23	4.25	35.819	830	13700	16.9	7.9	8.52	1.85	145	4.85
SBT-GW-1048	Orchard Hills Station	09.10.23	5.728	33.914	138	11100	27.92	6.3	6.87	2.42	100.5	5.35
SBT-GW-3003-C	Portal / Cross passage XPS01	3.10.2023	12.84	54.488	464	10500	25.14	5.93	6.48	-183	80.5	7.6
SBT-GW-3003-B	Portal / Cross passage XPS01	3.10.2023	8.84	58.538	1000	10800	28.52	6.09	6.68	61	65.2	7.57
SBT-GW-3003-A	Portal / Cross passage XPS01	3.10.2023	5.43	62.276	364	15100	25.4	8.96	9.28	-174	82.3	7.44
SBT-GW-1804	South Creek	not sampled	-	#VALUE!	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	4.10.2023	2.21	30.265	>1000	17800	22.17	10.5	11	149	50.4	5.97
SBT-CM-1022	St Marys	not sampled	-	#VALUE!	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	6.10.2023	2.86	31.046	72	2300	22.77	1.2	1.47	-44	120	6.85
SMGW-GW02	St Marys	4.10.2023	2.69	32.7	98.3	9000	20.4	5	5.67	475	52.6	5.58
SBT-GW-1019R	St Marys	Not sampled	-	#VALUE!	-	-	-	-	-	-	-	-
MW1	St Marys	4.10.2023	0.72	-	347	1070	19.5	0.5	0.685	291	161.5	6.6
SBT-GW-1016	St Marys	5.10.2023	2.99	33.132	>1000	30200	21.62	18.7	18.4	85	11.73	5.25
SMGW-BH-A401	St Marys	19.10.2023	4.84	31.67	>1000	21200	21.94	12.7	13.1	81	74.6	5.31
SBT-GW-1005	St Marys	4.10.2023	7.1	37.095	572	23400	20.92	14.1	14.5	-94	26.3	6.71
SBT-GW-1803	St Marys	9.10.2023	25.21	22.439	415	25400	22.63	15.5	15.7	186	238.6	6.75
SBT-GW-1001	St Marys	4.10.2023	3.53	45.297	276	31700	21.36	14.7	19.3	256	3.13	4.34
SBT-GW-1002	St Marys	9.10.2023	4.81	37.795	168	8800	22.77	4.9	5.54	375	139	3.98
SMGW-BH-A107	TBM Tunnel - South Creek	Not sampled	-	#VALUE!	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	21.09.2023	2.43	69.805	189	9840	16.98	5.52	6.2	-8	43.2	7.31
SMGW-BH-C330	Western Sydney Airport	20.09.2023	3.65	65.7	331	16300	18.59	9.5	10.1	99	6.03	6.01
SMGW-BH-C320	Western Sydney Airport	20.09.2023	5.75	60.72	57.8	1590	22.73	9.26	9.85	130	75.1	7.56
SMGW-BH-C321	Western Sydney Airport	20.09.2023	2.05	61.4	840	2140	23.05	1.09	1.37	-190	157.5	8.31

Well Details			Physical Parameters			TOC	Dissolved Major Cations				Ionic Balance	
				mg/L	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L
Location ID	Monitoring Zone	Field observations	pH lab	Total Dissolved Solids (Lab)	Electrical Conductivity @ 25C (lab)	TOC	Calcium (filtered)	Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	ø Total Anions	ø Total Cations
SBT-GW-4803	Aerotropolis	volumes, as sleeveset above GW H	7.65	13300	20,500	7	347	598	3230	43	204	208
SBT-GW-4010	Aerotropolis - Bringelly	measure depth	7.4	9,990	16,800	14	175	669	2,360	23	188	167
SBT-GW-4014	Aerotropolis Station	clear	7.68	10200	16100	32	244	476	2490	35	181	160
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	Turbid	7.46	15300	21700	2	313	640	3580	16	246	224
SBT-GW-3012-A	Airport Terminal	-	6.92	3580	5830	2	19	87	1030	14	57	53.3
SBT-GW-3012-B	Airport Terminal	-	7.48	20500	27900	27	273	273	4360	42	334	302
SBT-GW-3012-C	Airport Terminal	clear /turbud at base HS	6.71	19600	28,200	19	576	576	4740	63	300	286
SBT-GW-3006	Airport Terminal	-	7.9	648	1090	6	28	11	173	4	11.4	9.93
SBT-GW-3022	Airport Terminal	cloudy yellow	8	14800	24,100	<1	219	680	4010	41	250	244
SBT-GW-4003	Bringelly SF	Clear, oil in bottom of sleeve	8.04	14900	23800	2	182	881	3820	24	240	248
SBT-GW-4801	Bringelly SF	-	7.94	15000	24,100	10	288	814	3710	34	237	244
SBT-GW-4802	Bringelly SF	-	7.84	17600	27,100	<1	437	728	4310	45	261	270
SBT-GW-4800	Bringelly SF	Sulfur like smell	8.02	15300	18800	2	228	653	2830	33	194	189
SBT-GW-4005	Bringelly SF	-	7.97	11900	12000	7	256	315	1810	54	124	119
SBT-GW-1805	Claremont Meadows SF	Water turbid / brown color - no	6.8	1470	2050	7	42	48	311	2	22.5	19.6
SBT-GW-1024	Claremont Meadows SF	no odour. Water fairly clear	6.6	5740	9,470	7	113	193	1670	8	102	94.4
SBT-GW-4008	Cross passage / Tunnel	-	8.06	12900	21400	33	431	232	3560	47	211	197
SBT-CM-1030	Cross passage / Tunnel (XPN13)	clear sleeve, sediment at bottom of	4.8	28700	34,500	11	62	1630	5580	10	342	380
SBT-GW-1031	Cross passage / Tunnel (XPN14)	Clear, slight odour	7.65	3150	5230	5	202	69	708	8	46.4	46.8
SMGW-BH-A315	Orchard Hills	clear water, no odour	6.81	2170	3360	18	56	50	582	6	32.4	32.4
SBT-GW-1806	Orchard Hills	too much string, corrected on site	9.89	22500	27900	4	1460	27	4900	45	350	289
SBT-GW-1807	Orchard Hills	no odour, tubid water, yellow colour	7.93	25500	34600	7	498	1110	5540	21	346	358
SBT-GW-1808	Orchard Hills	dirt in well, turbid water, top of	5.91	9530	13000	25	13	256	2100	6	141	118
SBT-GW-1042	Orchard Hills Station	no odour	4.94	8710	13500	1	6	257	2480	5	116	129
SBT-GW-1048	Orchard Hills Station	water appears clear , no odour,	6.2	7480	11200	9	21	316	1930	6	129	111
SBT-GW-3003-C	Portal / Cross passage XPS01	-	7.56	9760	15600	20	301	398	3030	57	150	181
SBT-GW-3003-B	Portal / Cross passage XPS01	Adjusted hydro sleeve - lowered	7.59	13100	19500	15	460	431	3000	36	184	190
SBT-GW-3003-A	Portal / Cross passage XPS01	sulfur smell	7	19000	27700	17	223	875	4650	6	273	186
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	Water slightly turbid, orange/brown	6.32	14300	18200	9	41	488	3410	3	181	191
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	Water clear / slightly turbid.	6.95	1610	2390	17	44	21	406	12	22.8	21.9
SMGW-GW02	St Marys	Water appears clear, no odour	6.1	5740	8830	3	21	162	1760	1	92.2	91
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	No odour , water slightly turbid	7.04	734	1,060	5	49	19	152	7	9.06	10.8
SBT-GW-1016	St Marys	traffic control required.	5.59	22000	28200	6	179	1140	4920	4	332	317
SMGW-BH-A401	St Marys	Very little water in sleeve, sediment	5.76	18200	22500	16	47	744	3870	14	238	232
SBT-GW-1005	St Marys	Water slightly milky, no odour	7.14	17500	25,000	7	352	991	3660	55	248	260
SBT-GW-1803	St Marys	Water fairly cear, no odour	7.62	21700	25000	4	895	483	4260	45	278	271
SBT-GW-1001	St Marys	No odour, clear water	4.4	24200	32,600	12	69	1150	5760	22	346	349
SBT-GW-1002	St Marys	Water slightly turbid, orange/brown	4.42	5340	9,150	13	4	174	1600	4	95	84.2
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	"Unable to dip to	7.94	10900	18100	<1	191	422	2930	27	187	172
SMGW-BH-C330	Western Sydney Airport	-	6.71	19300	28,200	9	117	920	4490	11	311	277
SMGW-BH-C320	Western Sydney Airport	"No odour"	7.69	17800	28000	5	204	737	4410	6	295	263
SMGW-BH-C321	Western Sydney Airport	"Black marine	8.06	2200	3590	24	47	72	633	13	37.9	36.1

Well Details			Alkalinity as CaCO3				Metals (Dissolved)						
		%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Location ID	Monitoring Zone	ø Ionic Balance	Alkalinity (total as CaCO3)	Alkalinity (Hydroxide) as CaCO3	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Aluminium (dissolved)	Arsenic (filtered)	Cadmium (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)
SBT-GW-4803	Aerotropolis	1.11	1040	<1	1040	<1	<0.01	0.002	<0.0001	<0.001	<0.001	2.22	<0.001
SBT-GW-4010	Aerotropolis - Bringelly	5.9	702	<1	702	<1	<0.01	0.003	<0.0001	<0.001	<0.001	0.17	<0.001
SBT-GW-4014	Aerotropolis Station	5.98	1180	<1	1180	<1	0.01	0.002	<0.0001	<0.001	<0.001	2.4	<0.001
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	4.59	962	<1	962	<1	<0.01	<0.001	<0.0001	<0.001	<0.001	<0.05	<0.001
SBT-GW-3012-A	Airport Terminal	3.36	419	<1	419	<1	0.02	0.001	0.0002	<0.001	0.004	<0.05	<0.001
SBT-GW-3012-B	Airport Terminal	4.98	447	<1	447	<1	<0.01	<0.001	0.0001	<0.001	0.004	<0.05	<0.001
SBT-GW-3012-C	Airport Terminal	2.42	302	<1	302	<1	0.01	0.002	<0.0001	<0.001	0.005	<0.05	<0.001
SBT-GW-3006	Airport Terminal	6.93	88	<1	88	<1	0.03	0.002	<0.0001	<0.001	<0.001	<0.05	<0.001
SBT-GW-3022	Airport Terminal	1.22	1220	<1	1220	<1	0.05	<0.001	<0.0001	<0.001	<0.001	<0.05	<0.001
SBT-GW-4003	Bringelly SF	1.63	1100	<1	1100	<1	<0.01	<0.001	<0.0001	<0.001	<0.001	<0.05	<0.001
SBT-GW-4801	Bringelly SF	1.44	1070	<1	1070	<1	<0.01	<0.001	<0.0001	<0.001	<0.001	<0.05	<0.001
SBT-GW-4802	Bringelly SF	1.77	690	<1	690	<1	<0.01	<0.001	<0.0001	<0.001	<0.001	<0.05	<0.001
SBT-GW-4800	Bringelly SF	1.3	1060	<1	1060	<1	<0.01	0.008	<0.0001	<0.001	<0.001	<0.05	<0.001
SBT-GW-4005	Bringelly SF	2.08	301	<1	301	<1	<0.01	0.002	<0.0001	<0.001	0.003	<0.05	<0.001
SBT-GW-1805	Claremont Meadows SF	6.8	68	<1	68	<1	<0.01	<0.001	<0.0001	<0.001	<0.001	<0.05	<0.001
SBT-GW-1024	Claremont Meadows SF	3.93	82	<1	82	<1	0.04	<0.001	0.0002	<0.001	0.002	<0.05	<0.001
SBT-GW-4008	Cross passage / Tunnel	3.52	286	<1	286	<1	<0.01	0.006	<0.0001	<0.001	<0.001	<0.05	<0.001
SBT-CM-1030	Cross passage / Tunnel (XPN13)	5.23	<1	<1	<1	<1	2.99	0.004	0.0005	0.001	0.001	0.151	0.002
SBT-GW-1031	Cross passage / Tunnel (XPN14)	0.34	103	<1	103	<1	0.03	<0.001	<0.0001	<0.001	0.003	0.05	<0.001
SMGW-BH-A315	Orchard Hills	0.01	192	<1	192	<1	0.04	0.002	0.002	<0.001	<0.001	7.42	<0.001
SBT-GW-1806	Orchard Hills	9.53	4770	2400	<1	2380	<0.1	<0.010	<0.010	<0.010	<0.010	<0.10	<0.010
SBT-GW-1807	Orchard Hills	1.62	949	<1	949	<1	<0.1	<0.010	<0.010	<0.010	<0.010	2.12	<0.010
SBT-GW-1808	Orchard Hills	8.93	1040	<1	1040	<1	0.26	<0.001	<0.001	0.001	0.001	23.6	<0.001
SBT-GW-1042	Orchard Hills Station	5.53	702	<1	702	<1	1.41	<0.001	0.0002	<0.001	0.015	0.26	0.005
SBT-GW-1048	Orchard Hills Station	7.32	12	<1	12	<1	0.14	<0.001	0.0003	<0.001	0.008	<0.05	<0.001
SBT-GW-3003-C	Portal / Cross passage XPS01	9.4	302	<1	302	<1	0.01	0.005	<0.0001	<0.001	<0.001	0.91	<0.001
SBT-GW-3003-B	Portal / Cross passage XPS01	1.58	962	<1	962	<1	0.04	0.002	<0.0001	<0.001	0.002	<0.05	<0.001
SBT-GW-3003-A	Portal / Cross passage XPS01	2.31	307	<1	307	<1	0.01	0.001	<0.0001	<0.001	<0.001	5.46	<0.001
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	2.49	90	<1	90	<1	0.11	<0.001	0.0003	<0.001	0.002	0.06	0.132
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	2.11	93	<1	93	<1	0.23	0.012	<0.0001	<0.001	0.002	3.67	0.001
SMGW-GW02	St Marys	0.67	43	<1	43	<1	<0.01	<0.001	0.0002	<0.001	0.002	<0.05	<0.001
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	8.76	174	<1	174	<1	0.1	<0.001	<0.0001	<0.001	0.003	0.05	0.019
SBT-GW-1016	St Marys	2.4	18	<1	18	<1	0.06	0.001	0.0002	<0.001	0.001	13.4	0.002
SMGW-BH-A401	St Marys	1.26	301	15	301	15	0.22	0.001	0.0003	<0.001	0.006	25.3	<0.001
SBT-GW-1005	St Marys	2.26	636	<1	636	<1	0.04	<0.001	<0.0001	<0.001	<0.001	0.95	0.017
SBT-GW-1803	St Marys	1.39	267	<1	267	<1	<0.01	<0.001	0.0004	<0.001	0.0004	>0.05	<0.001
SBT-GW-1001	St Marys	0.48	<1	<1	<1	<1	16.3	0.005	0.0021	0.004	0.037	3.43	0.047
SBT-GW-1002	St Marys	6.01	<1	<1	<1	<1	1.46	<0.003	0.0001	0.004	0.026	0.003	0.018
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	4.01	192	<1	192	<1	<0.01	<0.001	<0.0001	<0.001	<0.001	0.93	<0.001
SMGW-BH-C330	Western Sydney Airport	2.42	<1	<1	<1	<1	0.08	<0.001	0.0003	0.002	<0.001	0.29	<0.001
SMGW-BH-C320	Western Sydney Airport	5.84	949	<1	949	<1	<0.01	<0.0001	<0.0001	<0.001	<0.001	<0.05	<0.001
SMGW-BH-C321	Western Sydney Airport	2.36	70	<1	70	<1	0.02	0.002	<0.0001	<0.001	<0.001	0.08	<0.001

Well Details							Metals (total)						
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Location ID	Monitoring Zone	manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)	Aluminium (filtered)	Aluminium (total)	Cobalt (total)	Iron (total)	Manganese (total)	Chloride	Sulfate as SO4 (filtered)	Total Kjeldahl Nitrogen (TKN)
SBT-GW-4803	Aerotropolis	0.53	-	0.008	0.015	<0.01	3.19	0.01	21.9	1.15	5910	772	5.3
SBT-GW-4010	Aerotropolis - Bringelly	0.214	<0.0001	0.001	<0.005	<0.01	<0.01	<0.001	0.17	0.214	5170	1350	2.1
SBT-GW-4014	Aerotropolis Station	1.75	<0.0001	0.006	0.016	0.01	0.01	0.017	7.66	1.91	5210	501	2.2
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	1.09	<0.0001	0.003	0.009	<0.01	<0.01	0.042	112	3.09	7640	542	7.2
SBT-GW-3012-A	Airport Terminal	0.489	<0.0001	0.007	0.022	39.3	39.3	0.047	68.9	0.849	1530	369	5.7
SBT-GW-3012-B	Airport Terminal	0.08	<0.0001	0.009	0.022	14.1	14.1	0.023	34.3	0.613	9520	2010	4
SBT-GW-3012-C	Airport Terminal	0.112	<0.0001	0.014	0.043	15.1	15.1	0.017	17.8	0.503	10100	3	9.3
SBT-GW-3006	Airport Terminal	0.07	-	0.007	<0.005	0.03	2.41	0.006	4.42	0.242	196	198	2.7
SBT-GW-3022	Airport Terminal	0.052	<0.0001	0.004	0.016	0.6	0.6	0.003	2.75	0.077	7330	890	2.8
SBT-GW-4003	Bringelly SF	0.124	<0.0001	0.008	0.014	<0.01	<0.01	0.007	<0.05	0.124	7130	828	2.1
SBT-GW-4801	Bringelly SF	0.178	<0.0001	0.005	0.02	1.46	1.46	0.006	7.8	0.178	7060	776	3.7
SBT-GW-4802	Bringelly SF	0.161	<0.0001	0.006	0.01	2.26	2.26	0.012	5.19	0.161	8450	422	8.2
SBT-GW-4800	Bringelly SF	1.16	<0.0001	0.006	<0.005	<0.01	<0.01	0.016	0.016	1.16	5710	566	4.3
SBT-GW-4005	Bringelly SF	0.053	<0.0001	0.002	<0.005	<0.01	<0.01	0.001	0.001	0.053	3530	877	1.6
SBT-GW-1805	Claremont Meadows SF	0.188	-	0.007	0.014	1.77	1.77	0.002	<0.05	0.188	501	336	6.6
SBT-GW-1024	Claremont Meadows SF	0.488	-	0.019	0.046	0.23	0.23	0.024	<0.05	0.488	3210	476	0.6
SBT-GW-4008	Cross passage / Tunnel	0.252	<0.0001	<0.001	0.023	0.21	0.21	<0.001	1.54	0.254	7270	10	8.8
SBT-CM-1030	Cross passage / Tunnel (XPN13)	4.86	<0.0001	0.151	0.345	2.99	2.99	0.347	13.8	4.86	10500	2220	8
SBT-GW-1031	Cross passage / Tunnel (XPN14)	0.002	<0.0001	0.001	0.116	0.03	0.38	0.001	0.55	0.09	1510	86	0.4
SMGW-BH-A315	Orchard Hills	0.188	<0.0001	0.005	<0.005	2.98	2.98	0.015	14.6	14.6	754	349	1.8
SBT-GW-1806	Orchard Hills	<0.010	<0.0001	<0.010	<0.050	<0.1	<0.1	<0.01	<0.1	<0.01	8960	109	3.5
SBT-GW-1807	Orchard Hills	0.517	<0.0001	<0.010	<0.050	7.52	7.52	<0.01	13.9	13.9	10900	955	2.5
SBT-GW-1808	Orchard Hills	0.725	<0.0001	0.05	0.059	16.7	16.7	0.129	39.2	39.2	4790	197	4.6
SBT-GW-1042	Orchard Hills Station	0.233	<0.0001	0.06	0.166	1.41	1.41	0.144	0.26	0.233	3970	186	15.1
SBT-GW-1048	Orchard Hills Station	1.62	-	0.094	0.258	0.8	0.8	0.153	1.08	1.68	4400	210	0.7
SBT-GW-3003-C	Portal / Cross passage XPS01	0.179	-	0.003	0.007	0.01	1.24	0.003	3.34	0.179	4570	719	4.7
SBT-GW-3003-B	Portal / Cross passage XPS01	1.4	-	0.006	0.005	0.04	5.63	0.018	9.78	1.4	5640	764	3.1
SBT-GW-3003-A	Portal / Cross passage XPS01	8.11	-	0.008	<0.005	0.01	0.88	0.03	7.41	8.11	8270	1490	2
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	15	-	0.034	0.08	13.4	13.4	0.226	20.9	0.132	5890	644	6
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	0.098	-	0.017	0.035	0.23	0.23	0.23	7.2	0.112	190	750	2.9
SMGW-GW02	St Marys	0.28	-	0.021	0.06	0.2	0.2	0.078	0.7	0.279	3040	268	0.4
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	0.009	-	<0.001	0.014	4.06	4.06	<0.001	6.48	0.019	130	92	3.1
SBT-GW-1016	St Marys	1.46	-	0.067	0.161	0.06	72.2	0.301	116	1.85	10600	1590	7.5
SMGW-BH-A401	St Marys	0.467	-	0.092	0.107	5.57	5.57	0.161	23.6	0.431	8180	344	18.4
SBT-GW-1005	St Marys	0.928	-	0.004	0.14	3.29	3.29	0.004	4.25	0.017	7800	745	1.2
SBT-GW-1803	St Marys	0.335	-	0.035	0.067	0.84	0.84	0.036	2.75	0.417	9490	263	0.5
SBT-GW-1001	St Marys	6.03	-	0.49	1.76	19.8	19.8	1.01	5.97	0.047	11900	489	0.8
SBT-GW-1002	St Marys	0.073	-	0.033	0.162	5.39	5.39	0.112	0.85	0.074	3230	186	0.2
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	2.26	<0.0001	0.004	0.01	<0.01	<0.01	0.01	4.35	2.54	5370	468	0.5
SMGW-BH-C330	Western Sydney Airport	7.86	<0.0001	0.2444	0.289	3.05	3.05	0.419	1.89	7.74	9920	1390	1.2
SMGW-BH-C320	Western Sydney Airport	2.17	<0.0001	0.015	0.175	0.23	0.23	0.021	0.37	2.18	9410	660	2
SMGW-BH-C321	Western Sydney Airport	2.83	<0.0001	0.002	<0.005	1.17	1.17	0.008	3.75	3.09	804	140	1.3

Well Details		Nutrients							BTEXN				
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	Nitrogen (Total)	Nitrate (as NO3-N)	Nitrite (as NO2-N)	Ammonia as N	Total Phosphorus as P	Total Dissolved Solids	Reactive Phosphorus as P	Benzene	Toluene	Ethylbenzene	ortho-Xylene	Naphthalene
SBT-GW-4803	Aerotropolis	5.4	0.02	0.03	1.63	0.58	13300	<0.01	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	2.1	-	<0.01	<0.01	0.26	9990	0.02	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	2.4	0.14	0.02	1.25	0.14	10200	<0.01	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	7.2	0.03	<0.01	0.5	3.06	15300	<0.01	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	7.4	1.73	<0.01	0.12	1.32	3580	<0.01	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	4.1	0.08	<0.01	0.08	1	20500	0.03	<1	<2	<2	<2	<5
SBT-GW-3012-C	Airport Terminal	9.4	6.89	0.12	6.89	1.09	19600	<0.01	-	-	-	-	-
SBT-GW-3006	Airport Terminal	2.8	-	-	0.03	0.55	648	<0.01	-	-	-	-	-
SBT-GW-3022	Airport Terminal	3.4	0.56	0.06	2.23	0.1	14800	<0.01	-	-	-	-	-
SBT-GW-4003	Bringelly SF	2.8	0.7	<0.01	0.03	0.49	14900	0.02	<1	<2	<2	<2	<5
SBT-GW-4801	Bringelly SF	3.8	0.01	0.07	1.99	0.49	15000	<0.01	-	-	-	-	-
SBT-GW-4802	Bringelly SF	15.2	6.44	0.52	3.56	0.73	17600	<0.01	-	-	-	-	-
SBT-GW-4800	Bringelly SF	4.3	0.01	<0.01	0.07	1.21	15300	<0.01	-	-	-	-	-
SBT-GW-4005	Bringelly SF	3	1.4	0.05	0.94	0.08	11900	<0.01	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	7.4	0.75	<0.01	0.39	2.58	1470	<0.01	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	1.4	0.75	<0.01	0.37	0.03	5740	<0.01	<1	<2	<2	<2	<5
SBT-GW-4008	Cross passage / Tunnel	8.8	<0.01	<0.01	7.19	0.09	12900	<0.01	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	8	<0.01	<0.01	0.41	<0.5	28700	<0.01	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	1.5	1.14	<0.01	<0.01	0.18	3150	0.14	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	1.8	<0.01	<0.01	0.17	0.26	2170	<0.01	<1	<2	<2	<2	<5
SBT-GW-1806	Orchard Hills	3.5	0.02	<0.01	2.3	<0.05	22500	<0.01	1	3	<2	<2	<5
SBT-GW-1807	Orchard Hills	2.5	0.02	<0.01	1.75	0.14	25500	<0.01	-	-	-	-	-
SBT-GW-1808	Orchard Hills	4.7	0.09	0.02	0.46	0.32	9530	<0.01	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	150	0.07	135	0.21	<0.20	8710	<0.01	<1	<2	<2	<2	<5
SBT-GW-1048	Orchard Hills Station	1.1	0.36	<0.01	0.09	0.09	7480	<0.01	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	4.9	<0.01	0.35	2.45	<0.01	9760	<0.01	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	3.2	0.01	0.06	0.32	0.01	13100	0.01	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	2	<0.01	<0.01	0.063	<0.01	19000	<0.01	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	6.1	0.06	<0.01	0.26	3.9	14300	<0.01	<1	<2	<2	<2	<5
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	5.3	2.24	0.2	0.88	0.11	1610	<0.10	-	-	-	-	-
SMGW-GW02	St Marys	0.4	0.01	<0.01	0.06	0.06	5740	0.01	<1	<2	<2	<2	<5
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	31	27.9	<0.01	0.7	0.26	734	0.02	<5	<5	<5	<2	<5
SBT-GW-1016	St Marys	7.6	<0.01	0.05	0.37	1.53	22000	<0.01	<1	<2	<2	<2	<5
SMGW-BH-A401	St Marys	18.5	0.11	0.01	0.29	5.19	18200	<0.01	<1	<2	<2	<2	<5
SBT-GW-1005	St Marys	1.6	0.42	<0.01	0.15	0.22	17500	<0.01	-	-	-	-	-
SBT-GW-1803	St Marys	5	4.51	<0.01	0.09	0.09	21700	<0.01	-	-	-	-	-
SBT-GW-1001	St Marys	0.9	0.12	<0.01	0.58	0.04	24200	0.01	-	-	-	-	-
SBT-GW-1002	St Marys	0.4	0.17	0.17	0.1	0.04	<0.04	<0.01	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	0.5	0.01	<0.01	0.23	0.11	10900	0.02	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	1.2	0.002	<0.01	0.15	0.16	19300	<0.01	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	2.4	0.45	<0.01	0.03	0.22	17800	<0.01	<1	<2	<2	<2	<5
SMGW-BH-C321	Western Sydney Airport	1.3	<0.01	<0.01	0.17	0.2	2200	<0.01	-	-	-	-	-

Well Details					TPH(V)/BTEX Surrogates			Total Petroleum Hydrocarbons					
		µg/L	µg/L	µg/L	%	%	%	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	meta- & para- Xylene	Xylene Total	Sum of BTEX	1.2-Dichloroethane-D4	Toluene-D8	4-Bromofluorobenzene	C6 - C9	C10 - C14	C15 - C28	C29 - C36	C10 - C36 (Sum of total)	C10 - C40 (Sum of total)
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<2	<2	<1	98.8	99.5	102	<20	<50	<100	<50	<50	<100
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	<2	<2	<1	101	101	109	<20	<50	<100	<50	<50	<100
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<2	<2	<1	81.9	88	98	<20	<50	<100	<50	<50	<100
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	<2	<2	<1	123	120	107	<20	<50	<100	<50	<50	<100
SBT-GW-1806	Orchard Hills	<2	<2	4	114	110	95.5	<20	<50	<100	<50	<50	<100
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	<2	<2	<1	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	<2	<2	<1	96.4	98	112	<20	-	-	-	-	-
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	<2	<2	<1	89.6	96.6	97.5	660	-	-	-	-	-
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	<10	<2	<2	85.5	103	108	3770	-	-	-	-	-
SBT-GW-1016	St Marys	<2	<2	<1	<5	<2	90.9	<20	<50	<100	<50	<50	<100
SMGW-BH-A401	St Marys	<2	<2	<1	119	110	112	<20	-	-	-	-	-
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	<2	<2	<1	93.4	90	92.5	<20	<50	<100	<50	<50	<20
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-

Well Details		Total Recoverable Hydrocarbons						VOCs (Monocyclic Aromatic Hydrc					
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	C6 - C10	C6 - C10 minus BTEX	F2 (C10 - C16)	F2 C10 - C16 (minus Naphthalene)	F3 (C16 - C34)	F4 (C34 - C40)	Styrene	Isopropylbenzene	n-Propylbenzene	1.3.5-Trimethylbenzene	sec-Butylbenzene	1.2.4-Trimethylbenzene
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<20	<20	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	<20	<20	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<20	<20	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	<20	<20	<100	<100	<100	<100	-	-	-	-	-	-
SBT-GW-1806	Orchard Hills	<20	<20	<100	<100	<100	<100	-	-	-	-	-	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	<20	<20	-	-	-	-	<5	<5	<5	<5	<5	<5
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	700	700	-	-	-	-	<5	<5	<5	<5	<5	<5
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	3980	3980	-	-	-	-	<5	<5	<5	<5	<5	<5
SBT-GW-1016	St Marys	-	<20	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5
SMGW-BH-A401	St Marys	-	<20	-	-	-	-	<5	<5	<5	<5	<5	<5
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	<20	<20	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-

Well Details		ıcarbons)					VOCs (Oxygenated Compounds / Sulfonated Compounds / Fumigants)						
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	sec-Butylbenzene	1.2.4-Trimethylbenzene	tert-Butylbenzene	p-Isopropyltoluene	n-Butylbenzene	Vinyl Acetate	2-Butanone (MEK)	4-Methyl-2-pentanone (MIBK)	2-Hexanone (MBK)	Carbon disulfide	2.2-Dichloropropane	1.2-Dichloropropane
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<5	<5	<5	<5	<5	<50	<50	<50	<50	<5	<5	<5
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	<5	<5	<5	<5	<5	<50	<50	<50	<50	<5	<5	<5
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<5	<5	<5	<5	<5	<50	<50	<50	<50	<5	<5	<5
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1806	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	<5	<5	<5	<5	<5	<50	<50	<50	<50	<5	<5	<5
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	<5	<5	<5	<5	<5	<50	<50	<50	<50	<5	<5	<5
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	<5	<5	<5	<5	<5	<50	<50	<50	<50	<5	<5	<5
SBT-GW-1016	St Marys	<5	<5	<5	<5	<5	<50	<50	<50	<50	<5	<5	<5
SMGW-BH-A401	St Marys	<5	<5	<5	<5	<5	<50	<50	<50	<50	<5	<5	<5
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	<5	<5	<5	<5	<5	<50	<50	<50	<50	<5	<5	<5
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-

Well Details														
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	cis-1.3-Dichloropropylene	trans-1.3-Dichloropropylene	1.2-Dibromoethane (EDB)	Dichlorodifluoromethane	Chloromethane	Vinyl chloride	Bromomethane	Chloroethane	Trichlorofluoromethane	1.1-Dichloroethene	Iodomethane	trans-1.2-Dichloroethene
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<5	<5	<5	<50	<50	<50	<50	<50	<50	<5	<5	<5
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	<5	<5	<5	<50	<50	<50	<50	<50	<50	<5	<5	<5
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<5	<5	<5	<50	<50	<50	<50	<50	<50	<5	<5	<5
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1806	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	<5	<5	<5	<50	<50	<50	<50	<50	<50	<50	<5	<5
SBT-CM-1022	St Marys	<5	<5	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	<5	<5	-	-	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	<5	<5	<5	<50	<50	<50	<50	<50	<50	<50	<5	<5
SBT-GW-1019R	St Marys	<5	<5	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	<5	<5	<5	<50	<50	<50	<50	<50	<50	<50	<5	6
SBT-GW-1016	St Marys	<5	<5	<5	<50	<50	<50	<50	<50	<50	<5	<5	<5
SMGW-BH-A401	St Marys	<5	<5	<5	<50	<50	<50	<50	<50	<50	<5	<5	<5
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	<5	<5	<5	<50	<50	<50	<50	<50	<50	<5	<5	<5
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-

Well Details		VOCs (Halogenated Aliphatic Compounds)											
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	1.1-Dichloroethane	cis-1.2-Dichloroethene	1.1.1-Trichloroethane	1.1-Dichloropropylene	Carbon Tetrachloride	1.2-Dichloroethane	Trichloroethene	Dibromomethane	1.1.2-Trichloroethane	1.3-Dichloropropane	Tetrachloroethene	1.1.1.2-Tetrachloroethane
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1806	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	<5	<5	<5	<5	<5	<5	63	<5	<5	<5	488	<5
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	<5	599	<5	<5	<5	<5	518	<5	<5	<5	2160	<5
SBT-GW-1016	St Marys	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SMGW-BH-A401	St Marys	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-

Well Details		VOCs (Halogenated Aromatic Com											
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	trans-1.4-Dichloro-2-butene	cis-1.4-Dichloro-2-butene	1.1.2.2-Tetrachloroethane	1.2.3-Trichloropropane	Pentachloroethane	1.2-Dibromo-3-chloropropane	Hexachlorobutadiene	Chlorobenzene	Bromobenzene	2-Chlorotoluene	4-Chlorotoluene	1.3-Dichlorobenzene
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1806	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SBT-GW-1016	St Marys	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SMGW-BH-A401	St Marys	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-

Well Details		ıpounds)				VOCs (Trihalomethames)				VOC Surrogates			
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	%	%	%	µg/L
Location ID	Monitoring Zone	1.4-Dichlorobenzene	1.2-Dichlorobenzene	1.2.4-Trichlorobenzene	1.2.3-Trichlorobenzene	Chloroform	Bromodichloromethane	Dibromochloromethane	Bromoform	1.2-Dichloroethane-D4	Toluene-D8	4-Bromofluorobenzene	Phenol
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<5	<5	<5	<5	<5	<5	<5	<5	98.8	99.5	102	<2
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	<5	<5	<5	<5	<5	<5	<5	<5	106	103	107	<1.0
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<5	<5	<5	<5	<5	<5	<5	<5	84	90.3	88.6	<2
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	<2
SBT-GW-1806	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	<2
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	<5	<5	<5	<5	<5	<5	<5	<5	129	111	115	-
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	<5	-	-	-	-	-	-
SMGW-GW02	St Marys	<5	<5	<5	<5	<5	<5	<5	<5	89.6	96.6	97.5	-
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	<5	<5	<5	<5	<5	<5	<5	<5	97.7	104	101	-
SBT-GW-1016	St Marys	<5	<5	<5	<5	<5	<5	<5	<5	91.8	92.2	90.9	<2
SMGW-BH-A401	St Marys	<5	<5	<5	<5	<5	<5	<5	<5	128	116	120	-
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	<5	<5	<5	<5	<5	<5	<5	<5	93.4	90	92.5	<1
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-

Well Details		Phenolic Compounds											
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	2-Chlorophenol	2-Methylphenol	3- & 4-Methylphenol	2-Nitrophenol	2.4-Dimethylphenol	2.4-Dichlorophenol	2.6-Dichlorophenol	4-Chloro-3-methylphenol	2.4.6-Trichlorophenol	2.4.5-Trichlorophenol	Pentachlorophenol	Naphthalene
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<4	-
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<5
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<4	<2
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<4	-
SBT-GW-1806	Orchard Hills	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	<4	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1016	St Marys	<2	<2	<4	<2	<2	<2	<2	<2	<2	<2	40.5	<2
SMGW-BH-A401	St Marys	-	-	-	-	-	-	-	-	-	-	-	<5
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<2	-
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-

Well Details		Polynuclear Aromatic Hydrocarbons											
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	2-Methylnaphthalene	2-Chloronaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	N-2-Fluorenyl Acetamide	Benz(a)anthracene	Chrysene
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1806	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	-	-	-	-	-	<5	<5	<5	<5	-	<5	-
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	-	-	<5	<5	-	<5	-
SMGW-GW02	St Marys	-	-	-	-	-	<5	<5	<5	<5	-	<5	-
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	-	-	-	-	-	<5	<5	<5	<5	-	<5	-
SBT-GW-1016	St Marys	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SMGW-BH-A401	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-

Well Details												
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	Benzo(b+j) & Benzo(k)fluoranthene	7.12-Dimethylbenz(a)anthracene	Benzo(a)pyrene	3-Methylcholanthrene	Indeno(1.2.3.cd)pyrene	Dibenz(a.h)anthracene	Benzo(g.h.i)perylene	Sum of PAHs	Benzo(a)pyrene TEQ (zero)	Dimethyl phthalate	Diethyl phthalate
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1806	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	<5	-	-	-	-	-	-	-	-	<5	-
SMGW-GW02	St Marys	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-
SBT-GW-1016	St Marys	<4	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SMGW-BH-A401	St Marys	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-

Well Details		Phthalate Esters				Nitrosamines							
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	Di-n-butyl phthalate	Butyl benzyl phthalate	bis(2-ethylhexyl) phthalate	Di-n-octylphthalate	N-Nitrosomethylethylamine	N-Nitrosodiethylamine	N-Nitrosopyrrolidine	N-Nitrosomorpholine	N-Nitrosodi-n-propylamine	N-Nitrosopiperidine	N-Nitrosodibutylamine	N-Nitrosodiphenyl & Diphenylamine
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<2	<2	<10	<2	<2	<2	<4	<2	<2	<2	<2	<4
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<2	<2	<10	<2	<2	<2	<4	<2	<2	<2	<2	<4
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1806	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	<50	<5	<50	<5	-	<5	-	-	<5	<5	<5	<5
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	<5	-	-	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	<50	<5	<50	<5	-	<5	-	-	<5	63	488	<5
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	<50	<5	<50	599	-	<5	-	-	<5	518	2160	<6
SBT-GW-1016	St Marys	<2	<2	<10	<2	<2	<2	<4	<2	<2	<2	<2	<4
SMGW-BH-A401	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-

Well Details			Nitroaromatics and Ketones										
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	Methapyrilene	2-Picoline	Acetophenone	Nitrobenzene	Isophorone	2.6-Dinitrotoluene	2.4-Dinitrotoluene	1-Naphthylamine	4-Nitroquinoline-N-oxide	5-Nitro-o-toluidine	Azobenzene	1.3.5-Trinitrobenzene
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<2	<2	<2	<2	<2	<4	<4	<2	<2	<2	<2	<2
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<2	<2	<2	<2	<2	<4	<4	<2	<2	<2	<2	<2
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1806	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	-	<50	<5	<0.01	<0.01	<0.01	<0.01	-	-	-	-	-
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	-	<50	<5	0.06	<0.01	0.04	<0.01	-	-	-	-	-
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	-	<50	<5	0.29	0.02	0.25	0.02	-	-	-	-	-
SBT-GW-1016	St Marys	<2	<2	<2	<2	<2	<4	<4	<2	<2	<2	<2	<2
SMGW-BH-A401	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-

Well Details								Haloethers			
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	Phenacetin	4-Aminobiphenyl	Pentachloronitrobenzene	Pronamide	Dimethylaminoazobenzene	Chlorobenzilate	Bis(2-chloroethyl) ether	Bis(2-chloroethoxy) methane	4-Chlorophenyl phenyl ether	4-Bromophenyl phenyl ether
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	-	-	-	-	-	-	-	-	-	-
SBT-GW-1806	Orchard Hills	-	-	-	-	-	-	-	-	-	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1016	St Marys	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SMGW-BH-A401	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-

Well Details		Anilines and Benzidines								
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	Aniline	4-Chloroaniline	2-Nitroaniline	3-Nitroaniline	Dibenzofuran	4-Nitroaniline	Carbazole	3.3`-Dichlorobenzidine	alpha-BHC
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<2	<2	<4	<4	<2	<2	<2	<2	<2
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	-	-	-	-	-	-	-	-	-
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<2	<2	<4	<4	<2	<2	<2	<2	<2
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	-	-	-	-	-	-	-	-	-
SBT-GW-1806	Orchard Hills	-	-	-	-	-	-	-	-	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	-	-	-	-	-	-	-	-	-
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	-	-	-	-	-	-	-	-	-
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-
MW1	St Marys	-	-	-	-	-	-	-	-	-
SBT-GW-1016	St Marys	<2	<2	<4	<4	<2	<2	<2	<2	<2
SMGW-BH-A401	St Marys	-	-	-	-	-	-	-	-	-
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	-	-	-	-	-	-	-	-	-
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-

Well Details		Organochlorine Pesticides									
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	beta-BHC	gamma-BHC	delta-BHC	Heptachlor	Aldrin	Heptachlor epoxide	alpha-Endosulfan	4.4`-DDE	Dieldrin	Endrin
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	-	-	-	-	-	-	-	-	-	-
SBT-GW-1806	Orchard Hills	-	-	-	-	-	-	-	-	-	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1016	St Marys	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SMGW-BH-A401	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-

Well Details											
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	beta-Endosulfan	4.4`-DDD	Endosulfan sulfate	4.4`-DDT	Sum of Aldrin + Dieldrin	Sum of DDD + DDE + DDT	Dichlorvos	Dimethoate	Diazinon	Chlorpyrifos-methyl
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	-	-	-	-	-	-	-	-	-	-
SBT-GW-1806	Orchard Hills	-	-	-	-	-	-	-	-	-	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1016	St Marys	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
SMGW-BH-A401	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-

Well Details		Organophosphorus Pesticides							Perfluoroalkyl Sulfonic Acids	
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	Malathion	Fenthion	Chlorpyrifos	Pirimphos-ethyl	Chlorfenvinphos	Prothiofos	Ethion	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	<0.02	<0.01
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<2	<2	<2	<2	<4	<4	<4	-	-
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	-	-	-	-	-	-	-	-	-
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<2	<2	<2	<2	<4	<4	<4	<0.02	<0.01
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	-	-	-	-	-	-	-	<0.02	<0.01
SBT-GW-1806	Orchard Hills	-	-	-	-	-	-	-	-	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	-	-	-	-	-	-	-	-	-
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	-	-	-	-	-	-	-	-	-
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-
MW1	St Marys	-	-	-	-	-	-	-	-	-
SBT-GW-1016	St Marys	<2	<2	<2	<2	<4	<4	<4	<0.02	<0.01
SMGW-BH-A401	St Marys	-	-	-	-	-	-	-	<0.02	<0.01
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	-	-	-	-	-	-	-	<0.02	<0.01
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-

Well Details			Perfluoroalkyl Carboxylic Acids					(n:2) Fluorotelon	
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	Perfluorooctane sulfonic acid (PFOS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	-	-	-	-	-	-	-	-
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	-	<0.01	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<0.01	<0.1	<0.02	<0.04	<0.02	0.02	<0.05	<0.05
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	0.01	<0.1	<0.02	<0.04	<0.02	0.02	<0.05	<0.05
SBT-GW-1806	Orchard Hills	-	-	-	-	-	-	-	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	-	-	-	-	-	-	-	-
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	-	-	-	-	-	-	-	-
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-
MW1	St Marys	-	-	-	-	-	-	-	-
SBT-GW-1016	St Marys	<0.01	<0.1	<0.02	<0.04	<0.02	0.02	<0.05	<0.05
SMGW-BH-A401	St Marys	<0.01	<0.1	<0.02	<0.04	<0.02	0.02	<0.05	<0.05
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	<0.01	<0.1	<0.02	<0.04	<0.02	0.02	<0.05	<0.05
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-

Well Details		ıer Sulfonic Acids		Acid Extractable Surrogates				Base/Neutral Extractable Surrogates			
		µg/L	µg/L	%	%	%	%	%	%	%	%
Location ID	Monitoring Zone	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	2-Fluorophenol	Phenol-d6	2-Chlorophenol-D4	2.4.6-Tribromophenol	Nitrobenzene-D5	1.2-Dichlorobenzene-D4	2-Fluorobipheny	Anthracene-d10
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	<0.05	<0.05	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	-	-	41.2	31.3	56.9	69.3	58.9	28.7	48	74.7
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	<0.05	<0.05	-	-	-	-	-	-	-	-
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<0.05	<0.05	40.2	29.2	59.5	47.2	66.5	55.9	66.8	73.7
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	<0.05	<0.05	39.9	30.5	64.6	66.2	73.6	67.6	63	90.6
SBT-GW-1806	Orchard Hills	-	-	49.6	34.5	63.2	66.8	65.3	60.7	66.5	68.9
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1016	St Marys	<0.05	<0.05	50.9	40.5	66.3	79.9	67.2	58.8	73.9	85.5
SMGW-BH-A401	St Marys	<0.05	<0.05	-	-	-	-	-	-	-	-
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	<0.05	<0.05	-	32.2	66	60.8	-	-	-	-
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-

Well Details			TPH(V)/BTEX Surrogates			Phenolic Compound Surrogates			PAH Surrogates			
		%	%	%	%	%	%	%	%	%	%	µg/L
Location ID	Monitoring Zone	4-Terphenyl-d14	1.2-Dichloroethane-D4	Toluene-D8	4-Bromofluorobenzene	Phenol-d6	2-Chlorophenol-D4	2.4.6-Tribromophenol	2-Fluorobiphenyl	Anthracene-d10	4-Terphenyl-d14	1,1,1,2-tetrachloroethane
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	77.1	98.1	102	111	31.3	56.9	69.3	48	74.7	77.1	<5
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	-	101	101	109	33.2	68.2	60.6	79.3	84.2	81.4	<5
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	69.3	81.9	88	98	29.2	59.5	47.2	66.8	73.7	69.3	<5
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	74.4	123	120	107	30.5	64.6	66.2	63	90.6	74.4	-
SBT-GW-1806	Orchard Hills	70.9	114	110	95.5	34.5	63.2	66.8	66.5	68.9	70.9	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	-	-	-	-	-	-	-	-	-	-	<5
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	-	-	-	-	-	-	-	-	-	-	<5
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	-	-	-	-	-	-	-	-	-	-	<5
SBT-GW-1016	St Marys	79.1	91.1	91.7	100	40.5	66.3	79.9	73.9	85.5	97.1	<5
SMGW-BH-A401	St Marys	-	128	116	120	-	-	-	-	-	-	-
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	-	86.3	90.2	101	32.3	66	60.8	74.8	82.2	80.5	<5
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-

Well Details

		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	**Monitoring Zone**	**1,1,1-trichloroethane**	**1,1,2,2-tetrachloroethane**	**1,1,2-trichloroethane**	**1,1-dichloropropene**	**1,1-dichloroethane**	**1,2-Dichloroethene**	**1,1-dichloroethene**	**1,2,3-trichloropropane**	**1,2-dibromo-3-chloropropane**	**1,2-dichloroethane**	**1,2-dichloropropane**	**1,3-dichloropropane**
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<5	<5	<5	-	<5	-	<5	<5	<5	<5	<5	<5
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1806	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	<5	<5	<5	-	<5	-	<5	<5	<5	<5	<5	<5
SBT-CM-1022	St Marys	-	<5	<5	-	<5	-	<5	-	-	-	-	-
SBT-GW-1021	St Marys	-	<5	<5	-	<5	-	<5	-	-	-	-	-
SMGW-GW02	St Marys	<5	<5	<5	-	<5	-	<5	<5	<5	<5	<5	<5
SBT-GW-1019R	St Marys	-	<5	<5	-	-	-	-	-	-	-	-	-
MW1	St Marys	<5	<5	<5	-	<5	-	<5	<5	<5	<5	<5	<5
SBT-GW-1016	St Marys	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5
SMGW-BH-A401	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	<5
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-

Well Details		Chlorinated Hydrocarbons											
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	2,2-dichloropropane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Hexachlorocyclopentadiene
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<5	<5	<5	<5	-	<50	<5	<50	<5	-	<5	<10
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	<5	<5	<5	<5	-	<50	<5	<50	<5	-	<5	-
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<5	<5	<5	<5	-	<50	<5	<50	<5	-	<5	<10
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1806	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	<5	<5	<5	<5	-	<50	<5	<50	<5	-	<5	-
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	<5	<5	<5	488	-	<50	<5	<50	<5	-	<5	-
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	<5	<5	<5	2160	-	<50	<5	<50	599	-	<5	-
SBT-GW-1016	St Marys	<5	<5	<5	<5	-	<50	<5	<50	<5	-	<5	<10
SMGW-BH-A401	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	<5	<5	<5	<5	-	<50	<5	<50	<5	-	<5	-
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-

SYDNEY METRO - WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

Well Details										PFAS (short suite)			
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Location ID	Monitoring Zone	Hexachloroethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	trichloroethane (1,1,1 & 1,1,2)	Perfluorohexanesulfoni	Perfluorooctanesulfonic	Perfluorooctanoic acid	Sum of PFHxS and PFOS
SBT-GW-4803	Aerotropolis	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4010	Aerotropolis - Bringelly	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4014	Aerotropolis Station	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	<0.01
SBT-GW-4017	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4021	Aerotropolis Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-A	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3012-B	Airport Terminal	<2	<2	<5	<5	<5	-	<50	<5	-	-	-	-
SBT-GW-3012-C	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3006	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3022	Airport Terminal	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4003	Bringelly SF	-	<5	<5	<5	<5	-	<50	<5	<0.01	<0.01	<0.01	<0.01
SBT-GW-4801	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4802	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4800	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4005	Bringelly SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1805	Claremont Meadows SF	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1024	Claremont Meadows SF	<2	<2	<5	<5	<5	-	<50	<5	<0.01	<0.01	<0.01	<0.01
SBT-GW-4008	Cross passage / Tunnel	-	-	-	-	-	-	-	-	-	-	-	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A315	Orchard Hills	-	-	-	-	-	-	-	-	<0.01	0.01	0.02	-
SBT-GW-1806	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1807	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1808	Orchard Hills	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1042	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1048	Orchard Hills Station	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1804	South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1017	St Marys	-	<5	<5	<5	<5	-	<50	<5	<0.01	<0.01	<0.01	<0.01
SBT-CM-1022	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1021	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-GW02	St Marys	-	<5	63	2160	<5	-	<50	<5	<0.01	0.04	<0.01	0.04
SBT-GW-1019R	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
MW1	St Marys	-	<5	518	488	<5	-	<50	<5	0.02	0.25	0.02	0.27
SBT-GW-1016	St Marys	<2	<2	<5	<5	<5	-	<50	<5	<0.01	<0.01	<0.01	<0.01
SMGW-BH-A401	St Marys	-	-	-	-	-	-	-	<5	-	<0.01	<0.01	<0.01
SBT-GW-1005	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1803	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1001	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-1002	St Marys	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-A107	TBM Tunnel - South Creek	-	-	-	-	-	-	-	-	-	-	-	-
SBT-GW-4000	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C330	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-
SMGW-BH-C320	Western Sydney Airport	-	<5	<5	-	-	-	<50	<5	<0.01	106	103	<0.01
SMGW-BH-C321	Western Sydney Airport	-	-	-	-	-	-	-	-	-	-	-	-

Well Details		
		µg/L
Location ID	**Monitoring Zone**	Sum of PFAS (WA DER List)
SBT-GW-4803	Aerotropolis	-
SBT-GW-4010	Aerotropolis - Bringelly	-
SBT-GW-4014	Aerotropolis Station	<0.01
SBT-GW-4017	Aerotropolis Station	-
SBT-GW-4021	Aerotropolis Station	-
SBT-GW-3012-A	Airport Terminal	-
SBT-GW-3012-B	Airport Terminal	-
SBT-GW-3012-C	Airport Terminal	-
SBT-GW-3006	Airport Terminal	-
SBT-GW-3022	Airport Terminal	-
SBT-GW-4003	Bringelly SF	<0.01
SBT-GW-4801	Bringelly SF	-
SBT-GW-4802	Bringelly SF	-
SBT-GW-4800	Bringelly SF	-
SBT-GW-4005	Bringelly SF	-
SBT-GW-1805	Claremont Meadows SF	-
SBT-GW-1024	Claremont Meadows SF	<0.01
SBT-GW-4008	Cross passage / Tunnel	-
SBT-CM-1030	Cross passage / Tunnel (XPN13)	-
SBT-GW-1031	Cross passage / Tunnel (XPN14)	-
SMGW-BH-A315	Orchard Hills	-
SBT-GW-1806	Orchard Hills	-
SBT-GW-1807	Orchard Hills	-
SBT-GW-1808	Orchard Hills	-
SBT-GW-1042	Orchard Hills Station	-
SBT-GW-1048	Orchard Hills Station	-
SBT-GW-3003-C	Portal / Cross passage XPS01	-
SBT-GW-3003-B	Portal / Cross passage XPS01	-
SBT-GW-3003-A	Portal / Cross passage XPS01	-
SBT-GW-1804	South Creek	-
SBT-GW-1017	St Marys	<0.01
SBT-CM-1022	St Marys	-
SBT-GW-1021	St Marys	-
SMGW-GW02	St Marys	0.06
SBT-GW-1019R	St Marys	-
MW1	St Marys	0.29
SBT-GW-1016	St Marys	<0.01
SMGW-BH-A401	St Marys	<0.01
SBT-GW-1005	St Marys	-
SBT-GW-1803	St Marys	-
SBT-GW-1001	St Marys	-
SBT-GW-1002	St Marys	-
SMGW-BH-A107	TBM Tunnel - South Creek	-
SBT-GW-4000	Western Sydney Airport	-
SMGW-BH-C330	Western Sydney Airport	-
SMGW-BH-C320	Western Sydney Airport	<0.01
SMGW-BH-C321	Western Sydney Airport	-

Annexure B Laboratory Reports

CERTIFICATE OF ANALYSIS

Work Order	: **ES2332392**	Page	: 1 of 10
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 21-Sep-2023 14:18
Order number	: ----	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: ----	Issue Date	: 26-Sep-2023 16:31
Sampler	: Chris Blyth		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 4		
No. of samples analysed	: 4		

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
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	FS01 C320	FS01 321 FS01 C321	WSA: 4000 WSA-GW-4000	ATL: 3022	----
			Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00	----
Compound	CAS Number	LOR	Unit	ES2332392-001	ES2332392-002	ES2332392-003	ES2332392-004	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.69**	**8.06**	**7.94**	**8.00**	**----**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**28000**	**3590**	**18100**	**24100**	**----**
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**17800**	**2200**	**10900**	**14800**	**----**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	**----**
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	**----**
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**811**	**615**	**1280**	**1220**	**----**
Total Alkalinity as CaCO3	----	1	mg/L	**811**	**615**	**1280**	**1220**	**----**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**660**	**140**	**468**	**890**	**----**
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**9410**	**804**	**5370**	**7330**	**----**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**204**	**47**	**191**	**219**	**----**
Magnesium	7439-95-4	1	mg/L	**737**	**72**	**422**	**680**	**----**
Sodium	7440-23-5	1	mg/L	**4410**	**633**	**2930**	**4040**	**----**
Potassium	7440-09-7	1	mg/L	**6**	**13**	**27**	**41**	**----**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	**0.02**	<0.01	**0.05**	**----**
Arsenic	7440-38-2	0.001	mg/L	<0.001	**0.002**	<0.001	<0.001	**----**
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	**----**
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Nickel	7440-02-0	0.001	mg/L	**0.015**	**0.002**	**0.004**	**0.004**	**----**
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	**----**
Zinc	7440-66-6	0.005	mg/L	**0.175**	<0.005	**0.010**	**0.016**	**----**
Manganese	7439-96-5	0.001	mg/L	**2.17**	**2.83**	**2.26**	**0.052**	**----**
Iron	7439-89-6	0.05	mg/L	<0.05	**0.08**	**0.93**	<0.05	**----**
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**0.23**	**1.17**	**0.38**	**0.60**	**----**
Cobalt	7440-48-4	0.001	mg/L	**0.021**	**0.008**	**0.010**	**0.003**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	FS01 C320	FS01 321 FS01 C321	WSA: 4000 WSA-GW-4000	ATL: 3022	----
			Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00	----
Compound	CAS Number	LOR	Unit	ES2332392-001	ES2332392-002	ES2332392-003	ES2332392-004	--------
				Result	Result	Result	Result	----
EG020T: Total Metals by ICP-MS - Continued								
Manganese	7439-96-5	0.001	mg/L	**2.18**	**3.09**	**2.54**	**0.077**	----
Iron	7439-89-6	0.05	mg/L	**0.37**	**3.75**	**4.35**	**2.75**	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.03**	**0.17**	**0.23**	**2.23**	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	<0.01	**0.06**	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	**0.45**	<0.01	**0.01**	**0.56**	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.45**	<0.01	**0.01**	**0.62**	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**2.0**	**1.3**	**0.5**	**2.8**	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**2.4**	**1.3**	**0.5**	**3.4**	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.22**	**0.20**	**0.11**	**0.10**	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	**0.02**	<0.01	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**295**	**37.9**	**187**	**250**	----
ø Total Cations	----	0.01	meq/L	**263**	**36.1**	**172**	**244**	----
ø Ionic Balance	----	0.01	%	**5.84**	**2.36**	**4.01**	**1.22**	----
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	**5**	**24**	<1	<1	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	<5	----	----	----	----
Isopropylbenzene	98-82-8	5	µg/L	<5	----	----	----	----
n-Propylbenzene	103-65-1	5	µg/L	<5	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	----	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L	<5	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	FS01 C320	FS01 321 FS01 C321	WSA: 4000 WSA-GW-4000	ATL: 3022	----
				Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00	----
Compound	CAS Number	LOR	Unit		ES2332392-001	ES2332392-002	ES2332392-003	ES2332392-004	--------
					Result	Result	Result	Result	----
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
tert-Butylbenzene	98-06-6	5	µg/L		<5	----	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L		<5	----	----	----	----
n-Butylbenzene	104-51-8	5	µg/L		<5	----	----	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		<50	----	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L		<50	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		<50	----	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L		<50	----	----	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		<5	----	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		<5	----	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L		<5	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		<5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		<5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	----	----	----	----
Chloromethane	74-87-3	50	µg/L		<50	----	----	----	----
Vinyl chloride	75-01-4	50	µg/L		<50	----	----	----	----
Bromomethane	74-83-9	50	µg/L		<50	----	----	----	----
Chloroethane	75-00-3	50	µg/L		<50	----	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		<50	----	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L		<5	----	----	----	----
Iodomethane	74-88-4	5	µg/L		<5	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L		<5	----	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L		<5	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L		<5	----	----	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L		<5	----	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L		<5	----	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L		<5	----	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L		<5	----	----	----	----
Trichloroethene	79-01-6	5	µg/L		<5	----	----	----	----
Dibromomethane	74-95-3	5	µg/L		<5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	FS01 C320	FS01 321 FS01 C321	WSA: 4000 WSA-GW-4000	ATL: 3022	----
				Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00	----
Compound	CAS Number	LOR	Unit		ES2332392-001	ES2332392-002	ES2332392-003	ES2332392-004	--------
					Result	Result	Result	Result	----
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1.2-Trichloroethane	79-00-5	5	µg/L		<5	----	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L		<5	----	----	----	----
Tetrachloroethene	127-18-4	5	µg/L		<5	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		<5	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		<5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		<5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L		<5	----	----	----	----
Pentachloroethane	76-01-7	5	µg/L		<5	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	----	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L		<5	----	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<5	----	----	----	----
Bromobenzene	108-86-1	5	µg/L		<5	----	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L		<5	----	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L		<5	----	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L		<5	----	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L		<5	----	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L		<5	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		<5	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		<5	----	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	----	----	----	----
Bromodichloromethane	75-27-4	5	µg/L		<5	----	----	----	----
Dibromochloromethane	124-48-1	5	µg/L		<5	----	----	----	----
Bromoform	75-25-2	5	µg/L		<5	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	----	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	----	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	----	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	----	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	----	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	----	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	FS01 C320	FS01 321 FS01 C321	WSA: 4000 WSA-GW-4000	ATL: 3022	----
				Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00	----
Compound	CAS Number	LOR	Unit		ES2332392-001	ES2332392-002	ES2332392-003	ES2332392-004	--------
					Result	Result	Result	Result	----
EP075(SIM)A: Phenolic Compounds - Continued									
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	----	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ Total Xylenes	----	2	µg/L		<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	FS01 C320	FS01 321 FS01 C321	WSA: 4000 WSA-GW-4000	ATL: 3022	----
				Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00	----
Compound	CAS Number	LOR	Unit		ES2332392-001	ES2332392-002	ES2332392-003	ES2332392-004	--------
					Result	Result	Result	Result	----
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		**93.4**	----	----	----	----
Toluene-D8	2037-26-5	5	%		**90.0**	----	----	----	----
4-Bromofluorobenzene	460-00-4	5	%		**92.5**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**32.3**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**66.0**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**60.8**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**74.8**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		**82.2**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	FS01 C320	FS01 321 FS01 C321	WSA: 4000 WSA-GW-4000	ATL: 3022	----
			Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00	----
Compound	CAS Number	LOR	Unit	ES2332392-001	ES2332392-002	ES2332392-003	ES2332392-004	--------
				Result	Result	Result	Result	----
EP075(SIM)T: PAH Surrogates - Continued								
4-Terphenyl-d14	1718-51-0	1.0	%	**80.5**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**86.3**	----	----	----	----
Toluene-D8	2037-26-5	2	%	**90.2**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**101**	----	----	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	**106**	----	----	----	----
13C8-PFOA	----	0.02	%	**103**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2332392**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: emma.kline@cpbg-sbt.com.au	E-mail	: ALSEnviro.Sydney@ALSGlobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: WSA SBT Project	Page	: 1 of 3
Order number	: ----	Quote number	: ES2023CPBGHE0004 (Contract ES23CPBGHE0004)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	:		
Sampler	: Chris Blyth		

Dates

Date Samples Received	: 21-Sep-2023 14:18	Issue Date	: 21-Sep-2023
Client Requested Due Date	: 26-Sep-2023	Scheduled Reporting Date	: **26-Sep-2023**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 3.7'C, 9.7'C & 6.8'C - Ice present
Receipt Detail	: FOAM ESKY	No. of samples received / analysed	: 4 / 4

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
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- 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.

Sample Container(s)/Preservation Non-Compliances

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

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

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES2332392-002 : [20-Sep-2023] : FS01 321 - FS01 C321
ES2332392-003 : [21-Sep-2023] : WSA: 4000 - WSA-GW-4000

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EA005P pH (Auto Titrator)	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - EP231 PFAS - Short Suite (12 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity	WATER - NT-08A Total Nitrogen + NO2 + NO3 + NH3 + Total P +	WATER - W-02 8 Metals	WATER - W-09 TRH/VOC
ES2332392-001	20-Sep-2023 00:00	FS01 C320	✓	✓	✓	✓	✓	✓	✓
ES2332392-002	20-Sep-2023 00:00	FS01 321 FS01 C321	✓	✓		✓	✓	✓	
ES2332392-003	21-Sep-2023 00:00	WSA: 4000 WSA-GW-40..	✓	✓		✓	✓	✓	
ES2332392-004	21-Sep-2023 00:00	ATL: 3022	✓	✓		✓	✓	✓	

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EA015H Total Dissolved Solids - Standard Level	WATER - EG020F Dissolved Metals by ICP/MS	WATER - EG020T Total Metals by ICP/MS (including digestion)	WATER - EP005 Total Organic Carbon (TOC)	WATER - EP075 SIM Phenols only SIM - Phenols only
ES2332392-001	20-Sep-2023 00:00	FS01 C320	✓	✓	✓	✓	✓
ES2332392-002	20-Sep-2023 00:00	FS01 321 FS01 C321	✓	✓	✓	✓	
ES2332392-003	21-Sep-2023 00:00	WSA: 4000 WSA-GW-40..	✓	✓	✓	✓	
ES2332392-004	21-Sep-2023 00:00	ATL: 3022	✓	✓	✓	✓	

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

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

Method Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EA005-P: pH by Auto Titrator							
FS01 321	Clear Plastic Bottle - Natural	----	20-Sep-2023	21-Sep-2023	×	21-Sep-2023	×
FS01 C320	Clear Plastic Bottle - Natural	----	20-Sep-2023	21-Sep-2023	×	21-Sep-2023	×

Requested Deliverables

CHRISTOPHER BLYTH

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

EMMA KLINE

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

Enviro

- A4 - AU Tax Invoice (INV)	Email	enviro.sbt@cpbg-sbt.com.au

Mary Wong

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

WSASBT PROGRESSCLAIMS

- A4 - AU Tax Invoice (INV)	Email	wsasbt.progressclaims@cpbg-sbt.com.au

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5/585 Maitland Rd Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: CPBG	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: 14 Great Western HWY, Werrington 2747		X Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: WSA SBT Project	ALS QUOTE NO.: ES23CPBGHE0004		Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER:		COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Emma Kline	CONTACT PH:	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Chris Blyth	SAMPLER MOBILE: 0417 839 845	RELINQUISHED BY:	RECEIVED BY:
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	*Chris Blyth*	
Email Reports to: christopher.Blyth@cpbg-sbt.com.au, Mary.Wong@cpbg-sbt.com.au		DATE/TIME: 20/09/2023 @ 3:40pm	DATE/TIME: 21/9/23 1410
Email Invoice to (will default to PM if no other addresses are listed): enviro.sbt@cpbg-sbt.com.au		RELINQUISHED BY:	RECEIVED BY:
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:		DATE/TIME:	DATE/TIME:

ALS USE	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 CONTAINERS	EA005 - pH, EA010 - EC, EA015 - TDS, EP005 - TOC	NT-01 & NT-02 - Ca, Mg, Na, K, Cl, SO4, Alkalinity	NT-08a - TN, NO2, NO3, NH3, TP, Reactive P	Dissolved Metals - Al, As, Cd, Cr, Cu, Fe, Pb, Mn, Ni, Zn, and Hg.	Total Metals - Al, Co, Fe, Mn	W-9 - TRH(C6-C40)/VOC Including BTEXN	EP075 - Phenols (SIM)	EP231 - PFAS Short Suite			Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	FS01 C320	20/09/2023	W		10	X	X	X	X	X	XX		X X			
2	FS01 321	20/09/2023	W		5	X	X	X	X	X						
3	Farm 4008	20/09/2023	W		5	X	X	X	X	X						
4	Farm - 4010	20/09/2023	W		5	X	X	X	X	X						
TOTAL					24											

HT

TAT

Environmental Division
Sydney
Work Order Reference
ES2332392

Telephone : +61-2-8784 8555

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.

UPDATED COC

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5/585 Maitland Rd Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: CPBG	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	Standard TAT (List due date):
OFFICE: 14 Great Western HWY, Werrington 2747		X Non Standard or urgent TAT (List due date):
PROJECT: WSA SBT Project	ALS QUOTE NO.: ES23CPBGHE0004	
ORDER NUMBER:		
PROJECT MANAGER: Emma Kline	CONTACT PH:	
SAMPLER: Chris Blyth	SAMPLER MOBILE: 0417 839 845	
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	
Email Reports to: christopher.Blyth@cpbg-sbt.com.au, Mary.Wong@cpbg-sbt.com.au		
Email Invoice to (will default to PM if no other addresses are listed): enviro.sbt@cpbg-sbt.com.au		

COC SEQUENCE NUMBER (Circle)

COC: 1 2 3 4 5 6 7

OF: 1 2 3 4 5 6 7

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:			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Chris Blyth			
DATE/TIME: 20/09/2023 @ 3:40pm	DATE/TIME: 21/9/23 1502	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	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 CONTAINERS	EA005 - pH, EA010 - EC, EA015 - TDS, EP005 - TOC		NT-01 & NT-02 - Ca, Mg, Na, K, Cl, SO4, Alkalinity	NT-08a - TN, NO2, NO3, NH3, TP, Reactive P	Dissolved Metals - Al, As, Cd, Cr, Cu, Fe, Pb, Mn, Ni, Zn, and Hg.	Total Metals - Al, Co, Fe, Mn		W-9 - TRH(C6-C40)/VOC Including BTEXN	EP075 - Phenols (SIM)	EP231 - PFAS Short Suite			
																		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	FS01 C320	20/09/2023	W		10	X		X	X	X	X		XX	X	X			
	FS01 321	20/09/2023	W		5	X		X	X	X	X							
	WSA: 4000	21/09/2023	W		5	X		X	X	X	X							
	ATL: 3022	21/09/2023	W		5	X		X	X	X	X							
TOTAL					25													

TA

HT

Environmental Division Sydney
Work Order Reference
ES2332392

Telephone : + 61-2-8784 8555

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 = Am... ...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	: **ES2332451**	Page	: 1 of 12
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 21-Sep-2023 16:02
Order number	: ----	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: ----	Issue Date	: 26-Sep-2023 16:57
Sampler	: Chris Blyth		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 7		
No. of samples analysed	: 7		

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
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EG020: It is recognised that total concentration is less than dissolved for some metal analytes. However, the difference is within experimental variation of the methods.
- TDS by method EA-015 sample 4,5 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	FARM : 4010	FARM : 4008	BSF: 4003	BSF: 4005	BSF: 4800
			Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00
Compound	CAS Number	LOR	Unit	ES2332451-001	ES2332451-002	ES2332451-003	ES2332451-004	ES2332451-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.40**	**8.06**	**8.04**	**7.97**	**8.02**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**16800**	**21400**	**23800**	**12000**	**18800**
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**9990**	**12900**	**14900**	**11900**	**15300**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**702**	**286**	**1100**	**301**	**1060**
Total Alkalinity as CaCO3	----	1	mg/L	**702**	**286**	**1100**	**301**	**1060**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**1350**	**10**	**828**	**877**	**566**
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**5170**	**7270**	**7130**	**3530**	**5710**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**175**	**431**	**182**	**256**	**228**
Magnesium	7439-95-4	1	mg/L	**669**	**232**	**881**	**315**	**653**
Sodium	7440-23-5	1	mg/L	**2360**	**3560**	**3820**	**1810**	**2830**
Potassium	7440-09-7	1	mg/L	**23**	**47**	**24**	**54**	**33**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	7440-38-2	0.001	mg/L	**0.003**	**0.006**	<0.001	**0.002**	**0.008**
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	**0.003**	<0.001
Nickel	7440-02-0	0.001	mg/L	**0.001**	<0.001	**0.008**	**0.002**	**0.006**
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	<0.005	**0.023**	**0.014**	<0.005	<0.005
Manganese	7439-96-5	0.001	mg/L	**0.214**	**0.252**	**0.124**	**0.053**	**1.16**
Iron	7439-89-6	0.05	mg/L	**0.17**	<0.05	<0.05	<0.05	<0.05
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**0.03**	**0.21**	**5.10**	**1.33**	**10.7**
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	**0.007**	**0.001**	**0.016**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	FARM : 4010	FARM : 4008	BSF: 4003	BSF: 4005	BSF: 4800
			Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00
Compound	CAS Number	LOR	Unit	ES2332451-001	ES2332451-002	ES2332451-003	ES2332451-004	ES2332451-005
				Result	Result	Result	Result	Result
EG020T: Total Metals by ICP-MS - Continued								
Manganese	7439-96-5	0.001	mg/L	0.258	0.245	0.193	0.086	1.60
Iron	7439-89-6	0.05	mg/L	1.06	1.54	6.55	1.60	27.4
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	1.02	7.19	0.03	0.94	0.07
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	<0.01	0.05	<0.01
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	<0.01	0.70	1.35	0.01
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.70	1.40	0.01
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	2.1	8.8	2.1	1.6	4.3
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	2.1	8.8	2.8	3.0	4.3
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.26	0.09	0.49	0.08	1.21
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	<0.01	0.02	<0.01	<0.01
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	188	211	240	124	194
ø Total Cations	----	0.01	meq/L	167	197	248	119	189
ø Ionic Balance	----	0.01	%	5.90	3.52	1.64	2.08	1.30
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	14	33	2	7	2
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	----	----	<5	----	----
Isopropylbenzene	98-82-8	5	µg/L	----	----	<5	----	----
n-Propylbenzene	103-65-1	5	µg/L	----	----	<5	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	----	----	<5	----	----
sec-Butylbenzene	135-98-8	5	µg/L	----	----	<5	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	----	----	<5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	FARM : 4010	FARM : 4008	BSF: 4003	BSF: 4005	BSF: 4800
				Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00
Compound	CAS Number	LOR	Unit		ES2332451-001	ES2332451-002	ES2332451-003	ES2332451-004	ES2332451-005
					Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
tert-Butylbenzene	98-06-6	5	µg/L		----	----	<5	----	----
p-Isopropyltoluene	99-87-6	5	µg/L		----	----	<5	----	----
n-Butylbenzene	104-51-8	5	µg/L		----	----	<5	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		----	----	<50	----	----
2-Butanone (MEK)	78-93-3	50	µg/L		----	----	<50	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		----	----	<50	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L		----	----	<50	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		----	----	<5	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		----	----	<5	----	----
1.2-Dichloropropane	78-87-5	5	µg/L		----	----	<5	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		----	----	<5	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		----	----	<5	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		----	----	<5	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		----	----	<50	----	----
Chloromethane	74-87-3	50	µg/L		----	----	<50	----	----
Vinyl chloride	75-01-4	50	µg/L		----	----	<50	----	----
Bromomethane	74-83-9	50	µg/L		----	----	<50	----	----
Chloroethane	75-00-3	50	µg/L		----	----	<50	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		----	----	<50	----	----
1.1-Dichloroethene	75-35-4	5	µg/L		----	----	<5	----	----
Iodomethane	74-88-4	5	µg/L		----	----	<5	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L		----	----	<5	----	----
1.1-Dichloroethane	75-34-3	5	µg/L		----	----	<5	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L		----	----	<5	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L		----	----	<5	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L		----	----	<5	----	----
Carbon Tetrachloride	56-23-5	5	µg/L		----	----	<5	----	----
1.2-Dichloroethane	107-06-2	5	µg/L		----	----	<5	----	----
Trichloroethene	79-01-6	5	µg/L		----	----	<5	----	----
Dibromomethane	74-95-3	5	µg/L		----	----	<5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	FARM : 4010	FARM : 4008	BSF: 4003	BSF: 4005	BSF: 4800
				Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00
Compound	CAS Number	LOR	Unit		ES2332451-001	ES2332451-002	ES2332451-003	ES2332451-004	ES2332451-005
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1.2-Trichloroethane	79-00-5	5	µg/L		----	----	<5	----	----
1.3-Dichloropropane	142-28-9	5	µg/L		----	----	<5	----	----
Tetrachloroethene	127-18-4	5	µg/L		----	----	<5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		----	----	<5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		----	----	<5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		----	----	<5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		----	----	<5	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L		----	----	<5	----	----
Pentachloroethane	76-01-7	5	µg/L		----	----	<5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		----	----	<5	----	----
Hexachlorobutadiene	87-68-3	5	µg/L		----	----	<5	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		----	----	<5	----	----
Bromobenzene	108-86-1	5	µg/L		----	----	<5	----	----
2-Chlorotoluene	95-49-8	5	µg/L		----	----	<5	----	----
4-Chlorotoluene	106-43-4	5	µg/L		----	----	<5	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L		----	----	<5	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L		----	----	<5	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L		----	----	<5	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		----	----	<5	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		----	----	<5	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		----	----	<5	----	----
Bromodichloromethane	75-27-4	5	µg/L		----	----	<5	----	----
Dibromochloromethane	124-48-1	5	µg/L		----	----	<5	----	----
Bromoform	75-25-2	5	µg/L		----	----	<5	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		----	----	<1.0	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		----	----	<1.0	----	----
2-Methylphenol	95-48-7	1.0	µg/L		----	----	<1.0	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		----	----	<2.0	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		----	----	<1.0	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		----	----	<1.0	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		----	----	<1.0	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	FARM : 4010	FARM : 4008	BSF: 4003	BSF: 4005	BSF: 4800
				Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00
Compound	CAS Number	LOR	Unit		ES2332451-001	ES2332451-002	ES2332451-003	ES2332451-004	ES2332451-005
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.6-Dichlorophenol	87-65-0	1.0	µg/L		----	----	<1.0	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		----	----	<1.0	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		----	----	<1.0	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		----	----	<1.0	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		----	----	<2.0	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		----	----	<20	----	----
C10 - C14 Fraction	----	50	µg/L		----	----	<50	----	----
C15 - C28 Fraction	----	100	µg/L		----	----	<100	----	----
C29 - C36 Fraction	----	50	µg/L		----	----	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		----	----	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		----	----	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		----	----	<20	----	----
>C10 - C16 Fraction	----	100	µg/L		----	----	<100	----	----
>C16 - C34 Fraction	----	100	µg/L		----	----	<100	----	----
>C34 - C40 Fraction	----	100	µg/L		----	----	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		----	----	<100	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		----	----	<100	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		----	----	<1	----	----
Toluene	108-88-3	2	µg/L		----	----	<2	----	----
Ethylbenzene	100-41-4	2	µg/L		----	----	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	----	<2	----	----
ortho-Xylene	95-47-6	2	µg/L		----	----	<2	----	----
^ Total Xylenes	----	2	µg/L		----	----	<2	----	----
^ Sum of BTEX	----	1	µg/L		----	----	<1	----	----
Naphthalene	91-20-3	5	µg/L		----	----	<5	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		----	----	<0.02	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	FARM : 4010	FARM : 4008	BSF: 4003	BSF: 4005	BSF: 4800
				Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00
Compound	CAS Number	LOR	Unit		ES2332451-001	ES2332451-002	ES2332451-003	ES2332451-004	ES2332451-005
					Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		----	----	<0.01	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		----	----	<0.01	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		----	----	<0.1	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		----	----	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		----	----	<0.02	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		----	----	<0.02	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		----	----	<0.01	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		----	----	<0.05	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		----	----	<0.05	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		----	----	<0.05	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		----	----	<0.05	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		----	----	<0.01	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		----	----	<0.01	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		----	----	**106**	----	----
Toluene-D8	2037-26-5	5	%		----	----	**103**	----	----
4-Bromofluorobenzene	460-00-4	5	%		----	----	**107**	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		----	----	**33.2**	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		----	----	**68.2**	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		----	----	**60.6**	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		----	----	**79.3**	----	----
Anthracene-d10	1719-06-8	1.0	%		----	----	**84.2**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	FARM : 4010	FARM : 4008	BSF: 4003	BSF: 4005	BSF: 4800
			Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00	21-Sep-2023 00:00
Compound	CAS Number	LOR	Unit	ES2332451-001	ES2332451-002	ES2332451-003	ES2332451-004	ES2332451-005
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued								
4-Terphenyl-d14	1718-51-0	1.0	%	----	----	81.4	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	----	----	101	----	----
Toluene-D8	2037-26-5	2	%	----	----	101	----	----
4-Bromofluorobenzene	460-00-4	2	%	----	----	109	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	----	----	110	----	----
13C8-PFOA	----	0.02	%	----	----	102	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	BSF: 4801	BSF: 4802	----	----	----
			Sampling date / time	21-Sep-2023 00:00	21-Sep-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2332451-006	ES2332451-007	--------	--------	--------
				Result	Result	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.94**	**7.84**	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**24100**	**27100**	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**15000**	**17600**	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**1070**	**690**	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	**1070**	**690**	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**776**	**422**	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**7060**	**8450**	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**288**	**437**	----	----	----
Magnesium	7439-95-4	1	mg/L	**814**	**728**	----	----	----
Sodium	7440-23-5	1	mg/L	**3710**	**4310**	----	----	----
Potassium	7440-09-7	1	mg/L	**34**	**45**	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	----	----	----
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	**0.005**	**0.006**	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L	**0.020**	**0.010**	----	----	----
Manganese	7439-96-5	0.001	mg/L	**0.178**	**0.161**	----	----	----
Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	----	----	----
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**1.46**	**2.26**	----	----	----
Cobalt	7440-48-4	0.001	mg/L	**0.006**	**0.012**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	BSF: 4801	BSF: 4802	----	----	----
				Sampling date / time	21-Sep-2023 00:00	21-Sep-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2332451-006	ES2332451-007	--------	--------	--------
					Result	Result	----	----	----
EG020T: Total Metals by ICP-MS - Continued									
Manganese	7439-96-5	0.001	mg/L		**0.285**	**0.272**	----	----	----
Iron	7439-89-6	0.05	mg/L		**7.80**	**5.19**	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**1.99**	**3.56**	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		**0.07**	**0.52**	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**0.01**	**6.44**	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.08**	**6.96**	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**3.7**	**8.2**	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ **Total Nitrogen as N**	----	0.1	mg/L		**3.8**	**15.2**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.49**	**0.73**	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.01	<0.01	----	----	----
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**237**	**261**	----	----	----
ø **Total Cations**	----	0.01	meq/L		**244**	**270**	----	----	----
ø **Ionic Balance**	----	0.01	%		**1.44**	**1.77**	----	----	----
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		**10**	<1	----	----	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

QUALITY CONTROL REPORT

Work Order	: **ES2332451**	Page	: 1 of 15
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 21-Sep-2023
Order number	: ----	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: ----	Issue Date	: 26-Sep-2023
Sampler	: Chris Blyth		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 7		
No. of samples analysed	: 7		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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 (%)
EA005P: pH by PC Titrator (QC Lot: 5314427)									
ES2332388-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	6.06	6.11	0.8	0% - 20%
ES2332451-004	BSF: 4005	EA005-P: pH Value	----	0.01	pH Unit	7.97	7.96	0.1	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 5317109)									
ES2332169-005	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	6.05	5.87	3.0	0% - 20%
EW2304195-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.33	7.32	0.1	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5314426)									
ES2332388-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	415	417	0.7	0% - 20%
ES2332476-006	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	3360	3350	0.4	0% - 20%
ES2332455-003	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	19800	19700	0.8	0% - 20%
ES2332451-004	BSF: 4005	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	12000	12100	0.2	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5317105)									
ES2331985-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	346	341	1.5	0% - 20%
ES2332077-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	102	103	1.5	0% - 20%
ES2331982-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	11300	11800	4.2	0% - 20%
ES2332328-003	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	4360	4410	1.3	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5315955)									
ES2331945-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	330	332	0.5	0% - 20%
ES2332328-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	4610	4610	0.1	0% - 20%
ES2332392-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	17800	17400	2.8	0% - 20%
ES2332451-007	BSF: 4802	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	17600	16300	7.6	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5314428)									
ES2332451-004	BSF: 4005	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit

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 (%)*
ED037P: Alkalinity by PC Titrator (QC Lot: 5314428) - continued									
ES2332451-004	BSF: 4005	ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	301	307	1.9	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	301	307	1.9	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5317110)									
ES2332328-003	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	448	449	0.2	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	448	449	0.2	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5315655)									
ES2332205-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	119	122	2.4	0% - 20%
ES2331806-007	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	486	484	0.3	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5315660)									
ES2332451-002	FARM : 4008	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	10	10	0.0	No Limit
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5318233)									
ES2332367-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	229	228	0.0	0% - 20%
ES2332451-003	BSF: 4003	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	828	821	0.9	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5315654)									
ES2332205-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	672	672	0.0	0% - 20%
ES2331806-007	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	5720	5840	2.1	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5315659)									
ES2332451-002	FARM : 4008	ED045G: Chloride	16887-00-6	1	mg/L	7270	7350	1.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5318235)									
ES2332367-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	803	823	2.5	0% - 20%
ES2332451-003	BSF: 4003	ED045G: Chloride	16887-00-6	1	mg/L	7130	7290	2.3	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5314779)									
ES2332451-003	BSF: 4003	ED093F: Calcium	7440-70-2	1	mg/L	182	184	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	881	871	1.1	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	3820	3800	0.6	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	24	24	0.0	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5314778)									
ES2332392-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	2.83	2.70	4.7	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.02	0.02	0.0	No Limit

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 (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5314778) - continued									
ES2332392-002	Anonymous	EG020A-F: Iron	7439-89-6	0.05	mg/L	0.08	0.08	0.0	No Limit
ES2332451-003	BSF: 4003	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.124	0.123	1.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.008	0.008	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.014	0.014	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 5314902)									
ES2332196-001	Anonymous	EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.133	0.138	3.7	0% - 20%
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	1.20	1.23	2.7	0% - 20%
		EG020A-T: Iron	7439-89-6	0.05	mg/L	1.42	1.43	1.0	0% - 20%
ES2332337-001	Anonymous	EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.102	0.105	2.4	0% - 20%
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.77	0.79	3.2	0% - 20%
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.95	0.96	1.7	0% - 50%
EG035F: Dissolved Mercury by FIMS (QC Lot: 5314775)									
ES2332249-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2332412-003	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5314894)									
ES2332366-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2332451-007	BSF: 4802	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	3.56	3.58	0.6	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5315658)									
ES2332257-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2332402-015	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5318234)									
ES2332367-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2332451-003	BSF: 4003	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5314893)									
ES2332366-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	1.48	1.44	2.9	0% - 20%
ES2332451-007	BSF: 4802	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	6.96	6.98	0.3	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5314889)									
ES2332002-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	25.8	24.6	4.5	0% - 20%
ES2332451-003	BSF: 4003	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	2.1	2.2	0.0	No Limit

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 (%)*
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5314890)									
ES2332002-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.93	0.99	5.8	No Limit
ES2332451-003	BSF: 4003	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.49	0.50	3.2	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5315656)									
ES2332464-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2332236-007	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5318236)									
ES2332451-003	BSF: 4003	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	<0.01	0.0	No Limit
ES2332715-005	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.01	0.01	0.0	No Limit
EP005: Total Organic Carbon (TOC) (QC Lot: 5317845)									
ES2332254-008	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	11	11	0.0	0% - 50%
ES2332451-004	BSF: 4005	EP005: Total Organic Carbon	----	1	mg/L	7	6	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 5319926)									
ES2332451-003	BSF: 4003	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 5319926)									
ES2332451-003	BSF: 4003	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 5319926)									
ES2332451-003	BSF: 4003	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 5319926)									
ES2332451-003	BSF: 4003	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5319926)									
ES2332451-003	BSF: 4003	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit

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 (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5319926) - continued									
ES2332451-003	BSF: 4003	EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5319926)									
ES2332451-003	BSF: 4003	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5319926)									
ES2332451-003	BSF: 4003	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit

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 (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5319927)									
ES2332451-003	BSF: 4003	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5319927)									
ES2332451-003	BSF: 4003	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5319927)									
ES2332451-003	BSF: 4003	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 5314427)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.2	101
EA005P: pH by PC Titrator (QCLot: 5317109)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 5314426)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	104	89.9	110
				<1	2100 µS/cm	102	90.2	111
EA010P: Conductivity by PC Titrator (QCLot: 5317105)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	103	89.9	110
				<1	2100 µS/cm	101	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5315955)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	87.2	87.0	109
				<10	293 mg/L	108	75.2	126
				<10	2380 mg/L	99.7	83.0	124
ED037P: Alkalinity by PC Titrator (QCLot: 5314428)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	100	81.0	115
				----	50 mg/L	106	80.0	120
ED037P: Alkalinity by PC Titrator (QCLot: 5317110)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	99.3	81.0	115
				----	50 mg/L	104	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5315655)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	96.8	82.0	122
				<1	500 mg/L	98.6	82.0	122
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5315660)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	103	82.0	122
				<1	500 mg/L	97.5	82.0	122
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5318233)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	93.8	82.0	122
				<1	500 mg/L	90.4	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5315654)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
ED045G: Chloride by Discrete Analyser (QCLot: 5315654) - continued								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	98.9	80.9	127
				<1	1000 mg/L	101	80.9	127
ED045G: Chloride by Discrete Analyser (QCLot: 5315659)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	108	80.9	127
				<1	1000 mg/L	102	80.9	127
ED045G: Chloride by Discrete Analyser (QCLot: 5318235)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	93.3	80.9	127
				<1	1000 mg/L	100.0	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5314779)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	99.2	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	97.3	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	96.8	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	94.8	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5314778)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	88.7	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	89.2	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	90.4	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	87.8	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	87.5	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	87.6	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	91.0	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	86.8	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	88.4	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	87.0	82.0	112
EG020T: Total Metals by ICP-MS (QCLot: 5314902)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	93.6	82.0	120
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	96.6	84.0	116
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	97.5	85.0	113
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	107	85.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 5314775)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	94.1	83.0	105
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5314894)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	97.9	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5315658)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5315658) - continued								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	96.9	82.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5318234)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	106	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5314893)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	104	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5314889)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	94.3	69.0	101
				<0.1	1 mg/L	106	70.0	118
				<0.1	5 mg/L	97.9	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5314890)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	106	71.3	126
				<0.01	0.442 mg/L	106	71.3	126
				<0.01	1 mg/L	104	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5315656)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	94.8	85.0	117
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5318236)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	91.5	85.0	117
EP005: Total Organic Carbon (TOC) (QCLot: 5317845)								
EP005: Total Organic Carbon	----	1	mg/L	<1	10 mg/L	107	72.0	120
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5319926)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	100.0	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	102	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	104	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	103	74.0	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	106	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	105	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	104	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	106	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	106	65.0	123
EP074B: Oxygenated Compounds (QCLot: 5319926)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	87.3	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	87.5	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	86.0	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	89.1	65.0	137

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074C: Sulfonated Compounds (QCLot: 5319926)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	89.4	72.8	127
EP074D: Fumigants (QCLot: 5319926)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	98.3	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	92.6	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	88.9	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	91.0	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	92.1	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5319926)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	76.9	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	80.8	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	85.6	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	91.2	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	89.6	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	89.9	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	92.6	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	78.7	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	93.4	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	92.9	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	91.8	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	92.6	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	93.4	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	90.7	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	89.2	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	94.3	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	85.0	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	91.9	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	92.5	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	96.2	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	94.7	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	90.1	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	92.3	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	93.6	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	93.5	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	101	71.8	126

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5319926) - continued								
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	88.6	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	120	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5319926)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	98.1	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	97.4	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	104	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	104	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	106	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	105	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	101	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	114	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	112	67.0	123
EP074G: Trihalomethanes (QCLot: 5319926)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	96.9	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	91.6	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	91.8	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	93.9	73.5	126
EP075(SIM)A: Phenolic Compounds (QCLot: 5315260)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	38.6	24.5	61.9
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	72.5	52.0	90.0
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	67.6	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	60.8	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	71.0	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	67.2	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	74.2	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	72.6	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	70.0	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	72.9	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	67.8	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	43.2	10.0	95.0
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5315261)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	65.4	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	82.8	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	95.5	58.3	120

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5319927)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	81.0	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5315261)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	64.3	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	90.8	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	76.6	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5319927)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	82.1	75.0	127
EP080: BTEXN (QCLot: 5319927)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	94.2	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	98.7	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	98.7	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	101	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	108	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	96.3	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5315218)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	83.4	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	78.4	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	89.1	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5315218)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	91.9	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	97.4	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	95.7	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	104	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	99.6	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5315218)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	98.1	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	93.6	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	91.1	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	82.2	71.4	144

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.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5315655)							
ES2331806-007	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5315660)							
ES2332451-002	FARM : 4008	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	109	70.0	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5318233)							
ES2332367-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5315654)							
ES2331806-007	Anonymous	ED045G: Chloride	16887-00-6	50 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5315659)							
ES2332451-002	FARM : 4008	ED045G: Chloride	16887-00-6	50 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5318235)							
ES2332367-001	Anonymous	ED045G: Chloride	16887-00-6	50 mg/L	# Not Determined	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5314778)							
ES2332392-003	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	125	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	114	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	110	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	115	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	106	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	108	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	114	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	115	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5314902)							
ES2332196-002	Anonymous	EG020A-T: Cobalt	7440-48-4	1 mg/L	102	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	96.2	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5314775)							
ES2332045-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	85.9	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5314894)							
ES2332366-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	116	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5315658)							
ES2332257-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	126	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5318234)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5318234) - continued							
ES2332367-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	115	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5314893)							
ES2332366-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	109	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5314889)							
ES2332003-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	50 mg/L	97.2	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5314890)							
ES2332003-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	# Not Determined	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5315656)							
ES2332236-007	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	106	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5318236)							
ES2332451-003	BSF: 4003	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	105	70.0	130
EP005: Total Organic Carbon (TOC) (QCLot: 5317845)							
ES2332256-004	Anonymous	EP005: Total Organic Carbon	----	100 mg/L	117	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5319926)							
ES2332451-003	BSF: 4003	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	72.8	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	84.9	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5319926)							
ES2332451-003	BSF: 4003	EP074: Chlorobenzene	108-90-7	25 µg/L	88.8	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5319927)							
ES2332451-003	BSF: 4003	EP080: C6 - C9 Fraction	----	325 µg/L	89.6	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5319927)							
ES2332451-003	BSF: 4003	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	90.0	70.0	130
EP080: BTEXN (QCLot: 5319927)							
ES2332451-003	BSF: 4003	EP080: Benzene	71-43-2	25 µg/L	93.4	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	99.4	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	100	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	101	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	111	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	106	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2332451**	Page	: 1 of 14
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 21-Sep-2023
Site	:	Issue Date	: 26-Sep-2023
Sampler	: Chris Blyth	No. of samples received	: 7
Order number	: ----	No. of samples analysed	: 7

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.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2331806--007	Anonymous	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2332367--001	Anonymous	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED045G: Chloride by Discrete Analyser	ES2332451--002	FARM : 4008	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED045G: Chloride by Discrete Analyser	ES2331806--007	Anonymous	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED045G: Chloride by Discrete Analyser	ES2332367--001	Anonymous	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK067G: Total Phosphorus as P by Discrete Analyser	ES2332003--001	Anonymous	**Total Phosphorus as P**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural							
FARM : 4010,	FARM : 4008	----	----	----	23-Sep-2023	20-Sep-2023	**3**
Clear Plastic Bottle - Natural							
BSF: 4003, BSF: 4800, BSF: 4802	BSF: 4005, BSF: 4801,	----	----	----	23-Sep-2023	21-Sep-2023	**2**
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural							
BSF: 4003, BSF: 4800, BSF: 4802	BSF: 4005, BSF: 4801,	----	----	----	24-Sep-2023	23-Sep-2023	**1**
EK071G: Reactive Phosphorus as P by discrete analyser							

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EK071G: Reactive Phosphorus as P by discrete analyser - Analysis Holding Time Compliance						
Clear Plastic Bottle - Natural BSF: 4003, BSF: 4005, BSF: 4800, BSF: 4801, BSF: 4802	----	----	----	24-Sep-2023	23-Sep-2023	1

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count: QC	Count: Regular	Rate (%): Actual	Rate (%): Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P) FARM : 4010, FARM : 4008	**20-Sep-2023**	**----**	----	----	**23-Sep-2023**	20-Sep-2023	×
Clear Plastic Bottle - Natural (EA005-P) BSF: 4003, BSF: 4005, BSF: 4800, BSF: 4801, BSF: 4802	**21-Sep-2023**	**----**	----	----	**23-Sep-2023**	21-Sep-2023	×

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P) FARM : 4010, FARM : 4008	**20-Sep-2023**	**----**	----	----	**23-Sep-2023**	18-Oct-2023	✓
Clear Plastic Bottle - Natural (EA010-P) BSF: 4003, BSF: 4005, BSF: 4800, BSF: 4801, BSF: 4802	**21-Sep-2023**	**----**	----	----	**23-Sep-2023**	19-Oct-2023	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H) FARM : 4010, FARM : 4008	**20-Sep-2023**	**----**	----	----	**22-Sep-2023**	27-Sep-2023	✓
Clear Plastic Bottle - Natural (EA015H) BSF: 4003, BSF: 4005, BSF: 4800, BSF: 4801, BSF: 4802	**21-Sep-2023**	**----**	----	----	**22-Sep-2023**	28-Sep-2023	✓
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) FARM : 4010, FARM : 4008	**20-Sep-2023**	**----**	----	----	**23-Sep-2023**	04-Oct-2023	✓
Clear Plastic Bottle - Natural (ED037-P) BSF: 4003, BSF: 4005, BSF: 4800, BSF: 4801, BSF: 4802	**21-Sep-2023**	**----**	----	----	**23-Sep-2023**	05-Oct-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) FARM : 4010, FARM : 4008	**20-Sep-2023**	**----**	----	----	**22-Sep-2023**	18-Oct-2023	✓
Clear Plastic Bottle - Natural (ED041G) BSF: 4003, BSF: 4005, BSF: 4800, BSF: 4801, BSF: 4802	**21-Sep-2023**	**----**	----	----	**24-Sep-2023**	19-Oct-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) FARM : 4010, FARM : 4008	**20-Sep-2023**	**----**	----	----	**22-Sep-2023**	18-Oct-2023	✓
Clear Plastic Bottle - Natural (ED045G) BSF: 4003, BSF: 4005, BSF: 4800, BSF: 4801, BSF: 4802	**21-Sep-2023**	**----**	----	----	**24-Sep-2023**	19-Oct-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F) FARM : 4010, FARM : 4008	**20-Sep-2023**	**----**	----	----	**22-Sep-2023**	27-Sep-2023	✓
Clear Plastic Bottle - Natural (ED093F) BSF: 4003, BSF: 4005, BSF: 4800, BSF: 4801, BSF: 4802	**21-Sep-2023**	**----**	----	----	**22-Sep-2023**	28-Sep-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Natural (EG020A-F) FARM : 4010, FARM : 4008	**20-Sep-2023**	**----**	----	----	**22-Sep-2023**	18-Mar-2024	✓
Clear Plastic Bottle - Natural (EG020A-F) BSF: 4003, BSF: 4005, BSF: 4800, BSF: 4801, BSF: 4802	**21-Sep-2023**	**----**	----	----	**22-Sep-2023**	19-Mar-2024	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Natural (EG020A-T) FARM : 4010	**20-Sep-2023**	**22-Sep-2023**	18-Mar-2024	✓	**22-Sep-2023**	18-Mar-2024	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) FARM : 4008	**20-Sep-2023**	**22-Sep-2023**	18-Mar-2024	✓	**22-Sep-2023**	18-Mar-2024	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) BSF: 4003, BSF: 4005, BSF: 4800, BSF: 4801, BSF: 4802	**21-Sep-2023**	**22-Sep-2023**	19-Mar-2024	✓	**22-Sep-2023**	19-Mar-2024	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Natural (EG035F) FARM : 4010, FARM : 4008	**20-Sep-2023**	**----**	----	----	**25-Sep-2023**	18-Oct-2023	✓
Clear Plastic Bottle - Natural (EG035F) BSF: 4003, BSF: 4005, BSF: 4800, BSF: 4801, BSF: 4802	**21-Sep-2023**	**----**	----	----	**25-Sep-2023**	19-Oct-2023	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) FARM : 4010, FARM : 4008	**20-Sep-2023**	**----**	----	----	**26-Sep-2023**	18-Oct-2023	✓
Clear Plastic Bottle - Sulfuric Acid (EK055G) BSF: 4003, BSF: 4005, BSF: 4800, BSF: 4801, BSF: 4802	**21-Sep-2023**	**----**	----	----	**26-Sep-2023**	19-Oct-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) FARM : 4010, FARM : 4008	**20-Sep-2023**	**----**	----	----	**22-Sep-2023**	22-Sep-2023	✓
Clear Plastic Bottle - Natural (EK057G) BSF: 4003, BSF: 4005, BSF: 4800, BSF: 4801, BSF: 4802	**21-Sep-2023**	**----**	----	----	**24-Sep-2023**	23-Sep-2023	×

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) FARM : 4010, FARM : 4008	**20-Sep-2023**	**----**	----	----	**26-Sep-2023**	18-Oct-2023	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G) BSF: 4003, BSF: 4005, BSF: 4800, BSF: 4801, BSF: 4802	**21-Sep-2023**	**----**	----	----	**26-Sep-2023**	19-Oct-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) FARM : 4010, FARM : 4008	**20-Sep-2023**	**22-Sep-2023**	18-Oct-2023	✓	**25-Sep-2023**	18-Oct-2023	✓
Clear Plastic Bottle - Sulfuric Acid (EK061G) BSF: 4003, BSF: 4005, BSF: 4800, BSF: 4801, BSF: 4802	**21-Sep-2023**	**22-Sep-2023**	19-Oct-2023	✓	**25-Sep-2023**	19-Oct-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) FARM : 4010, FARM : 4008	**20-Sep-2023**	**22-Sep-2023**	18-Oct-2023	✓	**25-Sep-2023**	18-Oct-2023	✓
Clear Plastic Bottle - Sulfuric Acid (EK067G) BSF: 4003, BSF: 4005, BSF: 4800, BSF: 4801, BSF: 4802	**21-Sep-2023**	**22-Sep-2023**	19-Oct-2023	✓	**25-Sep-2023**	19-Oct-2023	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G) FARM : 4010, FARM : 4008	**20-Sep-2023**	**----**	----	----	**22-Sep-2023**	22-Sep-2023	✓
Clear Plastic Bottle - Natural (EK071G) BSF: 4003, BSF: 4005, BSF: 4800, BSF: 4801, BSF: 4802	**21-Sep-2023**	**----**	----	----	**24-Sep-2023**	23-Sep-2023	×
EP005: Total Organic Carbon (TOC)							
Amber TOC Vial - Sulfuric Acid (EP005) FARM : 4008	**20-Sep-2023**	**----**	----	----	**25-Sep-2023**	18-Oct-2023	✓
Amber TOC Vial - Sulfuric Acid (EP005) BSF: 4003, BSF: 4005, BSF: 4800, BSF: 4801, BSF: 4802	**21-Sep-2023**	**----**	----	----	**25-Sep-2023**	19-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP005) FARM : 4010	**20-Sep-2023**	**----**	----	----	**25-Sep-2023**	18-Oct-2023	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) BSF: 4003	**21-Sep-2023**	**25-Sep-2023**	05-Oct-2023	✓	**25-Sep-2023**	05-Oct-2023	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BSF: 4003	**21-Sep-2023**	**25-Sep-2023**	05-Oct-2023	✓	**25-Sep-2023**	05-Oct-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BSF: 4003	**21-Sep-2023**	**25-Sep-2023**	05-Oct-2023	✓	**25-Sep-2023**	05-Oct-2023	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) BSF: 4003	**21-Sep-2023**	**25-Sep-2023**	05-Oct-2023	✓	**25-Sep-2023**	05-Oct-2023	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BSF: 4003	**21-Sep-2023**	**25-Sep-2023**	05-Oct-2023	✓	**25-Sep-2023**	05-Oct-2023	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) BSF: 4003	**21-Sep-2023**	**25-Sep-2023**	05-Oct-2023	✓	**25-Sep-2023**	05-Oct-2023	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) BSF: 4003	**21-Sep-2023**	**25-Sep-2023**	05-Oct-2023	✓	**25-Sep-2023**	05-Oct-2023	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) BSF: 4003	**21-Sep-2023**	**22-Sep-2023**	28-Sep-2023	✓	**25-Sep-2023**	01-Nov-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) BSF: 4003	**21-Sep-2023**	**22-Sep-2023**	28-Sep-2023	✓	**25-Sep-2023**	01-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) BSF: 4003	**21-Sep-2023**	**25-Sep-2023**	05-Oct-2023	✓	**25-Sep-2023**	05-Oct-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) BSF: 4003	**21-Sep-2023**	**22-Sep-2023**	28-Sep-2023	✓	**25-Sep-2023**	01-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) BSF: 4003	**21-Sep-2023**	**25-Sep-2023**	05-Oct-2023	✓	**25-Sep-2023**	05-Oct-2023	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) BSF: 4003	**21-Sep-2023**	**25-Sep-2023**	05-Oct-2023	✓	**25-Sep-2023**	05-Oct-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) BSF: 4003	**21-Sep-2023**	**22-Sep-2023**	19-Mar-2024	✓	**25-Sep-2023**	19-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) BSF: 4003	**21-Sep-2023**	**22-Sep-2023**	19-Mar-2024	✓	**25-Sep-2023**	19-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) BSF: 4003	**21-Sep-2023**	**22-Sep-2023**	19-Mar-2024	✓	**25-Sep-2023**	19-Mar-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) BSF: 4003	**21-Sep-2023**	**22-Sep-2023**	19-Mar-2024	✓	**25-Sep-2023**	19-Mar-2024	✓

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)							
Alkalinity by Auto Titrator	ED037-P	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	5	42	**11.90**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	8	58	**13.79**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	2	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	4	29	**13.79**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	4	28	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	5	42	**11.90**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	4	16	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	6	42	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	6	58	**10.34**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	4	29	**13.79**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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 Control Samples (LCS) - Continued							
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	6	42	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	40	**12.50**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	19	**15.79**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	19	**15.79**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	3	42	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	58	**3.45**	**1.67**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	3	42	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	3	42	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	2	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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*	
Matrix Spikes (MS) - Continued							
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	3	42	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	**12.50**	**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
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Total Organic Carbon	EP005	WATER	In house: Referenced to APHA 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

UPDATED CO

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

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☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

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CLIENT: CPBG	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: 14 Great Western HWY, Werrington 2747		X Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: WSA SBT Project	ALS QUOTE NO.: ES23CPBGHE0004	COC SEQUENCE NUMBER (Circle)	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER:		COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Emma Kline	CONTACT PH:	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Chris Blyth	SAMPLER MOBILE: 0417 839 845	RELINQUISHED BY:	RECEIVED BY:
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	*Chris Blyth*	
Email Reports to: christopher.Blyth@cpbg-sbt.com.au, Mary.Wong@cpbg-sbt.com.au		DATE/TIME: 21/09/2023 @ 1:00pm	DATE/TIME: 21/9/23 1602
Email Invoice to (will default to PM if no other addresses are listed): enviro.sbt@cpbg-sbt.com.au			

RELINQUISHED BY:	RECEIVED BY:
DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	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 CONTAINERS	EA005 - pH, EA010 - EC, EA015 - TDS, EP005 - TOC		NT-01 & NT-02 - Ca, Mg, Na, K, Cl, SO4, Alkalinity	NT-08a - TN, NO2, NO3, NH3, TP, Reactive P	Dissolved Metals - Al, As, Cd, Cr, Cu, Fe, Pb, Mn, Ni, Zn, and Hg.	Total Metals - Al, Co, Fe, Mn		W-9 - TRH(C6-C40)/VOC Including BTEXN	EP075 - Phenols (SIM)	EP231 - PFAS Short Suite			
																		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	FARM : 4010	20/09/2023	W		5	X		X	X	X	X							
2	FARM: 4008	20/09/2023	W		5	X		X	X	X	X							
3	BSF: 4003	21/09/2023	W		10	X		X	X	X	X		X	X	X			
4	BSF: 4005	21/09/2023	W		5	X		X	X	X	X							
5	BSF: 4800	21/09/2023	W		5	X		X	X	X	X							
6	BSF: 4801	21/09/2023	W		5	X		X	X	X	X							
7	BSF: 4802	21/09/2023	W		5	X		X	X	X	X							
TOTAL					40													

TAT

HT

Environmental Division
Sydney
Work Order Reference
ES2332451

Telephone : +61-2-8784 8555

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	: **ES2332652**	Page	: 1 of 8
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 22-Sep-2023 15:45
Order number	: ----	Date Analysis Commenced	: 22-Sep-2023
C-O-C number	: ----	Issue Date	: 29-Sep-2023 13:26
Sampler	: Jack Brennan		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 4		
No. of samples analysed	: 4		

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
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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.

- EK067G: LOR raised for TP on sample no.1 due to sample matrix.
- EP075: Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EG035: Poor matrix spike recovery was obtained for Mercury on sample ES2332652 # 1. Confirmed by re-analysis.
- EG020: LORs have been raised for some samples due to matrix interference (High sample salinity)
- TDS by method EA-015 various samples may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- EP075: Where reported, 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SBT-GW-1806	SBT-GW-1807	SBT-GW-1808	SMGW-BH-A315	----
			Sampling date / time	22-Sep-2023 00:00	22-Sep-2023 00:00	22-Sep-2023 00:00	22-Sep-2023 00:00	----
Compound	CAS Number	LOR	Unit	ES2332652-001	ES2332652-002	ES2332652-003	ES2332652-004	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**9.89**	**7.93**	**5.91**	**6.81**	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**27900**	**34600**	**13000**	**3360**	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**22500**	**25500**	**9530**	**2170**	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	**2400**	<1	<1	<1	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	**2380**	<1	<1	<1	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	**949**	**70**	**192**	----
Total Alkalinity as CaCO3	----	1	mg/L	**4770**	**949**	**70**	**192**	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**109**	**955**	**197**	**349**	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**8960**	**10900**	**4790**	**754**	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**1460**	**498**	**13**	**56**	----
Magnesium	7439-95-4	1	mg/L	**27**	**1110**	**256**	**50**	----
Sodium	7440-23-5	1	mg/L	**4900**	**5540**	**2100**	**582**	----
Potassium	7440-09-7	1	mg/L	**45**	**21**	**6**	**6**	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.10	<0.10	**0.26**	<0.01	----
Arsenic	7440-38-2	0.001	mg/L	<0.010	<0.010	<0.001	**0.002**	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0010	<0.0010	<0.0001	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	<0.010	<0.010	**0.001**	<0.001	----
Copper	7440-50-8	0.001	mg/L	<0.010	<0.010	**0.001**	<0.001	----
Nickel	7440-02-0	0.001	mg/L	<0.010	<0.010	**0.050**	**0.005**	----
Lead	7439-92-1	0.001	mg/L	<0.010	<0.010	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L	<0.050	<0.050	**0.059**	<0.005	----
Manganese	7439-96-5	0.001	mg/L	<0.010	**0.517**	**0.725**	**0.188**	----
Iron	7439-89-6	0.05	mg/L	<0.10	**2.12**	**23.6**	**7.42**	----
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.10	**7.52**	**16.7**	**2.98**	----
Cobalt	7440-48-4	0.001	mg/L	<0.010	<0.010	**0.129**	**0.015**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SBT-GW-1806	SBT-GW-1807	SBT-GW-1808	SMGW-BH-A315	----
			Sampling date / time	22-Sep-2023 00:00	22-Sep-2023 00:00	22-Sep-2023 00:00	22-Sep-2023 00:00	----
Compound	CAS Number	LOR	Unit	ES2332652-001	ES2332652-002	ES2332652-003	ES2332652-004	--------
				Result	Result	Result	Result	----
EG020T: Total Metals by ICP-MS - Continued								
Manganese	7439-96-5	0.001	mg/L	<0.010	0.723	0.829	0.214	----
Iron	7439-89-6	0.05	mg/L	<0.10	13.9	39.2	14.6	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	2.30	1.75	0.46	0.17	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.02	<0.01	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	0.02	0.02	0.09	<0.01	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	0.02	0.02	0.11	<0.01	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	3.5	2.5	4.6	1.8	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	3.5	2.5	4.7	1.8	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	<0.05	0.14	0.32	0.26	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	<0.01	0.04	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	350	346	141	32.4	----
ø Total Cations	----	0.01	meq/L	----	----	118	----	----
ø Total Cations	----	0.01	meq/L	289	358	----	32.4	----
ø Ionic Balance	----	0.01	%	----	----	8.93	----	----
ø Ionic Balance	----	0.01	%	9.53	1.62	----	0.01	----
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	4	7	25	18	----
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	<2	----	----	<2	----
2-Chlorophenol	95-57-8	2	µg/L	<2	----	----	<2	----
2-Methylphenol	95-48-7	2	µg/L	<2	----	----	<2	----
3- & 4-Methylphenol	1319-77-3	4	µg/L	<4	----	----	<4	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1806	SBT-GW-1807	SBT-GW-1808	SMGW-BH-A315	----
				Sampling date / time	22-Sep-2023 00:00	22-Sep-2023 00:00	22-Sep-2023 00:00	22-Sep-2023 00:00	----
Compound	CAS Number	LOR	Unit		ES2332652-001	ES2332652-002	ES2332652-003	ES2332652-004	--------
					Result	Result	Result	Result	----
EP075A: Phenolic Compounds - Continued									
2-Nitrophenol	88-75-5	2	µg/L		<2	----	----	<2	----
2.4-Dimethylphenol	105-67-9	2	µg/L		<2	----	----	<2	----
2.4-Dichlorophenol	120-83-2	2	µg/L		<2	----	----	<2	----
2.6-Dichlorophenol	87-65-0	2	µg/L		<2	----	----	<2	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L		<2	----	----	<2	----
2.4.6-Trichlorophenol	88-06-2	2	µg/L		<2	----	----	<2	----
2.4.5-Trichlorophenol	95-95-4	2	µg/L		<2	----	----	<2	----
Pentachlorophenol	87-86-5	4	µg/L		<4	----	----	<4	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	<20	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	<50	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	<100	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	<50	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	----	----	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	----	----	<20	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	<100	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	<100	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	<100	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	----	----	<100	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	----	----	<100	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		**1**	----	----	<1	----
Toluene	108-88-3	2	µg/L		**3**	----	----	<2	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	<2	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	<2	----
^ Total Xylenes	----	2	µg/L		<2	----	----	<2	----
^ Sum of BTEX	----	1	µg/L		**4**	----	----	<1	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	<5	----
EP231A: Perfluoroalkyl Sulfonic Acids									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1806	SBT-GW-1807	SBT-GW-1808	SMGW-BH-A315	----
				Sampling date / time	22-Sep-2023 00:00	22-Sep-2023 00:00	22-Sep-2023 00:00	22-Sep-2023 00:00	----
Compound	CAS Number	LOR	Unit		ES2332652-001	ES2332652-002	ES2332652-003	ES2332652-004	--------
					Result	Result	Result	Result	----
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		----	----	----	<0.02	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		----	----	----	<0.01	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		----	----	----	**0.01**	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		----	----	----	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		----	----	----	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		----	----	----	**0.04**	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		----	----	----	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		----	----	----	**0.02**	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		----	----	----	<0.05	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		----	----	----	<0.05	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		----	----	----	<0.05	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		----	----	----	<0.05	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		----	----	----	**0.01**	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		----	----	----	**0.07**	----
EP075S: Acid Extractable Surrogates									
2-Fluorophenol	367-12-4	2	%		**49.6**	----	----	**39.9**	----
Phenol-d6	13127-88-3	2	%		**34.5**	----	----	**30.5**	----
2-Chlorophenol-D4	93951-73-6	2	%		**63.2**	----	----	**64.6**	----
2.4.6-Tribromophenol	118-79-6	2	%		**66.8**	----	----	**66.2**	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	2	%		**65.3**	----	----	**73.6**	----
1.2-Dichlorobenzene-D4	2199-69-1	2	%		**60.7**	----	----	**67.6**	----
2-Fluorobiphenyl	321-60-8	2	%		**66.5**	----	----	**63.0**	----
Anthracene-d10	1719-06-8	2	%		**68.9**	----	----	**90.6**	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1806	SBT-GW-1807	SBT-GW-1808	SMGW-BH-A315	----
				Sampling date / time	22-Sep-2023 00:00	22-Sep-2023 00:00	22-Sep-2023 00:00	22-Sep-2023 00:00	----
Compound	CAS Number	LOR	Unit		ES2332652-001	ES2332652-002	ES2332652-003	ES2332652-004	--------
					Result	Result	Result	Result	----
EP075T: Base/Neutral Extractable Surrogates - Continued									
4-Terphenyl-d14	1718-51-0	2	%		**70.9**	**----**	**----**	**74.4**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**114**	**----**	**----**	**123**	**----**
Toluene-D8	2037-26-5	2	%		**110**	**----**	**----**	**120**	**----**
4-Bromofluorobenzene	460-00-4	2	%		**95.5**	**----**	**----**	**107**	**----**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**----**	**----**	**----**	**103**	**----**
13C8-PFOA	----	0.02	%		**----**	**----**	**----**	**93.4**	**----**

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	117
Phenol-d6	13127-88-3	10	69
2-Chlorophenol-D4	93951-73-6	21	130
2.4.6-Tribromophenol	118-79-6	10	151
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	142
1.2-Dichlorobenzene-D4	2199-69-1	24	121
2-Fluorobiphenyl	321-60-8	27	135
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	21	123
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

QUALITY CONTROL REPORT

Work Order	: **ES2332652**	Page	: 1 of 10
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 22-Sep-2023
Order number	: ----	Date Analysis Commenced	: 22-Sep-2023
C-O-C number	: ----	Issue Date	: 29-Sep-2023
Sampler	: Jack Brennan		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 4		
No. of samples analysed	: 4		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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 (%)
EA005P: pH by PC Titrator (QC Lot: 5317617)									
ES2332652-001	SBT-GW-1806	EA005-P: pH Value	----	0.01	pH Unit	9.89	9.99	1.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5317616)									
ES2332652-001	SBT-GW-1806	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	27900	28100	0.7	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5320969)									
ES2331992-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	35300	35500	0.5	0% - 20%
ES2331992-011	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	16000	16700	4.3	0% - 20%
ES2332307-011	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	2320	2320	0.0	0% - 20%
ES2332652-002	SBT-GW-1807	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	25500	25600	0.2	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5317618)									
ES2332652-001	SBT-GW-1806	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	2400	2330	2.9	0% - 20%
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	2380	2580	8.5	0% - 20%
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	4770	4910	2.9	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5318427)									
ES2332583-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	6	4	33.6	No Limit
ES2332668-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	9	9	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 5318424)									
ES2332523-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1	1	0.0	No Limit
ES2332668-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	64	67	4.2	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5317820)									
ES2332547-003	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	125	126	1.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	97	96	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	88	87	0.0	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 (%)*
ED093F: Dissolved Major Cations (QC Lot: 5317820) - continued									
ES2332547-003	Anonymous	ED093F: Potassium	7440-09-7	1	mg/L	3	3	0.0	No Limit
ES2332652-002	SBT-GW-1807	ED093F: Calcium	7440-70-2	1	mg/L	498	504	1.3	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	1110	1120	0.9	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	5540	5600	1.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	21	21	0.0	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5317819)									
ES2332547-003	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.291	0.294	0.9	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.002	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
ES2332652-002	SBT-GW-1807	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0010	<0.0010	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.517	0.515	0.4	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.050	<0.050	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.10	<0.10	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	2.12	2.13	0.0	0% - 20%
EG020T: Total Metals by ICP-MS (QC Lot: 5318640)									
ES2332578-003	Anonymous	EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EW2304220-001	Anonymous	EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.028	0.026	8.8	0% - 20%
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	2.38	2.22	7.0	0% - 20%
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.36	0.34	6.7	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5317821)									
EW2304246-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2332652-002	SBT-GW-1807	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5321142)									

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 (%)*
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5321142) - continued									
ES2332554-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	43000 µg/L	42.6	1.0	0% - 20%
ES2332675-003	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5318428)									
ES2332550-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.35	0.34	0.0	0% - 20%
ES2332583-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5321141)									
ES2332554-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	10 µg/L	0.01	0.0	No Limit
ES2332675-003	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	26.3	27.8	5.7	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5321138)									
ES2332554-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	41600 µg/L	41.1	1.1	0% - 20%
ES2332734-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.4	1.4	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5321139)									
ES2332554-002	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	5730 µg/L	5.72	0.0	0% - 20%
ES2332734-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5318426)									
ES2332523-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2332673-004	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP005: Total Organic Carbon (TOC) (QC Lot: 5323733)									
ES2332652-001	SBT-GW-1806	EP005: Total Organic Carbon	----	1	mg/L	4	4	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5320407)									
ES2332336-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	30	30	0.0	No Limit
ES2332461-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5320407)									
ES2332336-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	20	30	0.0	No Limit
ES2332461-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5320407)									
ES2332336-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2332461-002	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit

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 (%)*
EP080: BTEXN (QC Lot: 5320407) - continued									
ES2332461-002	Anonymous	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 5317617)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 5317616)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	106	89.9	110
				<1	2100 µS/cm	104	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5320969)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	104	87.0	109
				<10	293 mg/L	94.5	75.2	126
				<10	2380 mg/L	104	83.0	124
ED037P: Alkalinity by PC Titrator (QCLot: 5317618)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	100	81.0	115
				----	50 mg/L	106	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5318427)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	92.1	82.0	122
				<1	500 mg/L	89.5	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5318424)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	97.9	80.9	127
				<1	1000 mg/L	99.3	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5317820)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	93.0	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	98.1	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	97.4	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	97.0	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5317819)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	89.4	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	91.8	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	91.8	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	91.5	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.2	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	88.9	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	91.5	82.0	110

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5317819) - continued								
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	89.3	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	92.2	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	97.8	82.0	112
EG020T: Total Metals by ICP-MS (QCLot: 5318640)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	97.5	82.0	120
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	100	84.0	116
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	102	85.0	113
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	109	85.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 5317821)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	93.1	83.0	105
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5321142)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	100	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5318428)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	103	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5321141)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	105	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5321138)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	100	69.0	101
				<0.1	1 mg/L	109	70.0	118
				<0.1	5 mg/L	108	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5321139)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	102	71.3	126
				<0.01	0.442 mg/L	97.9	71.3	126
				<0.01	1 mg/L	106	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5318426)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	98.2	85.0	117
EP005: Total Organic Carbon (TOC) (QCLot: 5323733)								
EP005: Total Organic Carbon	----	1	mg/L	<1	10 mg/L	106	72.0	120
EP075A: Phenolic Compounds (QCLot: 5319282)								
EP075: Phenol	108-95-2	2	µg/L	<2	10 µg/L	40.4	25.5	64.1
EP075: 2-Chlorophenol	95-57-8	2	µg/L	<2	10 µg/L	72.4	52.0	88.0
EP075: 2-Methylphenol	95-48-7	2	µg/L	<2	10 µg/L	55.4	50.0	94.0
EP075: 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	10 µg/L	51.7	45.0	96.2
EP075: 2-Nitrophenol	88-75-5	2	µg/L	<2	10 µg/L	68.3	48.0	98.0

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075A: Phenolic Compounds (QCLot: 5319282) - continued								
EP075: 2.4-Dimethylphenol	105-67-9	2	µg/L	<2	10 µg/L	69.1	50.0	94.0
EP075: 2.4-Dichlorophenol	120-83-2	2	µg/L	<2	10 µg/L	71.0	61.9	109
EP075: 2.6-Dichlorophenol	87-65-0	2	µg/L	<2	10 µg/L	78.1	61.5	108
EP075: 4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	10 µg/L	76.5	61.4	107
EP075: 2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	10 µg/L	72.9	57.6	112
EP075: 2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	10 µg/L	75.1	58.0	110
EP075: Pentachlorophenol	87-86-5	4	µg/L	<4	20 µg/L	51.1	12.8	95.0
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5319281)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	86.3	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	83.0	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	87.7	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5320407)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	77.9	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5319281)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	76.8	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	83.1	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	91.6	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5320407)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	79.2	75.0	127
EP080: BTEXN (QCLot: 5320407)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	98.0	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	92.8	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	94.2	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	95.1	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	94.4	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	97.8	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5319801)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	97.3	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	96.0	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	111	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5319801)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	99.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	129

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5319801) - continued								
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	109	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	107	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	112	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5319801)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	101	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	120	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	109	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	85.7	71.4	144

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.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5318427)							
ES2332535-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5318424)							
ES2332523-001	Anonymous	ED045G: Chloride	16887-00-6	50 mg/L	104	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5317819)							
ES2332547-004	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	113	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	112	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	112	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	113	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	112	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	108	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	107	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	111	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5318640)							
ES2332589-001	Anonymous	EG020A-T: Cobalt	7440-48-4	1 mg/L	126	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	110	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5317821)							
ES2332652-001	SBT-GW-1806	EG035F: Mercury	7439-97-6	0.01 mg/L	# 32.4	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5321142)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5321142) - continued							
ES2332554-002	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	# Not Determined	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5318428)							
ES2332550-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	88.5	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5321141)							
ES2332554-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	111	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5321138)							
ES2332559-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	10 mg/L	103	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5321139)							
ES2332559-001	Anonymous	EK067G: Total Phosphorus as P	----	2 mg/L	108	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5318426)							
ES2332523-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	80.4	70.0	130
EP005: Total Organic Carbon (TOC) (QCLot: 5323733)							
ES2332652-002	SBT-GW-1807	EP005: Total Organic Carbon	----	100 mg/L	105	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5320407)							
ES2332336-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	79.9	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5320407)							
ES2332336-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	78.2	70.0	130
EP080: BTEXN (QCLot: 5320407)							
ES2332336-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	103	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	97.4	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	100	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	91.5	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	102	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	105	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2332652**	Page	: 1 of 11
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 22-Sep-2023
Site	:	Issue Date	: 29-Sep-2023
Sampler	: Jack Brennan	No. of samples received	: 4
Order number	: ----	No. of samples analysed	: 4

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.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **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

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2332535--002	Anonymous	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG035F: Dissolved Mercury by FIMS	ES2332652--001	SBT-GW-1806	**Mercury**	7439-97-6	32.4 %	70.0-130%	**Recovery less than lower data quality objective**
EK055G: Ammonia as N by Discrete Analyser	ES2332554--002	Anonymous	**Ammonia as N**	7664-41-7	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	13	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	0	10	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	13	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	0	10	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P)							
SBT-GW-1806, SBT-GW-1807, SBT-GW-1808, SMGW-BH-A315	**22-Sep-2023**	**----**	----	**----**	**22-Sep-2023**	22-Sep-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P)							
SBT-GW-1806, SBT-GW-1807, SBT-GW-1808, SMGW-BH-A315	**22-Sep-2023**	**----**	----	----	**22-Sep-2023**	20-Oct-2023	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H)							
SBT-GW-1806, SBT-GW-1807, SBT-GW-1808, SMGW-BH-A315	**22-Sep-2023**	**----**	----	----	**25-Sep-2023**	29-Sep-2023	✓
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
SBT-GW-1806, SBT-GW-1807, SBT-GW-1808, SMGW-BH-A315	**22-Sep-2023**	**----**	----	----	**22-Sep-2023**	06-Oct-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
SBT-GW-1806, SBT-GW-1807, SBT-GW-1808, SMGW-BH-A315	**22-Sep-2023**	**----**	----	----	**24-Sep-2023**	20-Oct-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
SBT-GW-1806, SBT-GW-1807, SBT-GW-1808, SMGW-BH-A315	**22-Sep-2023**	**----**	----	----	**24-Sep-2023**	20-Oct-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)							
SBT-GW-1806, SBT-GW-1807, SBT-GW-1808, SMGW-BH-A315	**22-Sep-2023**	**----**	----	----	**23-Sep-2023**	20-Oct-2023	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
SBT-GW-1806, SBT-GW-1807, SBT-GW-1808, SMGW-BH-A315	**22-Sep-2023**	**----**	----	----	**23-Sep-2023**	20-Mar-2024	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
SBT-GW-1806, SBT-GW-1807, SBT-GW-1808, SMGW-BH-A315	**22-Sep-2023**	**25-Sep-2023**	20-Mar-2024	✓	**25-Sep-2023**	20-Mar-2024	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
SBT-GW-1806, SBT-GW-1807, SBT-GW-1808, SMGW-BH-A315	**22-Sep-2023**	**----**	----	----	**25-Sep-2023**	20-Oct-2023	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
SBT-GW-1806, SBT-GW-1807, SBT-GW-1808, SMGW-BH-A315	**22-Sep-2023**	**----**	----	----	**27-Sep-2023**	20-Oct-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G)							
SBT-GW-1806, SBT-GW-1807, SBT-GW-1808, SMGW-BH-A315	**22-Sep-2023**	**----**	----	----	**24-Sep-2023**	24-Sep-2023	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
SBT-GW-1806, SBT-GW-1807, SBT-GW-1808, SMGW-BH-A315	**22-Sep-2023**	**----**	----	----	**27-Sep-2023**	20-Oct-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
SBT-GW-1806, SBT-GW-1807, SBT-GW-1808, SMGW-BH-A315	**22-Sep-2023**	**26-Sep-2023**	20-Oct-2023	✓	**27-Sep-2023**	20-Oct-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
SBT-GW-1806, SBT-GW-1807, SBT-GW-1808, SMGW-BH-A315	**22-Sep-2023**	**26-Sep-2023**	20-Oct-2023	✓	**27-Sep-2023**	20-Oct-2023	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G)							
SBT-GW-1806, SBT-GW-1807, SBT-GW-1808, SMGW-BH-A315	**22-Sep-2023**	**----**	----	----	**24-Sep-2023**	24-Sep-2023	✓
EP005: Total Organic Carbon (TOC)							
Amber TOC Vial - Sulfuric Acid (EP005)							
SBT-GW-1806, SBT-GW-1807, SBT-GW-1808, SMGW-BH-A315	**22-Sep-2023**	**----**	----	----	**27-Sep-2023**	20-Oct-2023	✓
EP075A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075)							
SMGW-BH-A315	**22-Sep-2023**	**25-Sep-2023**	29-Sep-2023	✓	**26-Sep-2023**	04-Nov-2023	✓
Amber Glass Bottle - Unpreserved (EP075)							
SBT-GW-1806	**22-Sep-2023**	**25-Sep-2023**	29-Sep-2023	✓	**27-Sep-2023**	04-Nov-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
SBT-GW-1806, SMGW-BH-A315	**22-Sep-2023**	**25-Sep-2023**	29-Sep-2023	✓	**26-Sep-2023**	04-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
SBT-GW-1806, SMGW-BH-A315	**22-Sep-2023**	**25-Sep-2023**	06-Oct-2023	✓	**26-Sep-2023**	06-Oct-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
SBT-GW-1806, SMGW-BH-A315	**22-Sep-2023**	**25-Sep-2023**	29-Sep-2023	✓	**26-Sep-2023**	04-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
SBT-GW-1806, SMGW-BH-A315	**22-Sep-2023**	**25-Sep-2023**	06-Oct-2023	✓	**26-Sep-2023**	06-Oct-2023	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
SBT-GW-1806, SMGW-BH-A315	**22-Sep-2023**	**25-Sep-2023**	06-Oct-2023	✓	**26-Sep-2023**	06-Oct-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) SMGW-BH-A315	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**27-Sep-2023**	20-Mar-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) SMGW-BH-A315	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**27-Sep-2023**	20-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) SMGW-BH-A315	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**27-Sep-2023**	20-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) SMGW-BH-A315	**22-Sep-2023**	**26-Sep-2023**	20-Mar-2024	✓	**27-Sep-2023**	20-Mar-2024	✓

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)							
Alkalinity by Auto Titrator	ED037-P	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	13	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	10	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	6	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	4	**50.00**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	6	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard

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 Control Samples (LCS) - Continued							
Total Dissolved Solids (High Level)	EA015H	5	40	**12.50**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	19	**15.79**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	15	**20.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	4	**25.00**	**1.67**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	13	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	10	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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*	
Matrix Spikes (MS) - Continued							
Total Organic Carbon	EP005	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	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
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Total Organic Carbon	EP005	WATER	In house: Referenced to APHA 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
Semivolatile Organic Compounds	EP075	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

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☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

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☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: CPBG	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	Standard TAT: 29/09/2023	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: 14 Great Western HWY, Werrington 2747		~~Non-Standard or urgent TAT (List due date):~~	Custody Seal Intact? Yes / No / N/A
PROJECT: WSA SBT Project	**ALS QUOTE NO.:**	ES23CPBGHE0004	Free ice / frozen ice bricks present upon receipt? Yes / No / N/A
ORDER NUMBER:			Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Emma Kline	**CONTACT PH:**		Other comment:
SAMPLER: Jack Brennan (JB)	**SAMPLER MOBILE:** 0478707139		
COC emailed to ALS? (YES / NO)	**EDD FORMAT (or default):**		
Email Reports to: Jack.Brennan@cpbg-sbt.com.au			
Email Invoice to (will default to PM if no other addresses are listed): enviro.sbt@cpbg-sbt.com.au			

COC SEQUENCE NUMBER (Circle)

COC:	1	2	3	4	5	6	7
OF:	1	2	3	4	5	6	7

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 22/09/2023	DATE/TIME: 22/9/23 1545	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	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
						Green (P)	Purple (G)	Purple (P)	Red (P)	Red (P)	Purple (G)	Purple (G)	Purple (G)	Orange (G)	Grey (P)		
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	EA005, EA010, EA015, EP005, NT-01, NT-02	EP005	NT-08a	EG020F	EG020T	W-9 (VOC only)	W-9 (TRH only)	W-9 (TRH/BTEXN)	EP075	EP231		
1	SBT-GW-1806	22/09/2023	W		8	X	X	X	X	X			XX	X			
2	SBT-GW-1807	22/09/2023	W		5	X	X	X	X	X							
3	SBT-GW-1808	22/09/2023	W		5	X	X	X	X	X							
4	SMGW-BH-A315	22/09/2023	W		10	X	X	X	X	X			XX	X	XX		
TOTAL					28												

HT

Environmental Division
Sydney
Work Order Reference
ES2332652

Telephone : +61-2-9784 8555

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	: **ES2333004**	Page	: 1 of 13
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: CHRISTOPHER BLYTH	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 26-Sep-2023 15:00
Order number	: ----	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: ----	Issue Date	: 29-Sep-2023 18:49
Sampler	: Mary Wong		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 4		
No. of samples analysed	: 4		

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
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

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.

- EP075: Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EG020: It is recognised that total concentration is less than dissolved for some metal analytes. However, the difference is within experimental variation of the methods.
- EK059G, EK057G: It has been noted that Nitrite is greater than NOx for sample no.3, however this difference is within the limits of experimental variation.
- EP075: Where reported, 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	SBT-GW-3012-A Received as ATL-3012-A	SBT-GW-3012-B Received as ATL-3012-B	SBT-GW-3012-C Received as ATL-3012-C	SMGW-BH-C330 Received as FS01-C330	----
				Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	----
					ES2333004-001	ES2333004-002	ES2333004-003	ES2333004-004	--------
					Result	Result	Result	Result	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**6.92**	**7.45**	**7.48**	**6.71**	**----**
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**5830**	**27900**	**28200**	**28200**	**----**
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		**3580**	**20500**	**19600**	**19300**	**----**
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	**----**
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	**----**
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**307**	**1180**	**770**	**111**	**----**
Total Alkalinity as CaCO3	----	1	mg/L		**307**	**1180**	**770**	**111**	**----**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**369**	**2010**	**3**	**1390**	**----**
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**1530**	**9520**	**10100**	**9920**	**----**
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**19**	**273**	**576**	**117**	**----**
Magnesium	7439-95-4	1	mg/L		**87**	**1190**	**603**	**920**	**----**
Sodium	7440-23-5	1	mg/L		**1030**	**4360**	**4740**	**4490**	**----**
Potassium	7440-09-7	1	mg/L		**14**	**42**	**63**	**11**	**----**
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.02**	<0.01	**0.01**	**0.08**	**----**
Arsenic	7440-38-2	0.001	mg/L		**0.001**	<0.001	**0.002**	<0.001	**----**
Cadmium	7440-43-9	0.0001	mg/L		**0.0002**	**0.0001**	<0.0001	**0.0003**	**----**
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	**0.002**	**----**
Copper	7440-50-8	0.001	mg/L		**0.004**	**0.004**	**0.005**	<0.001	**----**
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	**----**
Manganese	7439-96-5	0.001	mg/L		**0.489**	**0.080**	**0.112**	**7.86**	**----**
Nickel	7440-02-0	0.001	mg/L		**0.007**	**0.009**	**0.014**	**0.244**	**----**
Zinc	7440-66-6	0.005	mg/L		**0.022**	**0.022**	**0.043**	**0.289**	**----**
Iron	7439-89-6	0.05	mg/L		<0.05	<0.05	<0.05	**0.29**	**----**
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**39.3**	**14.1**	**15.1**	**3.05**	**----**

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	SBT-GW-3012-A Received as ATL-3012-A	SBT-GW-3012-B Received as ATL-3012-B	SBT-GW-3012-C Received as ATL-3012-C	SMGW-BH-C330 Received as FS01-C330	----
				Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	----
					ES2333004-001	ES2333004-002	ES2333004-003	ES2333004-004	--------
					Result	Result	Result	Result	----
EG020T: Total Metals by ICP-MS - Continued									
Cobalt	7440-48-4	0.001	mg/L		**0.047**	**0.023**	**0.017**	**0.419**	**----**
Manganese	7439-96-5	0.001	mg/L		**0.849**	**0.613**	**0.503**	**7.74**	**----**
Iron	7439-89-6	0.05	mg/L		**68.9**	**34.3**	**17.8**	**1.89**	**----**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	**----**
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.12**	**0.08**	**6.89**	**0.15**	**----**
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	<0.01	**0.12**	<0.01	**----**
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**1.73**	**0.08**	<0.01	**0.02**	**----**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**1.73**	**0.08**	**0.10**	**0.02**	**----**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**5.7**	**4.0**	**9.3**	**1.2**	**----**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**7.4**	**4.1**	**9.4**	**1.2**	**----**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**1.32**	**1.00**	**1.09**	**0.16**	**----**
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.01	**0.03**	<0.01	<0.01	**----**
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**57.0**	**334**	**300**	**311**	**----**
ø Total Cations	----	0.01	meq/L		**53.3**	**302**	**286**	**277**	**----**
ø Ionic Balance	----	0.01	%		**3.36**	**4.98**	**2.42**	**5.75**	**----**
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		**2**	**27**	**19**	**9**	**----**
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	5	µg/L		**----**	<5	**----**	**----**	**----**
Isopropylbenzene	98-82-8	5	µg/L		**----**	<5	**----**	**----**	**----**
n-Propylbenzene	103-65-1	5	µg/L		**----**	<5	**----**	**----**	**----**

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	SBT-GW-3012-A Received as ATL-3012-A	SBT-GW-3012-B Received as ATL-3012-B	SBT-GW-3012-C Received as ATL-3012-C	SMGW-BH-C330 Received as FS01-C330	----
				Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	----
					ES2333004-001	ES2333004-002	ES2333004-003	ES2333004-004	--------
					Result	Result	Result	Result	----
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
1.3.5-Trimethylbenzene	108-67-8	5	µg/L		----	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L		----	<5	----	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L		----	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L		----	<5	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L		----	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L		----	<5	----	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		----	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L		----	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		----	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L		----	<50	----	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		----	<5	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		----	<5	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L		----	<5	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		----	<5	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		----	<5	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		----	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		----	<50	----	----	----
Chloromethane	74-87-3	50	µg/L		----	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L		----	<50	----	----	----
Bromomethane	74-83-9	50	µg/L		----	<50	----	----	----
Chloroethane	75-00-3	50	µg/L		----	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		----	<50	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L		----	<5	----	----	----
Iodomethane	74-88-4	5	µg/L		----	<5	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L		----	<5	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L		----	<5	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L		----	<5	----	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L		----	<5	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L		----	<5	----	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	SBT-GW-3012-A Received as ATL-3012-A	SBT-GW-3012-B Received as ATL-3012-B	SBT-GW-3012-C Received as ATL-3012-C	SMGW-BH-C330 Received as FS01-C330	----
				Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	----
					ES2333004-001	ES2333004-002	ES2333004-003	ES2333004-004	--------
					Result	Result	Result	Result	----
EP074E: Halogenated Aliphatic Compounds - Continued									
Carbon Tetrachloride	56-23-5	5	µg/L		----	<5	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L		----	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L		----	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L		----	<5	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L		----	<5	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L		----	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L		----	<5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		----	<5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		----	<5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		----	<5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		----	<5	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L		----	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L		----	<5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		----	<5	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L		----	<5	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		----	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L		----	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L		----	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L		----	<5	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L		----	<5	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L		----	<5	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L		----	<5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		----	<5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		----	<5	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		----	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L		----	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L		----	<5	----	----	----
Bromoform	75-25-2	5	µg/L		----	<5	----	----	----
EP075A: Phenolic Compounds									
Phenol	108-95-2	2	µg/L		----	<2	----	----	----
2-Chlorophenol	95-57-8	2	µg/L		----	<2	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-3012-A Received as ATL-3012-A	SBT-GW-3012-B Received as ATL-3012-B	SBT-GW-3012-C Received as ATL-3012-C	SMGW-BH-C330 Received as FS01-C330	----
				Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	----
Compound	CAS Number	LOR	Unit		ES2333004-001	ES2333004-002	ES2333004-003	ES2333004-004	--------
					Result	Result	Result	Result	----
EP075A: Phenolic Compounds - Continued									
2-Methylphenol	95-48-7	2	µg/L		----	<2	----	----	----
3- & 4-Methylphenol	1319-77-3	4	µg/L		----	<4	----	----	----
2-Nitrophenol	88-75-5	2	µg/L		----	<2	----	----	----
2.4-Dimethylphenol	105-67-9	2	µg/L		----	<2	----	----	----
2.4-Dichlorophenol	120-83-2	2	µg/L		----	<2	----	----	----
2.6-Dichlorophenol	87-65-0	2	µg/L		----	<2	----	----	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L		----	<2	----	----	----
2.4.6-Trichlorophenol	88-06-2	2	µg/L		----	<2	----	----	----
2.4.5-Trichlorophenol	95-95-4	2	µg/L		----	<2	----	----	----
Pentachlorophenol	87-86-5	4	µg/L		----	<4	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	2	µg/L		----	<2	----	----	----
2-Methylnaphthalene	91-57-6	2	µg/L		----	<2	----	----	----
2-Chloronaphthalene	91-58-7	2	µg/L		----	<2	----	----	----
Acenaphthylene	208-96-8	2	µg/L		----	<2	----	----	----
Acenaphthene	83-32-9	2	µg/L		----	<2	----	----	----
Fluorene	86-73-7	2	µg/L		----	<2	----	----	----
Phenanthrene	85-01-8	2	µg/L		----	<2	----	----	----
Anthracene	120-12-7	2	µg/L		----	<2	----	----	----
Fluoranthene	206-44-0	2	µg/L		----	<2	----	----	----
Pyrene	129-00-0	2	µg/L		----	<2	----	----	----
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L		----	<2	----	----	----
Benz(a)anthracene	56-55-3	2	µg/L		----	<2	----	----	----
Chrysene	218-01-9	2	µg/L		----	<2	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L		----	<4	----	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L		----	<2	----	----	----
Benzo(a)pyrene	50-32-8	2	µg/L		----	<2	----	----	----
3-Methylcholanthrene	56-49-5	2	µg/L		----	<2	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L		----	<2	----	----	----
Dibenz(a.h)anthracene	53-70-3	2	µg/L		----	<2	----	----	----
Benzo(g.h.i)perylene	191-24-2	2	µg/L		----	<2	----	----	----
^ Sum of PAHs	----	2	µg/L		----	<2	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-3012-A Received as ATL-3012-A	SBT-GW-3012-B Received as ATL-3012-B	SBT-GW-3012-C Received as ATL-3012-C	SMGW-BH-C330 Received as FS01-C330	----
				Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	----
Compound	CAS Number	LOR	Unit		ES2333004-001	ES2333004-002	ES2333004-003	ES2333004-004	--------
					Result	Result	Result	Result	----
EP075B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (zero)	----	2	µg/L		----	<2	----	----	----
EP075C: Phthalate Esters									
Dimethyl phthalate	131-11-3	2	µg/L		----	<2	----	----	----
Diethyl phthalate	84-66-2	2	µg/L		----	<2	----	----	----
Di-n-butyl phthalate	84-74-2	2	µg/L		----	<2	----	----	----
Butyl benzyl phthalate	85-68-7	2	µg/L		----	<2	----	----	----
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L		----	<10	----	----	----
Di-n-octylphthalate	117-84-0	2	µg/L		----	<2	----	----	----
EP075D: Nitrosamines									
N-Nitrosomethylethylamine	10595-95-6	2	µg/L		----	<2	----	----	----
N-Nitrosodiethylamine	55-18-5	2	µg/L		----	<2	----	----	----
N-Nitrosopyrrolidine	930-55-2	4	µg/L		----	<4	----	----	----
N-Nitrosomorpholine	59-89-2	2	µg/L		----	<2	----	----	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L		----	<2	----	----	----
N-Nitrosopiperidine	100-75-4	2	µg/L		----	<2	----	----	----
N-Nitrosodibutylamine	924-16-3	2	µg/L		----	<2	----	----	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L		----	<4	----	----	----
Methapyrilene	91-80-5	2	µg/L		----	<2	----	----	----
EP075E: Nitroaromatics and Ketones									
2-Picoline	109-06-8	2	µg/L		----	<2	----	----	----
Acetophenone	98-86-2	2	µg/L		----	<2	----	----	----
Nitrobenzene	98-95-3	2	µg/L		----	<2	----	----	----
Isophorone	78-59-1	2	µg/L		----	<2	----	----	----
2.6-Dinitrotoluene	606-20-2	4	µg/L		----	<4	----	----	----
2.4-Dinitrotoluene	121-14-2	4	µg/L		----	<4	----	----	----
1-Naphthylamine	134-32-7	2	µg/L		----	<2	----	----	----
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L		----	<2	----	----	----
5-Nitro-o-toluidine	99-55-8	2	µg/L		----	<2	----	----	----
Azobenzene	103-33-3	2	µg/L		----	<2	----	----	----
1.3.5-Trinitrobenzene	99-35-4	2	µg/L		----	<2	----	----	----
Phenacetin	62-44-2	2	µg/L		----	<2	----	----	----
4-Aminobiphenyl	92-67-1	2	µg/L		----	<2	----	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	SBT-GW-3012-A Received as ATL-3012-A	SBT-GW-3012-B Received as ATL-3012-B	SBT-GW-3012-C Received as ATL-3012-C	SMGW-BH-C330 Received as FS01-C330	----
				Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	----
					ES2333004-001	ES2333004-002	ES2333004-003	ES2333004-004	--------
					Result	Result	Result	Result	----
EP075E: Nitroaromatics and Ketones - Continued									
Pentachloronitrobenzene	82-68-8	2	µg/L		----	<2	----	----	----
Pronamide	23950-58-5	2	µg/L		----	<2	----	----	----
Dimethylaminoazobenzene	60-11-7	2	µg/L		----	<2	----	----	----
Chlorobenzilate	510-15-6	2	µg/L		----	<2	----	----	----
EP075F: Haloethers									
Bis(2-chloroethyl) ether	111-44-4	2	µg/L		----	<2	----	----	----
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L		----	<2	----	----	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L		----	<2	----	----	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L		----	<2	----	----	----
EP075G: Chlorinated Hydrocarbons									
1.3-Dichlorobenzene	541-73-1	2	µg/L		----	<2	----	----	----
1.4-Dichlorobenzene	106-46-7	2	µg/L		----	<2	----	----	----
1.2-Dichlorobenzene	95-50-1	2	µg/L		----	<2	----	----	----
Hexachloroethane	67-72-1	2	µg/L		----	<2	----	----	----
1.2.4-Trichlorobenzene	120-82-1	2	µg/L		----	<2	----	----	----
Hexachloropropylene	1888-71-7	2	µg/L		----	<2	----	----	----
Hexachlorobutadiene	87-68-3	2	µg/L		----	<2	----	----	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L		----	<10	----	----	----
Pentachlorobenzene	608-93-5	2	µg/L		----	<2	----	----	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L		----	<4	----	----	----
EP075H: Anilines and Benzidines									
Aniline	62-53-3	2	µg/L		----	<2	----	----	----
4-Chloroaniline	106-47-8	2	µg/L		----	<2	----	----	----
2-Nitroaniline	88-74-4	4	µg/L		----	<4	----	----	----
3-Nitroaniline	99-09-2	4	µg/L		----	<4	----	----	----
Dibenzofuran	132-64-9	2	µg/L		----	<2	----	----	----
4-Nitroaniline	100-01-6	2	µg/L		----	<2	----	----	----
Carbazole	86-74-8	2	µg/L		----	<2	----	----	----
3.3`-Dichlorobenzidine	91-94-1	2	µg/L		----	<2	----	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	2	µg/L		----	<2	----	----	----
beta-BHC	319-85-7	2	µg/L		----	<2	----	----	----
gamma-BHC	58-89-9	2	µg/L		----	<2	----	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	SBT-GW-3012-A Received as ATL-3012-A	SBT-GW-3012-B Received as ATL-3012-B	SBT-GW-3012-C Received as ATL-3012-C	SMGW-BH-C330 Received as FS01-C330	----
				Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	----
					ES2333004-001	ES2333004-002	ES2333004-003	ES2333004-004	--------
					Result	Result	Result	Result	----
EP075I: Organochlorine Pesticides - Continued									
delta-BHC	319-86-8	2	µg/L		----	<2	----	----	----
Heptachlor	76-44-8	2	µg/L		----	<2	----	----	----
Aldrin	309-00-2	2	µg/L		----	<2	----	----	----
Heptachlor epoxide	1024-57-3	2	µg/L		----	<2	----	----	----
alpha-Endosulfan	959-98-8	2	µg/L		----	<2	----	----	----
4.4`-DDE	72-55-9	2	µg/L		----	<2	----	----	----
Dieldrin	60-57-1	2	µg/L		----	<2	----	----	----
Endrin	72-20-8	2	µg/L		----	<2	----	----	----
beta-Endosulfan	33213-65-9	2	µg/L		----	<2	----	----	----
4.4`-DDD	72-54-8	2	µg/L		----	<2	----	----	----
Endosulfan sulfate	1031-07-8	2	µg/L		----	<2	----	----	----
4.4`-DDT	50-29-3	4	µg/L		----	<4	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L		----	<4	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L		----	<4	----	----	----
EP075J: Organophosphorus Pesticides									
Dichlorvos	62-73-7	2	µg/L		----	<2	----	----	----
Dimethoate	60-51-5	2	µg/L		----	<2	----	----	----
Diazinon	333-41-5	2	µg/L		----	<2	----	----	----
Chlorpyrifos-methyl	5598-13-0	2	µg/L		----	<2	----	----	----
Malathion	121-75-5	2	µg/L		----	<2	----	----	----
Fenthion	55-38-9	2	µg/L		----	<2	----	----	----
Chlorpyrifos	2921-88-2	2	µg/L		----	<2	----	----	----
Pirimphos-ethyl	23505-41-1	2	µg/L		----	<2	----	----	----
Chlorfenvinphos	470-90-6	2	µg/L		----	<2	----	----	----
Prothiofos	34643-46-4	2	µg/L		----	<2	----	----	----
Ethion	563-12-2	2	µg/L		----	<2	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		----	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L		----	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L		----	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L		----	<50	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		----	<50	----	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	SBT-GW-3012-A Received as ATL-3012-A	SBT-GW-3012-B Received as ATL-3012-B	SBT-GW-3012-C Received as ATL-3012-C	SMGW-BH-C330 Received as FS01-C330	----
				Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	----
					ES2333004-001	ES2333004-002	ES2333004-003	ES2333004-004	--------
					Result	Result	Result	Result	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		----	<20	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		----	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L		----	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L		----	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L		----	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		----	<100	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		----	<100	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		----	<1	----	----	----
Toluene	108-88-3	2	µg/L		----	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		----	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		----	<2	----	----	----
^ **Total Xylenes**	----	2	µg/L		----	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		----	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		----	<5	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		----	**98.8**	----	----	----
Toluene-D8	2037-26-5	5	%		----	**99.5**	----	----	----
4-Bromofluorobenzene	460-00-4	5	%		----	**102**	----	----	----
EP075S: Acid Extractable Surrogates									
2-Fluorophenol	367-12-4	2	%		----	**41.2**	----	----	----
Phenol-d6	13127-88-3	2	%		----	**31.3**	----	----	----
2-Chlorophenol-D4	93951-73-6	2	%		----	**56.9**	----	----	----
2.4.6-Tribromophenol	118-79-6	2	%		----	**69.3**	----	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	2	%		----	**58.9**	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	2	%		----	**28.7**	----	----	----
2-Fluorobiphenyl	321-60-8	2	%		----	**48.0**	----	----	----
Anthracene-d10	1719-06-8	2	%		----	**74.7**	----	----	----
4-Terphenyl-d14	1718-51-0	2	%		----	**77.1**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-3012-A Received as ATL-3012-A	SBT-GW-3012-B Received as ATL-3012-B	SBT-GW-3012-C Received as ATL-3012-C	SMGW-BH-C330 Received as FS01-C330	----
				Sampling date / time	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	20-Sep-2023 00:00	----
Compound	CAS Number	LOR	Unit		ES2333004-001	ES2333004-002	ES2333004-003	ES2333004-004	--------
					Result	Result	Result	Result	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**----**	**98.1**	**----**	**----**	**----**
Toluene-D8	2037-26-5	2	%		**----**	**102**	**----**	**----**	**----**
4-Bromofluorobenzene	460-00-4	2	%		**----**	**111**	**----**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	117
Phenol-d6	13127-88-3	10	69
2-Chlorophenol-D4	93951-73-6	21	130
2.4.6-Tribromophenol	118-79-6	10	151
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	142
1.2-Dichlorobenzene-D4	2199-69-1	24	121
2-Fluorobiphenyl	321-60-8	27	135
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	21	123
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

QUALITY CONTROL REPORT

Work Order	: **ES2333004**	Page	: 1 of 17
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: CHRISTOPHER BLYTH	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 26-Sep-2023
Order number	: ----	Date Analysis Commenced	: 26-Sep-2023
C-O-C number	: ----	Issue Date	: 29-Sep-2023
Sampler	: Mary Wong		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 4		
No. of samples analysed	: 4		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

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 (%)*
EA005P: pH by PC Titrator (QC Lot: 5323232)									
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EA005-P: pH Value	----	0.01	pH Unit	7.45	7.45	0.0	0% - 20%
ES2332665-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.73	7.92	2.4	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5323231)									
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	27900	28200	0.8	0% - 20%
ES2332665-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	53800	55300	2.8	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5324827)									
ES2332367-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	2200	2390	8.4	0% - 20%
ES2333003-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	15300	15000	2.2	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5323234)									
ES2332847-004	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	58	58	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	58	58	0.0	0% - 20%
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	1180	1180	0.1	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	1180	1180	0.1	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5323290)									
ES2332881-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<10	<10	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 5323291)									

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 (%)*
ED045G: Chloride by Discrete Analyser (QC Lot: 5323291) - continued									
ES2332943-009	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	23	23	0.0	0% - 20%
ES2332881-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	3000	3060	1.9	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5323294)									
ES2333004-003	SBT-GW-3012-C Received as ATL-3012-C	ED045G: Chloride	16887-00-6	1	mg/L	10100	10300	2.0	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5323469)									
ES2333003-002	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	313	312	0.4	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	640	637	0.5	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	3580	3570	0.3	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	16	16	0.0	0% - 50%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5323467)									
ES2333003-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	1.09	1.09	0.5	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.009	0.008	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 5323494)									
ES2332813-001	Anonymous	EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.100	0.090	10.7	0% - 20%
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	1.14	1.36	17.8	0% - 20%
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.87	1.01	15.1	0% - 20%
ES2333004-003	SBT-GW-3012-C Received as ATL-3012-C	EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.017	0.018	9.4	0% - 50%
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.503	0.509	1.2	0% - 20%
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	15.1	15.6	3.5	0% - 20%
		EG020A-T: Iron	7439-89-6	0.05	mg/L	17.8	19.7	10.1	0% - 20%
EG035F: Dissolved Mercury by FIMS (QC Lot: 5323468)									
ES2333003-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5323310)									
ES2331883-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.03	0.03	0.0	No Limit
ES2333002-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.58	0.60	3.2	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5323289)									
ES2332931-002	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.15	0.15	0.0	0% - 50%
ES2331883-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.04	0.04	0.0	No Limit

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 (%)*
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5323311)									
ES2331883-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.06	0.08	19.7	No Limit
ES2333002-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.35	0.34	0.0	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5323313)									
ES2331883-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.2	0.2	0.0	No Limit
ES2333002-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	2.3	2.4	0.0	0% - 50%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5323312)									
ES2331883-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.03	0.04	28.6	No Limit
ES2333002-002	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.02	0.02	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5323288)									
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.03	0.02	0.0	No Limit
ES2331883-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP005: Total Organic Carbon (TOC) (QC Lot: 5323737)									
ES2332170-010	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	14	13	0.0	0% - 50%
ES2332531-007	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	12	14	21.6	0% - 50%
EP005: Total Organic Carbon (TOC) (QC Lot: 5323739)									
ES2333004-003	SBT-GW-3012-C Received as ATL-3012-C	EP005: Total Organic Carbon	----	1	mg/L	19	21	10.6	0% - 20%
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 5327010)									
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 5327010)									
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 5327010)									
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit

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 (%)*
EP074D: Fumigants (QC Lot: 5327010)									
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5327010)									
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5327010)									
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit

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 (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 5327010) - continued									
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5327010)									
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5327009)									
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5327009)									
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5327009)									
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 5323232)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 5323231)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	104	89.9	110
				<1	2100 µS/cm	99.7	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5324827)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	93.8	87.0	109
				<10	293 mg/L	105	75.2	126
				<10	2380 mg/L	106	83.0	124
ED037P: Alkalinity by PC Titrator (QCLot: 5323234)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	98.8	81.0	115
				----	50 mg/L	107	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5323290)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	107	82.0	122
				<1	500 mg/L	102	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5323291)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	95.1	80.9	127
				<1	1000 mg/L	106	80.9	127
ED045G: Chloride by Discrete Analyser (QCLot: 5323294)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	95.4	80.9	127
				<1	1000 mg/L	106	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5323469)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	100	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	98.8	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	97.5	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	94.4	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5323467)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	92.2	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.6	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.1	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.6	85.0	111

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5323467) - continued								
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.5	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	92.9	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	93.0	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.2	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	95.7	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	101	82.0	112
EG020T: Total Metals by ICP-MS (QCLot: 5323494)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	101	82.0	120
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	102	84.0	116
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	101	85.0	113
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	107	85.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 5323468)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	98.1	83.0	105
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5323310)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	105	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5323289)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	99.1	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5323311)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	102	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5323313)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	98.8	69.0	101
				<0.1	1 mg/L	112	70.0	118
				<0.1	5 mg/L	104	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5323312)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	98.4	71.3	126
				<0.01	0.442 mg/L	97.8	71.3	126
				<0.01	1 mg/L	103	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5323288)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	100	85.0	117
EP005: Total Organic Carbon (TOC) (QCLot: 5323737)								
EP005: Total Organic Carbon	----	1	mg/L	<1	10 mg/L	104	72.0	120
EP005: Total Organic Carbon (TOC) (QCLot: 5323739)								
EP005: Total Organic Carbon	----	1	mg/L	<1	10 mg/L	108	72.0	120
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5327010)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5327010) - continued								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	104	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	105	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	101	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	105	74.0	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	103	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	104	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	103	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	104	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	102	65.0	123
EP074B: Oxygenated Compounds (QCLot: 5327010)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	109	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	97.4	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	105	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	93.4	65.0	137
EP074C: Sulfonated Compounds (QCLot: 5327010)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	91.6	72.8	127
EP074D: Fumigants (QCLot: 5327010)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	99.8	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	102	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	99.2	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	100	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	106	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5327010)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	95.7	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	101	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	97.6	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	104	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	103	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	101	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	97.6	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	101	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	97.8	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	106	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	105	77.0	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5327010) - continued								
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	98.4	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	100	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	94.1	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	108	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	102	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	104	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	108	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	110	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	97.6	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	98.4	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	95.8	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	103	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	115	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	111	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	103	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	100.0	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	108	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5327010)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	106	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	103	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	106	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	106	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	107	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	107	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	108	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	105	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	119	67.0	123
EP074G: Trihalomethanes (QCLot: 5327010)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	105	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	101	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	98.0	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	98.3	73.5	126
EP075A: Phenolic Compounds (QCLot: 5324366)								
EP075: Phenol	108-95-2	2	µg/L	<2	10 µg/L	32.9	25.5	64.1

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075A: Phenolic Compounds (QCLot: 5324366) - continued								
EP075: 2-Chlorophenol	95-57-8	2	µg/L	<2	10 µg/L	60.2	52.0	88.0
EP075: 2-Methylphenol	95-48-7	2	µg/L	<2	10 µg/L	58.4	50.0	94.0
EP075: 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	10 µg/L	58.2	45.0	96.2
EP075: 2-Nitrophenol	88-75-5	2	µg/L	<2	10 µg/L	93.9	48.0	98.0
EP075: 2.4-Dimethylphenol	105-67-9	2	µg/L	<2	10 µg/L	72.8	50.0	94.0
EP075: 2.4-Dichlorophenol	120-83-2	2	µg/L	<2	10 µg/L	77.4	61.9	109
EP075: 2.6-Dichlorophenol	87-65-0	2	µg/L	<2	10 µg/L	71.9	61.5	108
EP075: 4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	10 µg/L	76.9	61.4	107
EP075: 2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	10 µg/L	87.9	57.6	112
EP075: 2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	10 µg/L	83.4	58.0	110
EP075: Pentachlorophenol	87-86-5	4	µg/L	<4	20 µg/L	80.3	12.8	95.0
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 5324366)								
EP075: Naphthalene	91-20-3	2	µg/L	<2	10 µg/L	62.6	51.0	95.0
EP075: 2-Methylnaphthalene	91-57-6	2	µg/L	<2	10 µg/L	62.6	59.0	108
EP075: 2-Chloronaphthalene	91-58-7	2	µg/L	<2	10 µg/L	71.7	60.6	106
EP075: Acenaphthylene	208-96-8	2	µg/L	<2	10 µg/L	73.5	64.0	108
EP075: Acenaphthene	83-32-9	2	µg/L	<2	10 µg/L	66.0	65.0	108
EP075: Fluorene	86-73-7	2	µg/L	<2	10 µg/L	67.9	65.2	107
EP075: Phenanthrene	85-01-8	2	µg/L	<2	10 µg/L	77.2	66.7	108
EP075: Anthracene	120-12-7	2	µg/L	<2	10 µg/L	78.4	65.8	108
EP075: Fluoranthene	206-44-0	2	µg/L	<2	10 µg/L	78.5	64.9	109
EP075: Pyrene	129-00-0	2	µg/L	<2	10 µg/L	77.4	60.1	111
EP075: N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	10 µg/L	82.2	59.7	110
EP075: Benz(a)anthracene	56-55-3	2	µg/L	<2	10 µg/L	77.4	62.2	112
EP075: Chrysene	218-01-9	2	µg/L	<2	10 µg/L	75.0	59.3	114
EP075: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	20 µg/L	79.8	60.1	111
EP075: 7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	10 µg/L	86.1	50.0	108
EP075: Benzo(a)pyrene	50-32-8	2	µg/L	<2	10 µg/L	78.8	59.2	112
EP075: 3-Methylcholanthrene	56-49-5	2	µg/L	<2	10 µg/L	78.3	60.1	110
EP075: Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L	<2	10 µg/L	75.0	59.6	110
EP075: Dibenz(a.h)anthracene	53-70-3	2	µg/L	<2	10 µg/L	76.3	57.2	109
EP075: Benzo(g.h.i)perylene	191-24-2	2	µg/L	<2	10 µg/L	73.2	60.6	110
EP075: Benzo(a)pyrene TEQ (zero)	----	2	µg/L	<2	----	----	----	----
EP075C: Phthalate Esters (QCLot: 5324366)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075C: Phthalate Esters (QCLot: 5324366) - continued								
EP075: Dimethyl phthalate	131-11-3	2	µg/L	<2	10 µg/L	82.8	64.3	112
EP075: Diethyl phthalate	84-66-2	2	µg/L	<2	10 µg/L	74.8	67.3	111
EP075: Di-n-butyl phthalate	84-74-2	2	µg/L	<2	10 µg/L	81.9	68.4	122
EP075: Butyl benzyl phthalate	85-68-7	2	µg/L	<2	10 µg/L	80.0	61.2	114
EP075: bis(2-ethylhexyl) phthalate	117-81-7	----	µg/L	----	10 µg/L	91.8	60.0	132
EP075: Di-n-octylphthalate	117-84-0	2	µg/L	<2	10 µg/L	83.7	62.1	115
EP075D: Nitrosamines (QCLot: 5324366)								
EP075: N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	10 µg/L	51.0	46.0	110
EP075: N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	10 µg/L	63.2	60.6	113
EP075: N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	10 µg/L	69.0	45.0	91.0
EP075: N-Nitrosomorpholine	59-89-2	2	µg/L	<2	10 µg/L	61.2	42.0	100
EP075: N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	10 µg/L	76.1	63.5	108
EP075: N-Nitrosopiperidine	100-75-4	2	µg/L	<2	10 µg/L	79.8	61.7	107
EP075: N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	10 µg/L	# 110	62.5	108
EP075: N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	20 µg/L	70.1	64.6	112
EP075: Methapyrilene	91-80-5	2	µg/L	<2	10 µg/L	65.1	23.3	125
EP075E: Nitroaromatics and Ketones (QCLot: 5324366)								
EP075: 2-Picoline	109-06-8	2	µg/L	<2	10 µg/L	41.4	41.0	109
EP075: Acetophenone	98-86-2	2	µg/L	<2	10 µg/L	70.2	68.3	112
EP075: Nitrobenzene	98-95-3	2	µg/L	<2	10 µg/L	# 67.7	68.3	112
EP075: Isophorone	78-59-1	2	µg/L	<2	10 µg/L	79.9	67.6	111
EP075: 2.6-Dinitrotoluene	606-20-2	4	µg/L	<4	10 µg/L	83.1	64.4	113
EP075: 2.4-Dinitrotoluene	121-14-2	4	µg/L	<4	10 µg/L	76.5	59.5	109
EP075: 1-Naphthylamine	134-32-7	2	µg/L	<2	10 µg/L	68.8	46.8	102
EP075: 4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	10 µg/L	73.4	40.0	96.0
EP075: 5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	10 µg/L	71.1	58.3	106
EP075: Azobenzene	103-33-3	2	µg/L	<2	10 µg/L	67.0	66.0	112
EP075: 1.3.5-Trinitrobenzene	99-35-4	2	µg/L	<2	10 µg/L	70.8	46.0	108
EP075: Phenacetin	62-44-2	2	µg/L	<2	10 µg/L	68.2	57.8	101
EP075: 4-Aminobiphenyl	92-67-1	2	µg/L	<2	10 µg/L	68.0	60.1	112
EP075: Pentachloronitrobenzene	82-68-8	2	µg/L	<2	10 µg/L	72.7	59.0	109
EP075: Pronamide	23950-58-5	2	µg/L	<2	10 µg/L	80.7	62.7	109
EP075: Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	10 µg/L	59.8	59.4	108

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
				Result	Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)
						LCS	Low	High
EP075E: Nitroaromatics and Ketones (QCLot: 5324366) - continued								
EP075: Chlorobenzilate	510-15-6	2	µg/L	<2	10 µg/L	91.1	57.7	110
EP075F: Haloethers (QCLot: 5324366)								
EP075: Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	10 µg/L	# 62.2	69.1	112
EP075: Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	10 µg/L	73.0	66.2	111
EP075: 4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	10 µg/L	66.7	64.7	109
EP075: 4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	10 µg/L	68.6	61.6	108
EP075G: Chlorinated Hydrocarbons (QCLot: 5324366)								
EP075: 1.4-Dichlorobenzene	106-46-7	2	µg/L	<2	10 µg/L	52.6	41.0	97.0
EP075: 1.3-Dichlorobenzene	541-73-1	2	µg/L	<2	10 µg/L	52.0	40.0	96.0
EP075: 1.2-Dichlorobenzene	95-50-1	2	µg/L	<2	10 µg/L	54.4	41.0	95.0
EP075: Hexachloroethane	67-72-1	2	µg/L	<2	10 µg/L	51.6	46.0	88.0
EP075: 1.2.4-Trichlorobenzene	120-82-1	2	µg/L	<2	10 µg/L	56.1	46.0	96.0
EP075: Hexachloropropylene	1888-71-7	2	µg/L	<2	10 µg/L	54.7	34.0	96.0
EP075: Hexachlorobutadiene	87-68-3	2	µg/L	<2	10 µg/L	51.7	37.4	100
EP075: Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	10 µg/L	56.3	23.5	107
EP075: Pentachlorobenzene	608-93-5	2	µg/L	<2	10 µg/L	# 64.2	64.5	107
EP075: Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	10 µg/L	67.6	65.7	110
EP075H: Anilines and Benzidines (QCLot: 5324366)								
EP075: Aniline	62-53-3	2	µg/L	<2	10 µg/L	58.2	50.0	104
EP075: 4-Chloroaniline	106-47-8	2	µg/L	<2	10 µg/L	69.1	42.0	106
EP075: 2-Nitroaniline	88-74-4	4	µg/L	<4	10 µg/L	84.4	60.9	110
EP075: 3-Nitroaniline	99-09-2	4	µg/L	<4	10 µg/L	70.3	51.5	96.9
EP075: Dibenzofuran	132-64-9	2	µg/L	<2	10 µg/L	66.1	65.3	108
EP075: 4-Nitroaniline	100-01-6	2	µg/L	<2	10 µg/L	65.1	48.9	99.5
EP075: Carbazole	86-74-8	2	µg/L	<2	10 µg/L	78.7	64.3	107
EP075: 3.3`-Dichlorobenzidine	91-94-1	2	µg/L	<2	10 µg/L	82.1	60.3	119
EP075I: Organochlorine Pesticides (QCLot: 5324366)								
EP075: alpha-BHC	319-84-6	2	µg/L	<2	10 µg/L	70.4	64.3	110
EP075: beta-BHC	319-85-7	2	µg/L	<2	10 µg/L	69.8	53.0	107
EP075: gamma-BHC	58-89-9	2	µg/L	<2	10 µg/L	69.2	51.0	111
EP075: delta-BHC	319-86-8	2	µg/L	<2	10 µg/L	77.8	57.0	111
EP075: Heptachlor	76-44-8	2	µg/L	<2	10 µg/L	82.4	57.9	108
EP075: Aldrin	309-00-2	2	µg/L	<2	10 µg/L	76.2	56.0	112
EP075: Heptachlor epoxide	1024-57-3	2	µg/L	<2	10 µg/L	79.6	50.0	118

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075I: Organochlorine Pesticides (QCLot: 5324366) - continued								
EP075: alpha-Endosulfan	959-98-8	2	µg/L	<2	10 µg/L	80.0	59.0	111
EP075: 4.4`-DDE	72-55-9	2	µg/L	<2	10 µg/L	75.3	53.0	115
EP075: Dieldrin	60-57-1	2	µg/L	<2	10 µg/L	81.0	59.0	115
EP075: Endrin	72-20-8	2	µg/L	<2	10 µg/L	86.8	58.0	114
EP075: beta-Endosulfan	33213-65-9	2	µg/L	<2	10 µg/L	77.8	54.0	116
EP075: 4.4`-DDD	72-54-8	2	µg/L	<2	10 µg/L	77.9	55.0	115
EP075: Endosulfan sulfate	1031-07-8	2	µg/L	<2	10 µg/L	82.4	52.8	114
EP075: 4.4`-DDT	50-29-3	4	µg/L	<4	10 µg/L	86.6	56.0	114
EP075: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	<4	----	----	----	----
EP075: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	<4	----	----	----	----
EP075J: Organophosphorus Pesticides (QCLot: 5324366)								
EP075: Dichlorvos	62-73-7	2	µg/L	<2	10 µg/L	94.1	51.0	113
EP075: Dimethoate	60-51-5	2	µg/L	<2	10 µg/L	69.1	43.0	109
EP075: Diazinon	333-41-5	2	µg/L	<2	10 µg/L	82.4	49.0	113
EP075: Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	10 µg/L	84.0	54.1	116
EP075: Malathion	121-75-5	2	µg/L	<2	10 µg/L	100	54.0	124
EP075: Fenthion	55-38-9	2	µg/L	<2	10 µg/L	82.2	57.0	115
EP075: Chlorpyrifos	2921-88-2	2	µg/L	<2	10 µg/L	82.1	53.0	109
EP075: Pirimphos-ethyl	23505-41-1	2	µg/L	<2	10 µg/L	80.0	55.0	111
EP075: Chlorfenvinphos	470-90-6	2	µg/L	<2	10 µg/L	75.8	50.0	116
EP075: Prothiofos	34643-46-4	2	µg/L	<2	10 µg/L	80.3	54.0	118
EP075: Ethion	563-12-2	2	µg/L	<2	10 µg/L	82.9	51.0	117
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5324364)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	87.8	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	93.1	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	88.6	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5327009)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	86.9	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5324364)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	92.2	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	92.6	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	68.8	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5327009)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5327009) - continued								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	88.4	75.0	127
EP080: BTEXN (QCLot: 5327009)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	99.0	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	109	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	108	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	110	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	117	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	112	75.5	124

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.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5323290)							
ES2332881-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	125	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5323291)							
ES2332881-001	Anonymous	ED045G: Chloride	16887-00-6	500 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5323294)							
ES2333004-003	SBT-GW-3012-C Received as ATL-3012-C	ED045G: Chloride	16887-00-6	50 mg/L	# Not Determined	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5323467)							
ES2333004-001	SBT-GW-3012-A Received as ATL-3012-A	EG020A-F: Arsenic	7440-38-2	1 mg/L	103	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	95.0	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	83.5	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	98.4	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	91.9	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	88.0	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	95.2	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	96.4	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5323494)							
ES2332813-002	Anonymous	EG020A-T: Cobalt	7440-48-4	1 mg/L	97.2	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	94.8	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035F: Dissolved Mercury by FIMS (QCLot: 5323468)							
ES2332797-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	70.8	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5323310)							
ES2331883-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	115	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5323289)							
ES2331883-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	111	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5323311)							
ES2331883-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	108	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5323313)							
ES2331883-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	99.8	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5323312)							
ES2331883-002	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	97.8	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5323288)							
ES2331883-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	112	70.0	130
EP005: Total Organic Carbon (TOC) (QCLot: 5323737)							
ES2332170-011	Anonymous	EP005: Total Organic Carbon	----	100 mg/L	106	70.0	130
EP005: Total Organic Carbon (TOC) (QCLot: 5323739)							
ES2333004-003	SBT-GW-3012-C Received as ATL-3012-C	EP005: Total Organic Carbon	----	125 mg/L	99.2	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5327010)							
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	92.4	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	94.4	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5327010)							
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EP074: Chlorobenzene	108-90-7	25 µg/L	101	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5327009)							
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EP080: C6 - C9 Fraction	----	325 µg/L	91.7	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5327009)							
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	91.0	70.0	130
EP080: BTEXN (QCLot: 5327009)							
ES2333004-002	SBT-GW-3012-B Received as ATL-3012-B	EP080: Benzene	71-43-2	25 µg/L	103	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	112	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	110	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	109	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	120	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	114	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2333004**	Page	: 1 of 12
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: CHRISTOPHER BLYTH	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 26-Sep-2023
Site	:	Issue Date	: 29-Sep-2023
Sampler	: Mary Wong	No. of samples received	: 4
Order number	: ----	No. of samples analysed	: 4

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.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075D: Nitrosamines	QC-5324366-002	----	**N-Nitrosodibutylamine**	924-16-3	110 %	62.5-108%	**Recovery greater than upper control limit**
EP075E: Nitroaromatics and Ketones	QC-5324366-002	----	**Nitrobenzene**	98-95-3	67.7 %	68.3-112%	**Recovery less than lower control limit**
EP075F: Haloethers	QC-5324366-002	----	**Bis(2-chloroethyl) ether**	111-44-4	62.2 %	69.1-112%	**Recovery less than lower control limit**
EP075G: Chlorinated Hydrocarbons	QC-5324366-002	----	**Pentachlorobenzene**	608-93-5	64.2 %	64.5-107%	**Recovery less than lower control limit**
Matrix Spike (MS) Recoveries							
ED045G: Chloride by Discrete Analyser	ES2333004--003	SBT-GW-3012-C Received as	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED045G: Chloride by Discrete Analyser	ES2332881--001	Anonymous	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural							
SBT-GW-3012-A - Received as ATL-3012-A,	SBT-GW-3012-B - Received as ATL-3012-B,	----	----	----	26-Sep-2023	20-Sep-2023	**6**
SBT-GW-3012-C - Received as ATL-3012-C,	SMGW-BH-C330 - Received as FS01-C330						
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural							
SBT-GW-3012-A - Received as ATL-3012-A,	SBT-GW-3012-B - Received as ATL-3012-B,	----	----	----	28-Sep-2023	22-Sep-2023	**6**
SBT-GW-3012-C - Received as ATL-3012-C,	SMGW-BH-C330 - Received as FS01-C330						
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural							
SBT-GW-3012-A - Received as ATL-3012-A,	SBT-GW-3012-B - Received as ATL-3012-B,	----	----	----	28-Sep-2023	22-Sep-2023	**6**
SBT-GW-3012-C - Received as ATL-3012-C,	SMGW-BH-C330 - Received as FS01-C330						

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Semivolatile Organic Compounds	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	0				
Matrix Spikes (MS) - Continued					
Semivolatile Organic Compounds	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / *Container* / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator								
Clear Plastic Bottle - Natural (EA005-P)								
SBT-GW-3012-A - Received as ATL-3012-A,	SBT-GW-3012-B - Received as ATL-3012-B,	**20-Sep-2023**	**----**	----	----	**26-Sep-2023**	20-Sep-2023	×
SBT-GW-3012-C - Received as ATL-3012-C,	SMGW-BH-C330 - Received as FS01-C330							
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P)								
SBT-GW-3012-A - Received as ATL-3012-A,	SBT-GW-3012-B - Received as ATL-3012-B,	**20-Sep-2023**	**----**	----	----	**26-Sep-2023**	18-Oct-2023	✓
SBT-GW-3012-C - Received as ATL-3012-C,	SMGW-BH-C330 - Received as FS01-C330							
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Clear Plastic Bottle - Natural (EA015H)								
SBT-GW-3012-A - Received as ATL-3012-A,	SBT-GW-3012-B - Received as ATL-3012-B,	**20-Sep-2023**	**----**	----	----	**27-Sep-2023**	27-Sep-2023	✓
SBT-GW-3012-C - Received as ATL-3012-C,	SMGW-BH-C330 - Received as FS01-C330							
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P)								
SBT-GW-3012-A - Received as ATL-3012-A,	SBT-GW-3012-B - Received as ATL-3012-B,	**20-Sep-2023**	**----**	----	----	**26-Sep-2023**	04-Oct-2023	✓
SBT-GW-3012-C - Received as ATL-3012-C,	SMGW-BH-C330 - Received as FS01-C330							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G)								
SBT-GW-3012-A - Received as ATL-3012-A,	SBT-GW-3012-B - Received as ATL-3012-B,	**20-Sep-2023**	**----**	----	----	**28-Sep-2023**	18-Oct-2023	✓
SBT-GW-3012-C - Received as ATL-3012-C,	SMGW-BH-C330 - Received as FS01-C330							
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G)								
SBT-GW-3012-A - Received as ATL-3012-A,	SBT-GW-3012-B - Received as ATL-3012-B,	**20-Sep-2023**	**----**	----	----	**28-Sep-2023**	18-Oct-2023	✓
SBT-GW-3012-C - Received as ATL-3012-C,	SMGW-BH-C330 - Received as FS01-C330							

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)							
SBT-GW-3012-A - Received as ATL-3012-A, SBT-GW-3012-B - Received as ATL-3012-B, SBT-GW-3012-C - Received as ATL-3012-C, SMGW-BH-C330 - Received as FS01-C330	**20-Sep-2023**	**----**	----	**----**	**27-Sep-2023**	18-Oct-2023	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
SBT-GW-3012-A - Received as ATL-3012-A, SBT-GW-3012-B - Received as ATL-3012-B, SBT-GW-3012-C - Received as ATL-3012-C, SMGW-BH-C330 - Received as FS01-C330	**20-Sep-2023**	**----**	----	**----**	**27-Sep-2023**	18-Mar-2024	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
SBT-GW-3012-A - Received as ATL-3012-A, SBT-GW-3012-B - Received as ATL-3012-B, SBT-GW-3012-C - Received as ATL-3012-C, SMGW-BH-C330 - Received as FS01-C330	**20-Sep-2023**	**27-Sep-2023**	18-Mar-2024	✓	**27-Sep-2023**	18-Mar-2024	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
SBT-GW-3012-A - Received as ATL-3012-A, SBT-GW-3012-B - Received as ATL-3012-B, SBT-GW-3012-C - Received as ATL-3012-C, SMGW-BH-C330 - Received as FS01-C330	**20-Sep-2023**	**----**	----	**----**	**28-Sep-2023**	18-Oct-2023	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
SBT-GW-3012-A - Received as ATL-3012-A, SBT-GW-3012-B - Received as ATL-3012-B, SBT-GW-3012-C - Received as ATL-3012-C, SMGW-BH-C330 - Received as FS01-C330	**20-Sep-2023**	**----**	----	**----**	**27-Sep-2023**	18-Oct-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G)							
SBT-GW-3012-A - Received as ATL-3012-A, SBT-GW-3012-B - Received as ATL-3012-B, SBT-GW-3012-C - Received as ATL-3012-C, SMGW-BH-C330 - Received as FS01-C330	**20-Sep-2023**	**----**	----	**----**	**28-Sep-2023**	22-Sep-2023	×
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
SBT-GW-3012-A - Received as ATL-3012-A, SBT-GW-3012-B - Received as ATL-3012-B, SBT-GW-3012-C - Received as ATL-3012-C, SMGW-BH-C330 - Received as FS01-C330	**20-Sep-2023**	**----**	----	**----**	**27-Sep-2023**	18-Oct-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
SBT-GW-3012-A - Received as ATL-3012-A, SBT-GW-3012-B - Received as ATL-3012-B, SBT-GW-3012-C - Received as ATL-3012-C, SMGW-BH-C330 - Received as FS01-C330	**20-Sep-2023**	**26-Sep-2023**	18-Oct-2023	✓	**27-Sep-2023**	18-Oct-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
SBT-GW-3012-A - Received as ATL-3012-A, SBT-GW-3012-B - Received as ATL-3012-B, SBT-GW-3012-C - Received as ATL-3012-C, SMGW-BH-C330 - Received as FS01-C330	**20-Sep-2023**	**26-Sep-2023**	18-Oct-2023	✓	**27-Sep-2023**	18-Oct-2023	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G)							
SBT-GW-3012-A - Received as ATL-3012-A, SBT-GW-3012-B - Received as ATL-3012-B, SBT-GW-3012-C - Received as ATL-3012-C, SMGW-BH-C330 - Received as FS01-C330	**20-Sep-2023**	**----**	----	**----**	**28-Sep-2023**	22-Sep-2023	×

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP005: Total Organic Carbon (TOC)							
Amber TOC Vial - Sulfuric Acid (EP005) SBT-GW-3012-A - Received as ATL-3012-A, SBT-GW-3012-B - Received as ATL-3012-B, SBT-GW-3012-C - Received as ATL-3012-C, SMGW-BH-C330 - Received as FS01-C330	**20-Sep-2023**	**----**	----	----	**28-Sep-2023**	18-Oct-2023	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**28-Sep-2023**	04-Oct-2023	✓	**28-Sep-2023**	04-Oct-2023	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**28-Sep-2023**	04-Oct-2023	✓	**28-Sep-2023**	04-Oct-2023	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**28-Sep-2023**	04-Oct-2023	✓	**28-Sep-2023**	04-Oct-2023	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**28-Sep-2023**	04-Oct-2023	✓	**28-Sep-2023**	04-Oct-2023	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**28-Sep-2023**	04-Oct-2023	✓	**28-Sep-2023**	04-Oct-2023	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**28-Sep-2023**	04-Oct-2023	✓	**28-Sep-2023**	04-Oct-2023	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**28-Sep-2023**	04-Oct-2023	✓	**28-Sep-2023**	04-Oct-2023	✓
EP075A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**27-Sep-2023**	27-Sep-2023	✓	**28-Sep-2023**	06-Nov-2023	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**27-Sep-2023**	27-Sep-2023	✓	**28-Sep-2023**	06-Nov-2023	✓
EP075C: Phthalate Esters							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**27-Sep-2023**	27-Sep-2023	✓	**28-Sep-2023**	06-Nov-2023	✓
EP075D: Nitrosamines							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**27-Sep-2023**	27-Sep-2023	✓	**28-Sep-2023**	06-Nov-2023	✓
EP075E: Nitroaromatics and Ketones							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**27-Sep-2023**	27-Sep-2023	✓	**28-Sep-2023**	06-Nov-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075F: Haloethers							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**27-Sep-2023**	27-Sep-2023	✓	**28-Sep-2023**	06-Nov-2023	✓
EP075G: Chlorinated Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**27-Sep-2023**	27-Sep-2023	✓	**28-Sep-2023**	06-Nov-2023	✓
EP075H: Anilines and Benzidines							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**27-Sep-2023**	27-Sep-2023	✓	**28-Sep-2023**	06-Nov-2023	✓
EP075I: Organochlorine Pesticides							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**27-Sep-2023**	27-Sep-2023	✓	**28-Sep-2023**	06-Nov-2023	✓
EP075J: Organophosphorus Pesticides							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**27-Sep-2023**	27-Sep-2023	✓	**28-Sep-2023**	06-Nov-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**27-Sep-2023**	27-Sep-2023	✓	**28-Sep-2023**	06-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**28-Sep-2023**	04-Oct-2023	✓	**28-Sep-2023**	04-Oct-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**27-Sep-2023**	27-Sep-2023	✓	**28-Sep-2023**	06-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**28-Sep-2023**	04-Oct-2023	✓	**28-Sep-2023**	04-Oct-2023	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) SBT-GW-3012-B - Received as ATL-3012-B	**20-Sep-2023**	**28-Sep-2023**	04-Oct-2023	✓	**28-Sep-2023**	04-Oct-2023	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	3	23	**13.04**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	8	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	3	23	**13.04**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	23	**17.39**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	12	**16.67**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	8	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	3	14	**21.43**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard

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 Control Samples (LCS) - Continued							
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	17	**17.65**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	17	**17.65**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	12	**8.33**	**1.67**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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*	
Matrix Spikes (MS) - Continued							
Total Phosphorus as P By Discrete Analyser	EK067G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	2	**50.00**	**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
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Total Organic Carbon	EP005	WATER	In house: Referenced to APHA 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
Semivolatile Organic Compounds	EP075	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
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☐NEWCASTLE 5/585 Maitland Rd Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com
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☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: CPBG	**TURNAROUND REQUIREMENTS :** Standard TAT (List due date):	**FOR LABORATORY USE ONLY (Circle)**	
OFFICE: 14 Great Western HWY, Werrington 2747	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) X Non Standard or urgent TAT (List due date):	Custody Seal Intact?	Yes No N/A
PROJECT: WSA SBT Project	**ALS QUOTE NO.:** ES23CPBGHE0004	Free ice / frozen ice bricks present upon receipt?	Yes No N/A
ORDER NUMBER:	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt:	°C
PROJECT MANAGER: Emma Kline **CONTACT PH:**	OF: 1 2 3 4 5 6 7	Other comment:	
SAMPLER: Mary. Wong **SAMPLER MOBILE:** 0456 913 001	**RELINQUISHED BY:** Mary Wong	**RECEIVED BY:**	**RELINQUISHED BY:** / **RECEIVED BY:**
COC emailed to ALS? (YES / NO) **EDD FORMAT (or default):**	DATE/TIME: 25/9/23 @ 18:00	DATE/TIME: 26/9/23 1500	DATE/TIME: / DATE/TIME:
Email Reports to: mary.wong@cpbg-sbt.com.au			
Email Invoice to (will default to PM if no other addresses are listed): **enviro.sbt@cpbg-sbt.com.au**			

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	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
						Green (P)	Purple (G)	Purple (P)	Red (P)	Red (P)	Purple (G)	Purple (G)	Purple (G)	Orange (G)	Grey (P)			
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	EA005, EA010, EA015, EP005, NT-01, NT-02	EP005	NT-08a	EG020F (Al, As, Cd, Cr, Cu, Fe, Pb, Mn, Ni, Zn, and Hg	EG020T (Al, Co, Fe, Mn)	W-9 (VOC only)	W-9 (TRH only)	W-9 (TRH/BTEXN)	EP075	EP231			HT
1	SBT-GW-3012-A		W		5	X	X	X	X	X								
2	SBT-GW-3012-B		W		#8	X	X	X	X	X		XX		X				TAT
3	SBT-GW-3012-C		W		5	X	X	X	X	X								
4	SMGW-BH-C330		W		5	X	X	X	X	X								
TOTAL					#23													

Environmental Division Sydney
Work Order Reference
ES2333004

Telephone : +61-2-8784 8555

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 = Amb
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 P
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

erved Plastic; F = Formaldehyde Preserved Glass;

CERTIFICATE OF ANALYSIS

Work Order	: **ES2333621**	Page	: 1 of 11
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: Jack Brennan	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 29-Sep-2023 17:11
Order number	: ----	Date Analysis Commenced	: 30-Sep-2023
C-O-C number	: ----	Issue Date	: 10-Oct-2023 21:07
Sampler	: Jack Brennan		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 3		
No. of samples analysed	: 3		

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
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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.

- EK067G: LOR raised for TP on sample nos. 1 and 3 due to sample matrix.
- EP075: Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EG035: Poor matrix spike recovery was obtained for Mercury on sample ES2333477 # 1. Confirmed by re-analysis.
- TDS by method EA-015 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- EP075: Where reported, 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SBT-GW-1030 (monthly)	SBT-GW-1028	SBT-GW-1042	----	----
			Sampling date / time	29-Sep-2023 00:00	29-Sep-2023 00:00	29-Sep-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2333621-001	ES2333621-002	ES2333621-003	--------	--------
				Result	Result	Result	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**4.80**	**7.38**	**4.94**	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**34500**	**29500**	**13500**	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**28700**	**21500**	**8710**	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	**672**	**1**	----	----
Total Alkalinity as CaCO3	----	1	mg/L	<1	**672**	**1**	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**2220**	**903**	**186**	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**10500**	**8450**	**3970**	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**62**	**237**	**6**	----	----
Magnesium	7439-95-4	1	mg/L	**1630**	**1030**	**257**	----	----
Sodium	7440-23-5	1	mg/L	**5580**	**4560**	**2480**	----	----
Potassium	7440-09-7	1	mg/L	**10**	**20**	**5**	----	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**2.99**	**0.01**	**1.41**	----	----
Arsenic	7440-38-2	0.001	mg/L	**0.004**	**0.001**	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	**0.0005**	<0.0001	**0.0002**	----	----
Chromium	7440-47-3	0.001	mg/L	**0.001**	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	**0.001**	**0.006**	**0.015**	----	----
Nickel	7440-02-0	0.001	mg/L	**0.151**	**0.005**	**0.060**	----	----
Lead	7439-92-1	0.001	mg/L	**0.002**	<0.001	**0.005**	----	----
Zinc	7440-66-6	0.005	mg/L	**0.345**	**0.036**	**0.166**	----	----
Manganese	7439-96-5	0.001	mg/L	**4.86**	**1.44**	**0.233**	----	----
Iron	7439-89-6	0.05	mg/L	**13.8**	**0.91**	**0.26**	----	----
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**10.8**	**0.24**	**2.42**	----	----
Cobalt	7440-48-4	0.001	mg/L	**0.347**	**0.005**	**0.144**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SBT-GW-1030 (monthly)	SBT-GW-1028	SBT-GW-1042	----	----
			Sampling date / time	29-Sep-2023 00:00	29-Sep-2023 00:00	29-Sep-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2333621-001	ES2333621-002	ES2333621-003	--------	--------
				Result	Result	Result	----	----
EG020T: Total Metals by ICP-MS - Continued								
Manganese	7439-96-5	0.001	mg/L	**5.19**	**1.60**	**0.263**	----	----
Iron	7439-89-6	0.05	mg/L	**19.7**	**1.96**	**2.32**	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.41**	**0.32**	**0.21**	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	**0.07**	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	**0.27**	**135**	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	**0.27**	**135**	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**8.0**	**0.6**	**15.1**	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**8.0**	**0.9**	**150**	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	<0.50	**0.04**	<0.20	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	<0.01	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**342**	**270**	**116**	----	----
ø Total Cations	----	0.01	meq/L	**380**	**295**	**129**	----	----
ø Ionic Balance	----	0.01	%	**5.23**	**4.39**	**5.53**	----	----
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	**11**	**1**	**12**	----	----
EP075A: Phenolic Compounds								
Phenol	108-95-2	2	µg/L	----	<2	----	----	----
2-Chlorophenol	95-57-8	2	µg/L	----	<2	----	----	----
2-Methylphenol	95-48-7	2	µg/L	----	<2	----	----	----
3- & 4-Methylphenol	1319-77-3	4	µg/L	----	<4	----	----	----
2-Nitrophenol	88-75-5	2	µg/L	----	<2	----	----	----
2.4-Dimethylphenol	105-67-9	2	µg/L	----	<2	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1030 (monthly)	SBT-GW-1028	SBT-GW-1042	----	----
				Sampling date / time	29-Sep-2023 00:00	29-Sep-2023 00:00	29-Sep-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2333621-001	ES2333621-002	ES2333621-003	--------	--------
					Result	Result	Result	----	----
EP075A: Phenolic Compounds - Continued									
2.4-Dichlorophenol	120-83-2	2	µg/L		----	<2	----	----	----
2.6-Dichlorophenol	87-65-0	2	µg/L		----	<2	----	----	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L		----	<2	----	----	----
2.4.6-Trichlorophenol	88-06-2	2	µg/L		----	<2	----	----	----
2.4.5-Trichlorophenol	95-95-4	2	µg/L		----	<2	----	----	----
Pentachlorophenol	87-86-5	4	µg/L		----	<4	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	2	µg/L		----	<2	----	----	----
2-Methylnaphthalene	91-57-6	2	µg/L		----	<2	----	----	----
2-Chloronaphthalene	91-58-7	2	µg/L		----	<2	----	----	----
Acenaphthylene	208-96-8	2	µg/L		----	<2	----	----	----
Acenaphthene	83-32-9	2	µg/L		----	<2	----	----	----
Fluorene	86-73-7	2	µg/L		----	<2	----	----	----
Phenanthrene	85-01-8	2	µg/L		----	<2	----	----	----
Anthracene	120-12-7	2	µg/L		----	<2	----	----	----
Fluoranthene	206-44-0	2	µg/L		----	<2	----	----	----
Pyrene	129-00-0	2	µg/L		----	<2	----	----	----
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L		----	<2	----	----	----
Benz(a)anthracene	56-55-3	2	µg/L		----	<2	----	----	----
Chrysene	218-01-9	2	µg/L		----	<2	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L		----	<4	----	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L		----	<2	----	----	----
Benzo(a)pyrene	50-32-8	2	µg/L		----	<2	----	----	----
3-Methylcholanthrene	56-49-5	2	µg/L		----	<2	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L		----	<2	----	----	----
Dibenz(a.h)anthracene	53-70-3	2	µg/L		----	<2	----	----	----
Benzo(g.h.i)perylene	191-24-2	2	µg/L		----	<2	----	----	----
^ Sum of PAHs	----	2	µg/L		----	<2	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	2	µg/L		----	<2	----	----	----
EP075C: Phthalate Esters									
Dimethyl phthalate	131-11-3	2	µg/L		----	<2	----	----	----
Diethyl phthalate	84-66-2	2	µg/L		----	<2	----	----	----
Di-n-butyl phthalate	84-74-2	2	µg/L		----	<2	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SBT-GW-1030 (monthly)	SBT-GW-1028	SBT-GW-1042	----	----
			Sampling date / time	29-Sep-2023 00:00	29-Sep-2023 00:00	29-Sep-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2333621-001	ES2333621-002	ES2333621-003	--------	--------
				Result	Result	Result	----	----
EP075C: Phthalate Esters - Continued								
Butyl benzyl phthalate	85-68-7	2	µg/L	----	<2	----	----	----
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	----	<10	----	----	----
Di-n-octylphthalate	117-84-0	2	µg/L	----	<2	----	----	----
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	----	<2	----	----	----
N-Nitrosodiethylamine	55-18-5	2	µg/L	----	<2	----	----	----
N-Nitrosopyrrolidine	930-55-2	4	µg/L	----	<4	----	----	----
N-Nitrosomorpholine	59-89-2	2	µg/L	----	<2	----	----	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	----	<2	----	----	----
N-Nitrosopiperidine	100-75-4	2	µg/L	----	<2	----	----	----
N-Nitrosodibutylamine	924-16-3	2	µg/L	----	<2	----	----	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	----	<4	----	----	----
Methapyrilene	91-80-5	2	µg/L	----	<2	----	----	----
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	----	<2	----	----	----
Acetophenone	98-86-2	2	µg/L	----	<2	----	----	----
Nitrobenzene	98-95-3	2	µg/L	----	<2	----	----	----
Isophorone	78-59-1	2	µg/L	----	<2	----	----	----
2.6-Dinitrotoluene	606-20-2	4	µg/L	----	<4	----	----	----
2.4-Dinitrotoluene	121-14-2	4	µg/L	----	<4	----	----	----
1-Naphthylamine	134-32-7	2	µg/L	----	<2	----	----	----
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	----	<2	----	----	----
5-Nitro-o-toluidine	99-55-8	2	µg/L	----	<2	----	----	----
Azobenzene	103-33-3	2	µg/L	----	<2	----	----	----
1.3.5-Trinitrobenzene	99-35-4	2	µg/L	----	<2	----	----	----
Phenacetin	62-44-2	2	µg/L	----	<2	----	----	----
4-Aminobiphenyl	92-67-1	2	µg/L	----	<2	----	----	----
Pentachloronitrobenzene	82-68-8	2	µg/L	----	<2	----	----	----
Pronamide	23950-58-5	2	µg/L	----	<2	----	----	----
Dimethylaminoazobenzene	60-11-7	2	µg/L	----	<2	----	----	----
Chlorobenzilate	510-15-6	2	µg/L	----	<2	----	----	----
EP075F: Haloethers								
Bis(2-chloroethyl) ether	111-44-4	2	µg/L	----	<2	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1030 (monthly)	SBT-GW-1028	SBT-GW-1042	----	----
				Sampling date / time	29-Sep-2023 00:00	29-Sep-2023 00:00	29-Sep-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2333621-001	ES2333621-002	ES2333621-003	--------	--------
					Result	Result	Result	----	----
EP075F: Haloethers - Continued									
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L		----	<2	----	----	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L		----	<2	----	----	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L		----	<2	----	----	----
EP075G: Chlorinated Hydrocarbons									
1.3-Dichlorobenzene	541-73-1	2	µg/L		----	<2	----	----	----
1.4-Dichlorobenzene	106-46-7	2	µg/L		----	<2	----	----	----
1.2-Dichlorobenzene	95-50-1	2	µg/L		----	<2	----	----	----
Hexachloroethane	67-72-1	2	µg/L		----	<2	----	----	----
1.2.4-Trichlorobenzene	120-82-1	2	µg/L		----	<2	----	----	----
Hexachloropropylene	1888-71-7	2	µg/L		----	<2	----	----	----
Hexachlorobutadiene	87-68-3	2	µg/L		----	<2	----	----	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L		----	<10	----	----	----
Pentachlorobenzene	608-93-5	2	µg/L		----	<2	----	----	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L		----	<4	----	----	----
EP075H: Anilines and Benzidines									
Aniline	62-53-3	2	µg/L		----	<2	----	----	----
4-Chloroaniline	106-47-8	2	µg/L		----	<2	----	----	----
2-Nitroaniline	88-74-4	4	µg/L		----	<4	----	----	----
3-Nitroaniline	99-09-2	4	µg/L		----	<4	----	----	----
Dibenzofuran	132-64-9	2	µg/L		----	<2	----	----	----
4-Nitroaniline	100-01-6	2	µg/L		----	<2	----	----	----
Carbazole	86-74-8	2	µg/L		----	<2	----	----	----
3.3`-Dichlorobenzidine	91-94-1	2	µg/L		----	<2	----	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	2	µg/L		----	<2	----	----	----
beta-BHC	319-85-7	2	µg/L		----	<2	----	----	----
gamma-BHC	58-89-9	2	µg/L		----	<2	----	----	----
delta-BHC	319-86-8	2	µg/L		----	<2	----	----	----
Heptachlor	76-44-8	2	µg/L		----	<2	----	----	----
Aldrin	309-00-2	2	µg/L		----	<2	----	----	----
Heptachlor epoxide	1024-57-3	2	µg/L		----	<2	----	----	----
alpha-Endosulfan	959-98-8	2	µg/L		----	<2	----	----	----
4.4`-DDE	72-55-9	2	µg/L		----	<2	----	----	----
Dieldrin	60-57-1	2	µg/L		----	<2	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1030 (monthly)	SBT-GW-1028	SBT-GW-1042	----	----
				Sampling date / time	29-Sep-2023 00:00	29-Sep-2023 00:00	29-Sep-2023 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2333621-001	ES2333621-002	ES2333621-003	--------	--------
					Result	Result	Result	----	----
EP075I: Organochlorine Pesticides - Continued									
Endrin	72-20-8	2	µg/L		----	<2	----	----	----
beta-Endosulfan	33213-65-9	2	µg/L		----	<2	----	----	----
4.4`-DDD	72-54-8	2	µg/L		----	<2	----	----	----
Endosulfan sulfate	1031-07-8	2	µg/L		----	<2	----	----	----
4.4`-DDT	50-29-3	4	µg/L		----	<4	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	4	µg/L		----	<4	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	4	µg/L		----	<4	----	----	----
EP075J: Organophosphorus Pesticides									
Dichlorvos	62-73-7	2	µg/L		----	<2	----	----	----
Dimethoate	60-51-5	2	µg/L		----	<2	----	----	----
Diazinon	333-41-5	2	µg/L		----	<2	----	----	----
Chlorpyrifos-methyl	5598-13-0	2	µg/L		----	<2	----	----	----
Malathion	121-75-5	2	µg/L		----	<2	----	----	----
Fenthion	55-38-9	2	µg/L		----	<2	----	----	----
Chlorpyrifos	2921-88-2	2	µg/L		----	<2	----	----	----
Pirimphos-ethyl	23505-41-1	2	µg/L		----	<2	----	----	----
Chlorfenvinphos	470-90-6	2	µg/L		----	<2	----	----	----
Prothiofos	34643-46-4	2	µg/L		----	<2	----	----	----
Ethion	563-12-2	2	µg/L		----	<2	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		----	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L		----	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L		----	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L		----	<50	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		----	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		----	<20	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		----	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L		----	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L		----	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L		----	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		----	<100	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SBT-GW-1030 (monthly)	SBT-GW-1028	SBT-GW-1042	----	----
			Sampling date / time	29-Sep-2023 00:00	29-Sep-2023 00:00	29-Sep-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2333621-001	ES2333621-002	ES2333621-003	--------	--------
				Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	----	<100	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	----	<1	----	----	----
Toluene	108-88-3	2	µg/L	----	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	----	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L	----	<2	----	----	----
^ Total Xylenes	----	2	µg/L	----	<2	----	----	----
^ Sum of BTEX	----	1	µg/L	----	<1	----	----	----
Naphthalene	91-20-3	5	µg/L	----	<5	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	**0.04**	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	**0.03**	<0.01	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	----	----	----
EP231P: PFAS Sums								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SBT-GW-1030 (monthly)	SBT-GW-1028	SBT-GW-1042	----	----
			Sampling date / time	29-Sep-2023 00:00	29-Sep-2023 00:00	29-Sep-2023 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2333621-001	ES2333621-002	ES2333621-003	--------	--------
				Result	Result	Result	----	----
EP231P: PFAS Sums - Continued								
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	<0.01	<0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.07**	<0.01	----	----	----
EP075S: Acid Extractable Surrogates								
2-Fluorophenol	367-12-4	2	%	----	**24.2**	----	----	----
Phenol-d6	13127-88-3	2	%	----	**23.4**	----	----	----
2-Chlorophenol-D4	93951-73-6	2	%	----	**51.0**	----	----	----
2.4.6-Tribromophenol	118-79-6	2	%	----	**47.4**	----	----	----
EP075T: Base/Neutral Extractable Surrogates								
Nitrobenzene-D5	4165-60-0	2	%	----	**75.6**	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	2	%	----	**57.2**	----	----	----
2-Fluorobiphenyl	321-60-8	2	%	----	**64.9**	----	----	----
Anthracene-d10	1719-06-8	2	%	----	**72.7**	----	----	----
4-Terphenyl-d14	1718-51-0	2	%	----	**63.4**	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	----	**123**	----	----	----
Toluene-D8	2037-26-5	2	%	----	**116**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	----	**110**	----	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	**102**	**97.9**	----	----	----
13C8-PFOA	----	0.02	%	**107**	**105**	----	----	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	117
Phenol-d6	13127-88-3	10	69
2-Chlorophenol-D4	93951-73-6	21	130
2.4.6-Tribromophenol	118-79-6	10	151
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	142
1.2-Dichlorobenzene-D4	2199-69-1	24	121
2-Fluorobiphenyl	321-60-8	27	135
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	21	123
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

QUALITY CONTROL REPORT

Work Order	: **ES2333621**	Page	: 1 of 14
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: Jack Brennan	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 29-Sep-2023
Order number	: ----	Date Analysis Commenced	: 30-Sep-2023
C-O-C number	: ----	Issue Date	: 10-Oct-2023
Sampler	: Jack Brennan		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 3		
No. of samples analysed	: 3		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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 (%)
EA005P: pH by PC Titrator (QC Lot: 5336165)									
ES2333742-003	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.99	8.03	0.5	0% - 20%
ES2333742-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.55	7.48	0.9	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5336162)									
ES2333476-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	53600	53400	0.4	0% - 20%
ES2333742-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1150	1180	2.7	0% - 20%
ES2333557-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	17400	18000	3.4	0% - 20%
ES2332953-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	4310	4280	0.5	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5342654)									
ES2333486-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1130	1100	2.6	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5336163)									
ES2333557-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	956	946	1.1	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	956	946	1.1	0% - 20%
ES2332953-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	1430	1430	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	1430	1430	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5331912)									
ES2333610-005	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	763	752	1.4	0% - 20%
ES2333610-014	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	556	521	6.6	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5331913)									
ES2333610-005	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	2860	2830	1.1	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 (%)*
ED045G: Chloride by Discrete Analyser (QC Lot: 5331913) - continued									
ES2333610-014	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1520	1520	0.2	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5343445)									
ES2333262-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	13	13	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	3	3	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	8	8	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	5	5	0.0	No Limit
ES2333477-009	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	554	553	0.2	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	1410	1390	1.1	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	2120	2110	0.5	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	155	155	0.0	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5343444)									
ES2333262-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.006	0.005	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.015	0.015	0.0	0% - 50%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.008	0.008	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.348	0.348	0.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.208	0.208	0.0	0% - 20%
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.54	0.54	0.0	0% - 20%
		EG020A-F: Iron	7439-89-6	0.05	mg/L	1.67	1.71	2.2	0% - 20%
ES2333477-009	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.007	0.007	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	1.39	1.38	0.8	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.018	0.017	0.0	0% - 50%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.025	0.025	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 5343690)									
ES2332929-001	Anonymous	EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
ES2333294-002	Anonymous	EG020A-T: Aluminium	7429-90-5	0.01	mg/L	2.28	2.26	1.2	0% - 20%
ES2333294-002	Anonymous	EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.140	0.144	2.7	0% - 20%
		EG020A-T: Iron	7439-89-6	0.05	mg/L	3.69	4.19	12.7	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 (%)*
EG035F: Dissolved Mercury by FIMS (QC Lot: 5343446)									
ES2333477-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2333477-009	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5342189)									
ES2333527-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2333621-001	SBT-GW-1030 (monthly)	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.41	0.41	0.0	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5331908)									
ES2333577-014	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2333503-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.03	0.03	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5342188)									
ES2333527-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.26	0.27	0.0	0% - 20%
ES2333621-001	SBT-GW-1030 (monthly)	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5342192)									
ES2333519-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.5	1.6	6.6	0% - 50%
ES2333619-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.8	1.6	9.6	0% - 50%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5342193)									
ES2333519-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.12	0.13	0.0	0% - 50%
ES2333619-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.09	0.09	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5331909)									
EW2304334-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2333503-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	0.02	0.0	No Limit
EP005: Total Organic Carbon (TOC) (QC Lot: 5342154)									
ES2332849-001	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	8	8	0.0	No Limit
ES2333857-004	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	<1	<1	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5337020)									
ES2333527-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2333577-027	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5337020)									
ES2333527-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2333577-027	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5337020)									
ES2333527-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2333577-027	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit

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 (%)*
EP080: BTEXN (QC Lot: 5337020) - continued									
ES2333577-027	Anonymous	EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5336935)									
ES2333486-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.02	0.03	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5336935)									
ES2333486-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.03	0.03	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5336935)									
ES2333486-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 5336165)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 5336162)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	107	89.9	110
				<1	2100 µS/cm	103	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5342654)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	99.0	87.0	109
				<10	293 mg/L	103	75.2	126
				<10	2380 mg/L	101	83.0	124
ED037P: Alkalinity by PC Titrator (QCLot: 5336163)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	99.3	81.0	115
				----	50 mg/L	106	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5331912)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	102	82.0	122
				<1	500 mg/L	106	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5331913)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	90.6	80.9	127
				<1	1000 mg/L	94.4	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5343445)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	95.5	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	102	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	101	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	98.5	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5343444)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	96.6	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.4	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.4	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	86.8	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.4	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	92.4	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	93.0	82.0	110

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5343444) - continued								
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	86.0	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	95.8	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	94.4	82.0	112
EG020T: Total Metals by ICP-MS (QCLot: 5343690)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	102	82.0	120
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	98.9	84.0	116
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	104	85.0	113
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	103	85.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 5343446)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	83.5	83.0	105
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5342189)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	97.5	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5331908)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	96.4	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5342188)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	103	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5342192)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	# 104	69.0	101
				<0.1	1 mg/L	99.4	70.0	118
				<0.1	5 mg/L	102	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5342193)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	92.2	71.3	126
				<0.01	0.442 mg/L	89.2	71.3	126
				<0.01	1 mg/L	93.9	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5331909)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	99.8	85.0	117
EP005: Total Organic Carbon (TOC) (QCLot: 5342154)								
EP005: Total Organic Carbon	----	1	mg/L	<1	10 mg/L	108	72.0	120
EP075A: Phenolic Compounds (QCLot: 5334136)								
EP075: Phenol	108-95-2	2	µg/L	<2	10 µg/L	31.9	25.5	64.1
EP075: 2-Chlorophenol	95-57-8	2	µg/L	<2	10 µg/L	61.2	52.0	88.0
EP075: 2-Methylphenol	95-48-7	2	µg/L	<2	10 µg/L	63.0	50.0	94.0
EP075: 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	10 µg/L	58.9	45.0	96.2
EP075: 2-Nitrophenol	88-75-5	2	µg/L	<2	10 µg/L	79.2	48.0	98.0

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075A: Phenolic Compounds (QCLot: 5334136) - continued								
EP075: 2.4-Dimethylphenol	105-67-9	2	µg/L	<2	10 µg/L	61.8	50.0	94.0
EP075: 2.4-Dichlorophenol	120-83-2	2	µg/L	<2	10 µg/L	78.7	61.9	109
EP075: 2.6-Dichlorophenol	87-65-0	2	µg/L	<2	10 µg/L	73.0	61.5	108
EP075: 4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	10 µg/L	73.2	61.4	107
EP075: 2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	10 µg/L	76.2	57.6	112
EP075: 2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	10 µg/L	77.6	58.0	110
EP075: Pentachlorophenol	87-86-5	4	µg/L	<4	20 µg/L	79.1	12.8	95.0
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 5334136)								
EP075: Naphthalene	91-20-3	2	µg/L	<2	10 µg/L	72.1	51.0	95.0
EP075: 2-Methylnaphthalene	91-57-6	2	µg/L	<2	10 µg/L	72.8	59.0	108
EP075: 2-Chloronaphthalene	91-58-7	2	µg/L	<2	10 µg/L	64.9	60.6	106
EP075: Acenaphthylene	208-96-8	2	µg/L	<2	10 µg/L	75.5	64.0	108
EP075: Acenaphthene	83-32-9	2	µg/L	<2	10 µg/L	76.7	65.0	108
EP075: Fluorene	86-73-7	2	µg/L	<2	10 µg/L	78.3	65.2	107
EP075: Phenanthrene	85-01-8	2	µg/L	<2	10 µg/L	81.1	66.7	108
EP075: Anthracene	120-12-7	2	µg/L	<2	10 µg/L	80.7	65.8	108
EP075: Fluoranthene	206-44-0	2	µg/L	<2	10 µg/L	80.8	64.9	109
EP075: Pyrene	129-00-0	2	µg/L	<2	10 µg/L	77.7	60.1	111
EP075: N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	10 µg/L	92.5	59.7	110
EP075: Benz(a)anthracene	56-55-3	2	µg/L	<2	10 µg/L	78.3	62.2	112
EP075: Chrysene	218-01-9	2	µg/L	<2	10 µg/L	81.3	59.3	114
EP075: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	20 µg/L	74.8	60.1	111
EP075: 7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	10 µg/L	92.5	50.0	108
EP075: Benzo(a)pyrene	50-32-8	2	µg/L	<2	10 µg/L	75.2	59.2	112
EP075: 3-Methylcholanthrene	56-49-5	2	µg/L	<2	10 µg/L	82.7	60.1	110
EP075: Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L	<2	10 µg/L	80.9	59.6	110
EP075: Dibenz(a.h)anthracene	53-70-3	2	µg/L	<2	10 µg/L	81.4	57.2	109
EP075: Benzo(g.h.i)perylene	191-24-2	2	µg/L	<2	10 µg/L	82.2	60.6	110
EP075: Benzo(a)pyrene TEQ (zero)	----	2	µg/L	<2	----	----	----	----
EP075C: Phthalate Esters (QCLot: 5334136)								
EP075: Dimethyl phthalate	131-11-3	2	µg/L	<2	10 µg/L	81.5	64.3	112
EP075: Diethyl phthalate	84-66-2	2	µg/L	<2	10 µg/L	85.6	67.3	111
EP075: Di-n-butyl phthalate	84-74-2	2	µg/L	<2	10 µg/L	85.1	68.4	122

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075C: Phthalate Esters (QCLot: 5334136) - continued								
EP075: Butyl benzyl phthalate	85-68-7	2	µg/L	<2	10 µg/L	78.6	61.2	114
EP075: bis(2-ethylhexyl) phthalate	117-81-7	----	µg/L	----	10 µg/L	109	60.0	132
EP075: Di-n-octylphthalate	117-84-0	2	µg/L	<2	10 µg/L	87.3	62.1	115
EP075D: Nitrosamines (QCLot: 5334136)								
EP075: N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	10 µg/L	54.4	46.0	110
EP075: N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	10 µg/L	65.6	60.6	113
EP075: N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	10 µg/L	61.3	45.0	91.0
EP075: N-Nitrosomorpholine	59-89-2	2	µg/L	<2	10 µg/L	63.7	42.0	100
EP075: N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	10 µg/L	86.6	63.5	108
EP075: N-Nitrosopiperidine	100-75-4	2	µg/L	<2	10 µg/L	80.0	61.7	107
EP075: N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	10 µg/L	# 124	62.5	108
EP075: N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	20 µg/L	80.6	64.6	112
EP075: Methapyrilene	91-80-5	2	µg/L	<2	10 µg/L	98.8	23.3	125
EP075E: Nitroaromatics and Ketones (QCLot: 5334136)								
EP075: 2-Picoline	109-06-8	2	µg/L	<2	10 µg/L	# 40.1	41.0	109
EP075: Acetophenone	98-86-2	2	µg/L	<2	10 µg/L	80.7	68.3	112
EP075: Nitrobenzene	98-95-3	2	µg/L	<2	10 µg/L	77.5	68.3	112
EP075: Isophorone	78-59-1	2	µg/L	<2	10 µg/L	85.8	67.6	111
EP075: 2.6-Dinitrotoluene	606-20-2	4	µg/L	<4	10 µg/L	78.7	64.4	113
EP075: 2.4-Dinitrotoluene	121-14-2	4	µg/L	<4	10 µg/L	78.9	59.5	109
EP075: 1-Naphthylamine	134-32-7	2	µg/L	<2	10 µg/L	85.5	46.8	102
EP075: 4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	10 µg/L	85.9	40.0	96.0
EP075: 5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	10 µg/L	82.7	58.3	106
EP075: Azobenzene	103-33-3	2	µg/L	<2	10 µg/L	83.7	66.0	112
EP075: 1.3.5-Trinitrobenzene	99-35-4	2	µg/L	<2	10 µg/L	77.8	46.0	108
EP075: Phenacetin	62-44-2	2	µg/L	<2	10 µg/L	84.0	57.8	101
EP075: 4-Aminobiphenyl	92-67-1	2	µg/L	<2	10 µg/L	78.8	60.1	112
EP075: Pentachloronitrobenzene	82-68-8	2	µg/L	<2	10 µg/L	75.2	59.0	109
EP075: Pronamide	23950-58-5	2	µg/L	<2	10 µg/L	83.4	62.7	109
EP075: Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	10 µg/L	74.3	59.4	108
EP075: Chlorobenzilate	510-15-6	2	µg/L	<2	10 µg/L	82.6	57.7	110
EP075F: Haloethers (QCLot: 5334136)								
EP075: Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	10 µg/L	# 63.4	69.1	112

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP075F: Haloethers (QCLot: 5334136) - continued								
EP075: Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	10 µg/L	82.6	66.2	111
EP075: 4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	10 µg/L	78.9	64.7	109
EP075: 4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	10 µg/L	77.8	61.6	108
EP075G: Chlorinated Hydrocarbons (QCLot: 5334136)								
EP075: 1.4-Dichlorobenzene	106-46-7	2	µg/L	<2	10 µg/L	68.8	41.0	97.0
EP075: 1.3-Dichlorobenzene	541-73-1	2	µg/L	<2	10 µg/L	65.2	40.0	96.0
EP075: 1.2-Dichlorobenzene	95-50-1	2	µg/L	<2	10 µg/L	73.1	41.0	95.0
EP075: Hexachloroethane	67-72-1	2	µg/L	<2	10 µg/L	70.1	46.0	88.0
EP075: 1.2.4-Trichlorobenzene	120-82-1	2	µg/L	<2	10 µg/L	73.0	46.0	96.0
EP075: Hexachloropropylene	1888-71-7	2	µg/L	<2	10 µg/L	66.9	34.0	96.0
EP075: Hexachlorobutadiene	87-68-3	2	µg/L	<2	10 µg/L	68.7	37.4	100
EP075: Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	10 µg/L	64.5	23.5	107
EP075: Pentachlorobenzene	608-93-5	2	µg/L	<2	10 µg/L	73.4	64.5	107
EP075: Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	10 µg/L	75.2	65.7	110
EP075H: Anilines and Benzidines (QCLot: 5334136)								
EP075: Aniline	62-53-3	2	µg/L	<2	10 µg/L	64.4	50.0	104
EP075: 4-Chloroaniline	106-47-8	2	µg/L	<2	10 µg/L	73.1	42.0	106
EP075: 2-Nitroaniline	88-74-4	4	µg/L	<4	10 µg/L	76.5	60.9	110
EP075: 3-Nitroaniline	99-09-2	4	µg/L	<4	10 µg/L	79.5	51.5	96.9
EP075: Dibenzofuran	132-64-9	2	µg/L	<2	10 µg/L	76.5	65.3	108
EP075: 4-Nitroaniline	100-01-6	2	µg/L	<2	10 µg/L	72.8	48.9	99.5
EP075: Carbazole	86-74-8	2	µg/L	<2	10 µg/L	81.3	64.3	107
EP075: 3.3`-Dichlorobenzidine	91-94-1	2	µg/L	<2	10 µg/L	81.0	60.3	119
EP075I: Organochlorine Pesticides (QCLot: 5334136)								
EP075: alpha-BHC	319-84-6	2	µg/L	<2	10 µg/L	77.6	64.3	110
EP075: beta-BHC	319-85-7	2	µg/L	<2	10 µg/L	83.2	53.0	107
EP075: gamma-BHC	58-89-9	2	µg/L	<2	10 µg/L	76.3	51.0	111
EP075: delta-BHC	319-86-8	2	µg/L	<2	10 µg/L	78.4	57.0	111
EP075: Heptachlor	76-44-8	2	µg/L	<2	10 µg/L	78.7	57.9	108
EP075: Aldrin	309-00-2	2	µg/L	<2	10 µg/L	81.8	56.0	112
EP075: Heptachlor epoxide	1024-57-3	2	µg/L	<2	10 µg/L	78.6	50.0	118
EP075: alpha-Endosulfan	959-98-8	2	µg/L	<2	10 µg/L	80.1	59.0	111
EP075: 4.4`-DDE	72-55-9	2	µg/L	<2	10 µg/L	77.6	53.0	115
EP075: Dieldrin	60-57-1	2	µg/L	<2	10 µg/L	78.0	59.0	115

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP075I: Organochlorine Pesticides (QCLot: 5334136) - continued								
EP075: Endrin	72-20-8	2	µg/L	<2	10 µg/L	86.3	58.0	114
EP075: beta-Endosulfan	33213-65-9	2	µg/L	<2	10 µg/L	78.6	54.0	116
EP075: 4.4`-DDD	72-54-8	2	µg/L	<2	10 µg/L	81.3	55.0	115
EP075: Endosulfan sulfate	1031-07-8	2	µg/L	<2	10 µg/L	85.5	52.8	114
EP075: 4.4`-DDT	50-29-3	4	µg/L	<4	10 µg/L	85.0	56.0	114
EP075: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	<4	----	----	----	----
EP075: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	<4	----	----	----	----
EP075J: Organophosphorus Pesticides (QCLot: 5334136)								
EP075: Dichlorvos	62-73-7	2	µg/L	<2	10 µg/L	87.1	51.0	113
EP075: Dimethoate	60-51-5	2	µg/L	<2	10 µg/L	83.5	43.0	109
EP075: Diazinon	333-41-5	2	µg/L	<2	10 µg/L	82.3	49.0	113
EP075: Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	10 µg/L	81.6	54.1	116
EP075: Malathion	121-75-5	2	µg/L	<2	10 µg/L	92.0	54.0	124
EP075: Fenthion	55-38-9	2	µg/L	<2	10 µg/L	83.1	57.0	115
EP075: Chlorpyrifos	2921-88-2	2	µg/L	<2	10 µg/L	81.9	53.0	109
EP075: Pirimphos-ethyl	23505-41-1	2	µg/L	<2	10 µg/L	86.1	55.0	111
EP075: Chlorfenvinphos	470-90-6	2	µg/L	<2	10 µg/L	80.8	50.0	116
EP075: Prothiofos	34643-46-4	2	µg/L	<2	10 µg/L	79.2	54.0	118
EP075: Ethion	563-12-2	2	µg/L	<2	10 µg/L	88.1	51.0	117
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5334135)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	64.5	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	81.3	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	92.4	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5337020)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	83.2	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5334135)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	71.4	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	68.8	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	90.2	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5337020)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	85.0	75.0	127
EP080: BTEXN (QCLot: 5337020)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	103	68.3	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 5337020) - continued								
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	104	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	101	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	101	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	102	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	103	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5336935)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	85.7	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	93.3	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	93.2	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5336935)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	95.2	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	92.8	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	96.2	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	92.9	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	97.8	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5336935)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	105	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	95.9	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	108	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	81.0	71.4	144

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.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5331912)							
ES2333610-005	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5331913)							
ES2333610-005	Anonymous	ED045G: Chloride	16887-00-6	50 mg/L	# Not Determined	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5343444)							
ES2333262-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	97.2	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	101	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	92.4	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	96.2	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	97.0	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	97.1	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	79.8	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	99.2	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5343690)							
ES2333261-001	Anonymous	EG020A-T: Cobalt	7440-48-4	1 mg/L	102	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	106	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5343446)							
ES2333477-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	# 44.8	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5342189)							
ES2333527-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	114	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5331908)							
ES2333503-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	116	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5342188)							
ES2333527-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	108	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5342192)							
ES2333527-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	104	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5342193)							
ES2333527-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	95.4	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5331909)							
ES2333503-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	102	70.0	130
EP005: Total Organic Carbon (TOC) (QCLot: 5342154)							
ES2332853-003	Anonymous	EP005: Total Organic Carbon	----	100 mg/L	102	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5337020)							
ES2333527-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	87.7	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5337020)							
ES2333527-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	85.9	70.0	130
EP080: BTEXN (QCLot: 5337020)							
ES2333527-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	103	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	101	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	100	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080: BTEXN (QCLot: 5337020) - continued							
ES2333527-001	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	102	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	101	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	116	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5336935)							
ES2333486-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	90.9	72.0	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	93.3	68.0	131
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	96.7	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5336935)							
ES2333486-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	91.0	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	110	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	98.8	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	101	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	98.0	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5336935)							
ES2333486-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	96.8	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	107	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	112	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	84.1	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2333621**	Page	: 1 of 12
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: Jack Brennan	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 29-Sep-2023
Site	:	Issue Date	: 10-Oct-2023
Sampler	: Jack Brennan	No. of samples received	: 3
Order number	: ----	No. of samples analysed	: 3

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.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser	QC-MRG2-53421920	----	**Total Kjeldahl Nitrogen as N**	----	104 %	69.0-101%	**Recovery greater than upper control limit**
EP075D: Nitrosamines	QC-5334136-002	----	**N-Nitrosodibutylamine**	924-16-3	124 %	62.5-108%	**Recovery greater than upper control limit**
EP075E: Nitroaromatics and Ketones	QC-5334136-002	----	**2-Picoline**	109-06-8	40.1 %	41.0-109%	**Recovery less than lower control limit**
EP075F: Haloethers	QC-5334136-002	----	**Bis(2-chloroethyl) ether**	111-44-4	63.4 %	69.1-112%	**Recovery less than lower control limit**
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2333610--005	Anonymous	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED045G: Chloride by Discrete Analyser	ES2333610--005	Anonymous	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG035F: Dissolved Mercury by FIMS	ES2333477--001	Anonymous	**Mercury**	7439-97-6	44.8 %	70.0-130%	**Recovery less than lower data quality objective**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)	Date extracted	Due for extraction	**Days overdue**	Date analysed	Due for analysis	**Days overdue**
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural SBT-GW-1030 (monthly), SBT-GW-1028, SBT-GW-1042	----	----	----	03-Oct-2023	29-Sep-2023	**4**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	1				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	16	6.25	10.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Semivolatile Organic Compounds	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER** Evaluation: ✗ = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P) SBT-GW-1030 (monthly), SBT-GW-1028, SBT-GW-1042	**29-Sep-2023**	**----**	----	----	**03-Oct-2023**	29-Sep-2023	✗
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P) SBT-GW-1030 (monthly), SBT-GW-1028, SBT-GW-1042	**29-Sep-2023**	**----**	----	----	**03-Oct-2023**	27-Oct-2023	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H) SBT-GW-1030 (monthly), SBT-GW-1028, SBT-GW-1042	**29-Sep-2023**	**----**	----	----	**06-Oct-2023**	06-Oct-2023	✓
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) SBT-GW-1030 (monthly), SBT-GW-1028, SBT-GW-1042	**29-Sep-2023**	**----**	----	----	**03-Oct-2023**	13-Oct-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) SBT-GW-1030 (monthly), SBT-GW-1028, SBT-GW-1042	**29-Sep-2023**	**----**	----	----	**30-Sep-2023**	27-Oct-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) SBT-GW-1030 (monthly), SBT-GW-1028, SBT-GW-1042	**29-Sep-2023**	**----**	----	----	**30-Sep-2023**	27-Oct-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SBT-GW-1030 (monthly), SBT-GW-1028, SBT-GW-1042	**29-Sep-2023**	**----**	----	----	**06-Oct-2023**	27-Oct-2023	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) SBT-GW-1030 (monthly), SBT-GW-1028, SBT-GW-1042	**29-Sep-2023**	**----**	----	----	**06-Oct-2023**	27-Mar-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) SBT-GW-1030 (monthly), SBT-GW-1028, SBT-GW-1042	**29-Sep-2023**	**06-Oct-2023**	27-Mar-2024	✓	**06-Oct-2023**	27-Mar-2024	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) SBT-GW-1030 (monthly), SBT-GW-1028, SBT-GW-1042	**29-Sep-2023**	**----**	----	----	**09-Oct-2023**	27-Oct-2023	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) SBT-GW-1030 (monthly), SBT-GW-1028, SBT-GW-1042	**29-Sep-2023**	**----**	----	----	**06-Oct-2023**	27-Oct-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) SBT-GW-1030 (monthly), SBT-GW-1028, SBT-GW-1042	**29-Sep-2023**	**----**	----	----	**30-Sep-2023**	01-Oct-2023	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) SBT-GW-1030 (monthly), SBT-GW-1028, SBT-GW-1042	**29-Sep-2023**	**----**	----	----	**06-Oct-2023**	27-Oct-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) SBT-GW-1030 (monthly), SBT-GW-1028, SBT-GW-1042	**29-Sep-2023**	**06-Oct-2023**	27-Oct-2023	✓	**06-Oct-2023**	27-Oct-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) SBT-GW-1030 (monthly), SBT-GW-1028, SBT-GW-1042	**29-Sep-2023**	**06-Oct-2023**	27-Oct-2023	✓	**06-Oct-2023**	27-Oct-2023	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G) SBT-GW-1030 (monthly), SBT-GW-1028, SBT-GW-1042	**29-Sep-2023**	**----**	----	----	**30-Sep-2023**	01-Oct-2023	✓
EP005: Total Organic Carbon (TOC)							
Amber TOC Vial - Sulfuric Acid (EP005) SBT-GW-1030 (monthly), SBT-GW-1028, SBT-GW-1042	**29-Sep-2023**	**----**	----	----	**09-Oct-2023**	27-Oct-2023	✓
EP075A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1028	**29-Sep-2023**	**03-Oct-2023**	06-Oct-2023	✓	**05-Oct-2023**	12-Nov-2023	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1028	**29-Sep-2023**	**03-Oct-2023**	06-Oct-2023	✓	**05-Oct-2023**	12-Nov-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075C: Phthalate Esters							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1028	**29-Sep-2023**	**03-Oct-2023**	06-Oct-2023	✓	**05-Oct-2023**	12-Nov-2023	✓
EP075D: Nitrosamines							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1028	**29-Sep-2023**	**03-Oct-2023**	06-Oct-2023	✓	**05-Oct-2023**	12-Nov-2023	✓
EP075E: Nitroaromatics and Ketones							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1028	**29-Sep-2023**	**03-Oct-2023**	06-Oct-2023	✓	**05-Oct-2023**	12-Nov-2023	✓
EP075F: Haloethers							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1028	**29-Sep-2023**	**03-Oct-2023**	06-Oct-2023	✓	**05-Oct-2023**	12-Nov-2023	✓
EP075G: Chlorinated Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1028	**29-Sep-2023**	**03-Oct-2023**	06-Oct-2023	✓	**05-Oct-2023**	12-Nov-2023	✓
EP075H: Anilines and Benzidines							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1028	**29-Sep-2023**	**03-Oct-2023**	06-Oct-2023	✓	**05-Oct-2023**	12-Nov-2023	✓
EP075I: Organochlorine Pesticides							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1028	**29-Sep-2023**	**03-Oct-2023**	06-Oct-2023	✓	**05-Oct-2023**	12-Nov-2023	✓
EP075J: Organophosphorus Pesticides							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1028	**29-Sep-2023**	**03-Oct-2023**	06-Oct-2023	✓	**05-Oct-2023**	12-Nov-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) SBT-GW-1028	**29-Sep-2023**	**03-Oct-2023**	06-Oct-2023	✓	**04-Oct-2023**	12-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) SBT-GW-1028	**29-Sep-2023**	**04-Oct-2023**	13-Oct-2023	✓	**04-Oct-2023**	13-Oct-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) SBT-GW-1028	**29-Sep-2023**	**03-Oct-2023**	06-Oct-2023	✓	**04-Oct-2023**	12-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) SBT-GW-1028	**29-Sep-2023**	**04-Oct-2023**	13-Oct-2023	✓	**04-Oct-2023**	13-Oct-2023	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) SBT-GW-1028	**29-Sep-2023**	**04-Oct-2023**	13-Oct-2023	✓	**04-Oct-2023**	13-Oct-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) SBT-GW-1030 (monthly), SBT-GW-1028	**29-Sep-2023**	**04-Oct-2023**	27-Mar-2024	✓	**09-Oct-2023**	27-Mar-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) SBT-GW-1030 (monthly), SBT-GW-1028	**29-Sep-2023**	**04-Oct-2023**	27-Mar-2024	✓	**09-Oct-2023**	27-Mar-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) SBT-GW-1030 (monthly), SBT-GW-1028	**29-Sep-2023**	**04-Oct-2023**	27-Mar-2024	✓	**09-Oct-2023**	27-Mar-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) SBT-GW-1030 (monthly), SBT-GW-1028	**29-Sep-2023**	**04-Oct-2023**	27-Mar-2024	✓	**09-Oct-2023**	27-Mar-2024	✓

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)							
Alkalinity by Auto Titrator	ED037-P	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	32	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	2	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	3	12	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	32	**9.38**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard

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 Control Samples (LCS) - Continued							
Total Dissolved Solids (High Level)	EA015H	3	9	**33.33**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	18	**16.67**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	2	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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*	
Matrix Spikes (MS) - Continued							
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	3	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	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
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Total Organic Carbon	EP005	WATER	In house: Referenced to APHA 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
Semivolatile Organic Compounds	EP075	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

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☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: CPBG	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: 14 Great Western HWY, Werrington 2747		Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes / No / N/A
PROJECT: WSA SBT Project	**ALS QUOTE NO.:**	ES23CPBGHE0004	Free ice / frozen ice bricks present upon receipt? Yes / No / N/A
ORDER NUMBER:		**COC SEQUENCE NUMBER (Circle)** COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Emma Kline	**CONTACT PH:**	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Jack Brennan	**SAMPLER MOBILE:** 0478 707 139	**RELINQUISHED BY:**	**RECEIVED BY:**
COC emailed to ALS? (YES / NO)	**EDD FORMAT (or default):**		
Email Reports to: jack.brennan@cpbg-sbt.com.au		DATE/TIME: 29/9/2023 @ 13:30	DATE/TIME: 29/9/23 1711
Email Invoice to (will default to PM if no other addresses are listed): **enviro.sbt@cpbg-sbt.com.au**		**RELINQUISHED BY:** DATE/TIME:	**RECEIVED BY:** DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	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
						Green (P)	Purple (G)	Purple (P)	Red (P)	Red (P)	Purple (G)	Purple (G)	Purple (G)	Orange (G)	Grey (P)					
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	EA005, EA010, EA015, EP005. NT-01, NT-02	EP005	NT-08a	EG020F (Al, As, Cd, Cr, Cu, Fe, Pb, Mn, Ni, Zn, and Hg	EG020T (Al, Co, Fe, Mn)	W-9 (VOC only)	W-9 (TRH only)	W-9 (TRH/BTEXN)	EP075	EP231					HT
1	SBT-GW-1030 (monthly)		W		7	X	X	X	X	X					XX					
2	SBT-GW-1028		W		10	X	X	X	X	X			XX	X	XX					
3	SBT-GW-1042		W		5	X	X	X	X	X										
TOTAL					22															

Environmental Division Sydney
Work Order Reference
ES2333621

Telephone : + 61-2-8784 8555

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 = Form
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	: **ES2333799**	Page	: 1 of 8
Amendment	: **4**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 03-Oct-2023 16:40
Order number	: ----	Date Analysis Commenced	: 04-Oct-2023
C-O-C number	: ----	Issue Date	: 22-Nov-2023 11:35
Sampler	: ----		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 6		
No. of samples analysed	: 6		

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

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

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.

- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EK057G/ EK059G: Confirmed sample 3 by re-analysis
- Amendment (01/11/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020F and EG020T for all samples.
- Amendment (08/11/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020T and EG020F for all samples 001-003, and 006.
- Amendment (15/11/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020F for all samples.
- Amendment (21/11/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020T for samples 001, 002, 003, and 006.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	SBT-GW-3003-A Received as ABP-3003A	SBT-GW-3003-B Received as ABP-3003B	SBT-GW-3003-C Received as ABP-3003C	DUP02-3003-B Received as DUP	TRI02-3003-B Received as TRI
				Sampling date / time	03-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00
					ES2333799-001	ES2333799-002	ES2333799-003	ES2333799-004	ES2333799-005
					Result	Result	Result	Result	Result
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		7.00	7.59	7.56	7.60	7.59
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		27700	19500	15600	21300	19800
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		19000	13100	9760	14200	13200
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		419	447	302	527	463
Total Alkalinity as CaCO3	----	1	mg/L		419	447	302	527	463
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		1490	764	719	814	916
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		8270	5640	4570	6180	5780
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		223	460	301	459	432
Magnesium	7439-95-4	1	mg/L		875	431	398	426	417
Sodium	7440-23-5	1	mg/L		4650	3000	3030	3000	2910
Potassium	7440-09-7	1	mg/L		6	36	57	37	36
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		0.01	0.04	0.01	----	----
Arsenic	7440-38-2	0.001	mg/L		0.001	0.002	0.005	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	0.002	<0.001	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	----	----

Analytical Results

Sub-Matrix: WATER
(Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	SBT-GW-3003-A Received as ABP-3003A	SBT-GW-3003-B Received as ABP-3003B	SBT-GW-3003-C Received as ABP-3003C	DUP02-3003-B Received as DUP	TRI02-3003-B Received as TRI
				Sampling date / time	03-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00
					ES2333799-001	ES2333799-002	ES2333799-003	ES2333799-004	ES2333799-005
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued									
Manganese	7439-96-5	0.001	mg/L		**8.11**	**1.40**	**0.179**	**1.38**	**1.37**
Nickel	7440-02-0	0.001	mg/L		**0.008**	**0.006**	**0.003**	**----**	**----**
Zinc	7440-66-6	0.005	mg/L		<0.005	**0.005**	**0.007**	**----**	**----**
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.88**	**5.63**	**1.24**	**----**	**----**
Cobalt	7440-48-4	0.001	mg/L		**0.030**	**0.018**	**0.003**	**----**	**----**
Copper	7440-50-8	0.001	mg/L		**0.002**	**0.022**	**0.005**	**----**	**----**
Manganese	7439-96-5	0.001	mg/L		**8.84**	**1.92**	**0.234**	**2.20**	**1.84**
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.63**	**0.32**	**2.45**	**0.32**	**0.41**
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	**0.06**	**0.35**	**0.05**	**0.04**
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		<0.01	**0.01**	<0.01	**0.07**	**0.03**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		<0.01	**0.07**	**0.20**	**0.12**	**0.07**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**2.0**	**3.1**	**4.7**	**3.9**	**3.6**
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**2.0**	**3.2**	**4.9**	**4.0**	**3.7**
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.16**	**0.94**	**0.20**	**1.07**	**0.85**
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.01	**0.01**	<0.01	<0.01	<0.01
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**273**	**184**	**150**	**202**	**191**
ø Total Cations	----	0.01	meq/L		**286**	**190**	**181**	**189**	**183**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-3003-A Received as ABP-3003A	SBT-GW-3003-B Received as ABP-3003B	SBT-GW-3003-C Received as ABP-3003C	DUP02-3003-B Received as DUP	TRI02-3003-B Received as TRI
				Sampling date / time	03-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2333799-001	ES2333799-002	ES2333799-003	ES2333799-004	ES2333799-005
					Result	Result	Result	Result	Result
EN055: Ionic Balance - Continued									
ø Ionic Balance	----	0.01	%		**2.31**	**1.58**	**9.40**	**3.17**	**2.13**
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		**17**	**15**	**20**	**15**	**15**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-4803 Received AESO 4803	----	----	----	----
				Sampling date / time	03-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2333799-006	--------	--------	--------	--------
					Result	----	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**7.58**	----	----	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**20500**	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		**13300**	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**1040**	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**1040**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**772**	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**5910**	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**347**	----	----	----	----
Magnesium	7439-95-4	1	mg/L		**598**	----	----	----	----
Sodium	7440-23-5	1	mg/L		**3230**	----	----	----	----
Potassium	7440-09-7	1	mg/L		**43**	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		<0.01	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L		**0.002**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**0.530**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-4803 Received AESO 4803	----	----	----	----
				Sampling date / time	03-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2333799-006	--------	--------	--------	--------
					Result	----	----	----	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Nickel	7440-02-0	0.001	mg/L		**0.008**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.015**	----	----	----	----
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**3.19**	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		**0.010**	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.013**	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**1.15**	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**1.63**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		**0.03**	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**0.02**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.05**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**5.3**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**5.4**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.58**	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.01	----	----	----	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**204**	----	----	----	----
ø Total Cations	----	0.01	meq/L		**208**	----	----	----	----
ø Ionic Balance	----	0.01	%		**1.11**	----	----	----	----
EP005: Total Organic Carbon (TOC)									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-4803 Received AESO 4803	----	----	----	----
				Sampling date / time	03-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2333799-006	--------	--------	--------	--------
					Result	----	----	----	----
EP005: Total Organic Carbon (TOC) - Continued									
Total Organic Carbon	----	1	mg/L		**7**	**----**	**----**	**----**	**----**

QUALITY CONTROL REPORT

Work Order	: **ES2333799**	Page	: 1 of 9
Amendment	: **4**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 03-Oct-2023
Order number	: ----	Date Analysis Commenced	: 04-Oct-2023
C-O-C number	: ----	Issue Date	: 22-Nov-2023
Sampler	: ----		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

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
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

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 (%)*
EA005P: pH by PC Titrator (QC Lot: 5338323)									
ES2333799-003	SBT-GW-3003-C Received as ABP-3003C	EA005-P: pH Value	----	0.01	pH Unit	7.56	7.63	0.9	0% - 20%
ES2333799-004	DUP02-3003-B Received as DUP	EA005-P: pH Value	----	0.01	pH Unit	7.60	7.64	0.5	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5338321)									
ES2333799-003	SBT-GW-3003-C Received as ABP-3003C	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	15600	15600	0.5	0% - 20%
ES2333819-012	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1300	1280	1.1	0% - 20%
ES2333268-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	237	236	0.6	0% - 20%
ES2333799-004	DUP02-3003-B Received as DUP	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	21300	20800	2.3	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5342185)									
ES2333477-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	16100	16100	0.2	0% - 20%
ES2333799-005	TRI02-3003-B Received as TRI	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	13200	13200	0.2	0% - 20%
ES2333844-009	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	7350	7240	1.6	0% - 20%
ES2333846-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1600	1540	4.4	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5338322)									
ES2333744-003	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	632	628	0.5	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 (%)*
ED037P: Alkalinity by PC Titrator (QC Lot: 5338322) - continued									
ES2333744-003	Anonymous	ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	632	628	0.5	0% - 20%
ES2333799-004	DUP02-3003-B Received as DUP	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	527	516	2.2	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	527	516	2.2	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5337844)									
ES2333744-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	415	401	3.3	0% - 20%
ES2333744-010	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	151	148	2.2	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5337849)									
ES2333799-005	TRI02-3003-B Received as TRI	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	916	908	0.8	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5337845)									
ES2333744-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	5950	6000	0.9	0% - 20%
ES2333744-010	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	95	90	5.4	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5337848)									
ES2333799-005	TRI02-3003-B Received as TRI	ED045G: Chloride	16887-00-6	1	mg/L	5780	5850	1.3	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5339073)									
ES2333610-006	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	184	183	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	360	358	0.6	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	1960	1960	0.2	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	18	18	0.0	0% - 50%
EW2304334-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	3	3	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	20	18	9.8	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5339074)									
ES2333610-006	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.398	0.401	0.9	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit

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 (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5339074) - continued									
EW2304334-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.074	0.074	0.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.007	0.007	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.22	0.22	0.0	0% - 20%
EG020T: Total Metals by ICP-MS (QC Lot: 5339096)									
ES2333777-004	Anonymous	EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.044	0.045	2.9	0% - 20%
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.09	0.10	0.0	No Limit
ES2333067-001	Anonymous	EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.090	0.097	7.8	0% - 20%
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.15	0.16	10.7	0% - 50%
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5338928)									
ES2333798-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	2.07	2.08	0.0	0% - 20%
ES2333799-003	SBT-GW-3003-C Received as ABP-3003C	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	2.45	2.36	3.6	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5337843)									
ES2333744-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.01	0.01	0.0	No Limit
ES2333744-010	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.05	0.05	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5337847)									
ME2301805-002	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2333799-005	TRI02-3003-B Received as TRI	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.04	0.04	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5338927)									
ES2333602-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.59	0.59	0.0	0% - 20%
ES2333799-003	SBT-GW-3003-C Received as ABP-3003C	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.20	0.21	0.0	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5338925)									
ES2333602-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.7	0.7	0.0	No Limit
ES2333799-004	DUP02-3003-B Received as DUP	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (0.5)*	mg/L	3.9	4.0	0.0	No Limit

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 (%)*
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5338926)									
ES2333602-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.11	0.11	0.0	0% - 50%
ES2333799-004	DUP02-3003-B Received as DUP	EK067G: Total Phosphorus as P	----	0.01 (0.05)*	mg/L	1.07	1.12	3.9	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5337846)									
ES2333762-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01 (0.50)*	mg/L	14.1	15.0	6.2	0% - 20%
ES2333858-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP005: Total Organic Carbon (TOC) (QC Lot: 5339255)									
ES2333503-002	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	14	10	28.8	0% - 50%
ES2333617-006	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	6	7	0.0	No Limit
EP005: Total Organic Carbon (TOC) (QC Lot: 5339256)									
ES2333799-005	TRI02-3003-B Received as TRI	EP005: Total Organic Carbon	----	1	mg/L	15	13	13.9	0% - 50%
ES2333939-005	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	5	2	84.2	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 5338323)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	99.7	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 5338321)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	96.3	89.9	110
				<1	2100 µS/cm	100	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5342185)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	96.3	87.0	109
				<10	293 mg/L	103	75.2	126
				<10	2380 mg/L	103	83.0	124
ED037P: Alkalinity by PC Titrator (QCLot: 5338322)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	101	81.0	115
				----	50 mg/L	99.9	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5337844)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	100	82.0	122
				<1	500 mg/L	102	82.0	122
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5337849)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	90.6	82.0	122
				<1	500 mg/L	103	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5337845)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	90.9	80.9	127
				<1	1000 mg/L	93.1	80.9	127
ED045G: Chloride by Discrete Analyser (QCLot: 5337848)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	92.9	80.9	127
				<1	1000 mg/L	91.3	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5339073)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	109	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	103	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	101	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	101	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5339074)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	99.7	80.0	116

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5339074) - continued								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.1	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.4	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.3	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.8	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	90.4	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	96.2	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	91.5	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	93.8	81.0	117
EG020T: Total Metals by ICP-MS (QCLot: 5339096)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	93.4	82.0	120
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	90.9	84.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.8	83.0	118
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	92.2	85.0	113
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5338928)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	107	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5337843)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	98.6	82.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5337847)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	96.5	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5338927)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	104	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5338925)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	98.1	69.0	101
				<0.1	1 mg/L	98.7	70.0	118
				<0.1	5 mg/L	100	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5338926)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	88.6	71.3	126
				<0.01	0.442 mg/L	95.3	71.3	126
				<0.01	1 mg/L	101	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5337846)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	98.8	85.0	117
EP005: Total Organic Carbon (TOC) (QCLot: 5339255)								
EP005: Total Organic Carbon	----	1	mg/L	<1	10 mg/L	98.4	72.0	120
EP005: Total Organic Carbon (TOC) (QCLot: 5339256)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP005: Total Organic Carbon (TOC) (QCLot: 5339256) - continued								
EP005: Total Organic Carbon	----	1	mg/L	<1	10 mg/L	98.2	72.0	120

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.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5337844)							
ES2333744-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5337849)							
ES2333799-005	TRI02-3003-B Received as TRI	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5337845)							
ES2333744-001	Anonymous	ED045G: Chloride	16887-00-6	50 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5337848)							
ES2333799-005	TRI02-3003-B Received as TRI	ED045G: Chloride	16887-00-6	50 mg/L	# Not Determined	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5339074)							
ES2333610-007	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	98.9	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	96.6	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	93.5	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	93.3	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	87.0	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	93.5	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	92.0	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	93.6	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5339096)							
ES2332935-015	Anonymous	EG020A-T: Cobalt	7440-48-4	1 mg/L	95.2	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	98.8	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	92.0	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5338928)							
ES2333798-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	120	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5337843)							
ES2333744-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	116	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5337847)							
ES2333799-005	TRI02-3003-B Received as TRI	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	114	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5338927)							
ES2333602-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	104	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5338925)							
ES2333602-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	101	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5338926)							
ES2333602-002	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	93.7	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5337846)							
ES2333762-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	# Not Determined	70.0	130
EP005: Total Organic Carbon (TOC) (QCLot: 5339255)							
ES2333504-002	Anonymous	EP005: Total Organic Carbon	----	100 mg/L	120	70.0	130
EP005: Total Organic Carbon (TOC) (QCLot: 5339256)							
ES2333799-006	SBT-GW-4803 Received AESO 4803	EP005: Total Organic Carbon	----	100 mg/L	125	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2333799**	Page	: 1 of 9
Amendment	: **4**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 03-Oct-2023
Site	:	Issue Date	: 22-Nov-2023
Sampler	: ----	No. of samples received	: 6
Order number	: ----	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.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2333744--001	Anonymous	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2333799--005	TRI02-3003-B Received as TR	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED045G: Chloride by Discrete Analyser	ES2333744--001	Anonymous	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED045G: Chloride by Discrete Analyser	ES2333799--005	TRI02-3003-B Received as TR	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK071G: Reactive Phosphorus as P by discrete analyse	ES2333762--001	Anonymous	**Reactive Phosphorus as P**	14265-44-2	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)		Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural							
SBT-GW-3003-A - Received as ABP-3003A,	SBT-GW-3003-B - Received as ABP-3003B,	----	----	----	04-Oct-2023	03-Oct-2023	**1**
SBT-GW-3003-C - Received as ABP-3003C,	DUP02-3003-B - Received as DUP,						
TRI02-3003-B - Received as TRI,	SBT-GW-4803 - Received AESO 4803						

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Control Samples (LCS)						
Conductivity by Auto Titrator	EA010-P	3	37	8.11	8.33	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER** Evaluation: ✗ = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P)							
SBT-GW-3003-A - Received as ABP-3003A, SBT-GW-3003-B - Received as ABP-3003B, SBT-GW-3003-C - Received as ABP-3003C, DUP02-3003-B - Received as DUP, TRI02-3003-B - Received as TRI, SBT-GW-4803 - Received AESO 4803	**03-Oct-2023**	----	----	----	**04-Oct-2023**	03-Oct-2023	✗
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P)							
SBT-GW-3003-A - Received as ABP-3003A, SBT-GW-3003-B - Received as ABP-3003B, SBT-GW-3003-C - Received as ABP-3003C, DUP02-3003-B - Received as DUP, TRI02-3003-B - Received as TRI, SBT-GW-4803 - Received AESO 4803	**03-Oct-2023**	----	----	----	**04-Oct-2023**	31-Oct-2023	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H)							
SBT-GW-3003-A - Received as ABP-3003A, SBT-GW-3003-B - Received as ABP-3003B, SBT-GW-3003-C - Received as ABP-3003C, DUP02-3003-B - Received as DUP, TRI02-3003-B - Received as TRI, SBT-GW-4803 - Received AESO 4803	**03-Oct-2023**	----	----	----	**06-Oct-2023**	10-Oct-2023	✓
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
SBT-GW-3003-A - Received as ABP-3003A, SBT-GW-3003-B - Received as ABP-3003B, SBT-GW-3003-C - Received as ABP-3003C, DUP02-3003-B - Received as DUP, TRI02-3003-B - Received as TRI, SBT-GW-4803 - Received AESO 4803	**03-Oct-2023**	----	----	----	**04-Oct-2023**	17-Oct-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
SBT-GW-3003-A - Received as ABP-3003A, SBT-GW-3003-B - Received as ABP-3003B, SBT-GW-3003-C - Received as ABP-3003C, DUP02-3003-B - Received as DUP, TRI02-3003-B - Received as TRI, SBT-GW-4803 - Received AESO 4803	**03-Oct-2023**	----	----	----	**05-Oct-2023**	31-Oct-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
SBT-GW-3003-A - Received as ABP-3003A, SBT-GW-3003-B - Received as ABP-3003B, SBT-GW-3003-C - Received as ABP-3003C, DUP02-3003-B - Received as DUP, TRI02-3003-B - Received as TRI, SBT-GW-4803 - Received AESO 4803	**03-Oct-2023**	----	----	----	**05-Oct-2023**	31-Oct-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)								
SBT-GW-3003-A - Received as ABP-3003A,	SBT-GW-3003-B - Received as ABP-3003B,	**03-Oct-2023**	**----**	----	----	**06-Oct-2023**	31-Oct-2023	✓
SBT-GW-3003-C - Received as ABP-3003C,	DUP02-3003-B - Received as DUP,							
TRI02-3003-B - Received as TRI,	SBT-GW-4803 - Received AESO 4803							
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)								
SBT-GW-3003-A - Received as ABP-3003A,	SBT-GW-3003-B - Received as ABP-3003B,	**03-Oct-2023**	**----**	----	----	**06-Oct-2023**	31-Mar-2024	✓
SBT-GW-3003-C - Received as ABP-3003C,	DUP02-3003-B - Received as DUP,							
TRI02-3003-B - Received as TRI,	SBT-GW-4803 - Received AESO 4803							
EG020T: Total Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)								
SBT-GW-3003-A - Received as ABP-3003A,	SBT-GW-3003-B - Received as ABP-3003B,	**03-Oct-2023**	**05-Oct-2023**	31-Mar-2024	✓	**05-Oct-2023**	31-Mar-2024	✓
SBT-GW-3003-C - Received as ABP-3003C,	DUP02-3003-B - Received as DUP,							
TRI02-3003-B - Received as TRI,	SBT-GW-4803 - Received AESO 4803							
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G)								
SBT-GW-3003-A - Received as ABP-3003A,	SBT-GW-3003-B - Received as ABP-3003B,	**03-Oct-2023**	**----**	----	----	**05-Oct-2023**	31-Oct-2023	✓
SBT-GW-3003-C - Received as ABP-3003C,	DUP02-3003-B - Received as DUP,							
TRI02-3003-B - Received as TRI,	SBT-GW-4803 - Received AESO 4803							
EK057G: Nitrite as N by Discrete Analyser								
Clear Plastic Bottle - Natural (EK057G)								
SBT-GW-3003-A - Received as ABP-3003A,	SBT-GW-3003-B - Received as ABP-3003B,	**03-Oct-2023**	**----**	----	----	**05-Oct-2023**	05-Oct-2023	✓
SBT-GW-3003-C - Received as ABP-3003C,	DUP02-3003-B - Received as DUP,							
TRI02-3003-B - Received as TRI,	SBT-GW-4803 - Received AESO 4803							
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK059G)								
SBT-GW-3003-A - Received as ABP-3003A,	SBT-GW-3003-B - Received as ABP-3003B,	**03-Oct-2023**	**----**	----	----	**05-Oct-2023**	31-Oct-2023	✓
SBT-GW-3003-C - Received as ABP-3003C,	DUP02-3003-B - Received as DUP,							
TRI02-3003-B - Received as TRI,	SBT-GW-4803 - Received AESO 4803							
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK061G)								
SBT-GW-3003-A - Received as ABP-3003A,	SBT-GW-3003-B - Received as ABP-3003B,	**03-Oct-2023**	**04-Oct-2023**	31-Oct-2023	✓	**05-Oct-2023**	31-Oct-2023	✓
SBT-GW-3003-C - Received as ABP-3003C,	DUP02-3003-B - Received as DUP,							
TRI02-3003-B - Received as TRI,	SBT-GW-4803 - Received AESO 4803							
EK067G: Total Phosphorus as P by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK067G)								
SBT-GW-3003-A - Received as ABP-3003A,	SBT-GW-3003-B - Received as ABP-3003B,	**03-Oct-2023**	**04-Oct-2023**	31-Oct-2023	✓	**05-Oct-2023**	31-Oct-2023	✓
SBT-GW-3003-C - Received as ABP-3003C,	DUP02-3003-B - Received as DUP,							
TRI02-3003-B - Received as TRI,	SBT-GW-4803 - Received AESO 4803							

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G)							
SBT-GW-3003-A - Received as ABP-3003A, SBT-GW-3003-B - Received as ABP-3003B, SBT-GW-3003-C - Received as ABP-3003C, DUP02-3003-B - Received as DUP, TRI02-3003-B - Received as TRI, SBT-GW-4803 - Received AESO 4803	**03-Oct-2023**	**----**	----	**----**	**05-Oct-2023**	05-Oct-2023	✓
EP005: Total Organic Carbon (TOC)							
Amber TOC Vial - Sulfuric Acid (EP005)							
SBT-GW-3003-A - Received as ABP-3003A, SBT-GW-3003-B - Received as ABP-3003B, SBT-GW-3003-C - Received as ABP-3003C, DUP02-3003-B - Received as DUP, TRI02-3003-B - Received as TRI	**03-Oct-2023**	**----**	----	**----**	**06-Oct-2023**	31-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP005)							
SBT-GW-4803 - Received AESO 4803	**03-Oct-2023**	**----**	----	**----**	**06-Oct-2023**	31-Oct-2023	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	3	29	**10.34**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	37	**10.81**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	4	30	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	3	29	**10.34**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	29	**13.79**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	37	**8.11**	**8.33**	×	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	29	**13.79**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	40	**12.50**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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*	
Method Blanks (MB) - Continued							
Conductivity by Auto Titrator	EA010-P	2	37	**5.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	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
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Total Organic Carbon	EP005	WATER	In house: Referenced to APHA 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2334030**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: emma.kline@cpbg-sbt.com.au	E-mail	: ALSEnviro.Sydney@ALSGlobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: WSA SBT Project	Page	: 1 of 3
Order number	: ----	Quote number	: ES2023CPBGHE0004 (Contract ES23CPBGHE0004)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	:		
Sampler	: Jack Brennan		

Dates

Date Samples Received	: 05-Oct-2023 09:00	Issue Date	: 05-Oct-2023
Client Requested Due Date	: 10-Oct-2023	Scheduled Reporting Date	: **10-Oct-2023**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 17.2'C, 18.2'C, 17.6'C
Receipt Detail	:	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
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- 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.

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

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

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EA005P pH (Auto Titrator)	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - EA015H Total Dissolved Solids - Standard Level	WATER - EG020F Dissolved Metals by ICP/MS	WATER - EG020T Total Metals by ICP/MS (including digestion)	WATER - EP005 Total Organic Carbon (TOC)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity
ES2334030-001	04-Oct-2023 00:00	MW1	✓	✓	✓	✓	✓	✓	✓
ES2334030-002	04-Oct-2023 00:00	SBT-GW-1001	✓	✓	✓	✓	✓	✓	✓
ES2334030-003	04-Oct-2023 00:00	SBT-GW-1005	✓	✓	✓	✓	✓	✓	✓
ES2334030-004	04-Oct-2023 00:00	SBT-GW-1017	✓	✓	✓	✓	✓	✓	✓
ES2334030-005	04-Oct-2023 00:00	SMGW-GW02	✓	✓	✓	✓	✓	✓	✓
ES2334030-006	04-Oct-2023 00:00	SBT-GW-1002	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP074 (water) minus BTEXN Volatile Organic Compounds (minus BTEXN)	WATER - EP231 PFAS - Short Suite (12 analytes)	WATER - NT-08A Total Nitrogen + NO2 + NO3 + NH3 + Total P +	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2334030-001	04-Oct-2023 00:00	MW1	✓	✓	✓	✓
ES2334030-002	04-Oct-2023 00:00	SBT-GW-1001			✓	
ES2334030-003	04-Oct-2023 00:00	SBT-GW-1005			✓	
ES2334030-004	04-Oct-2023 00:00	SBT-GW-1017	✓	✓	✓	✓
ES2334030-005	04-Oct-2023 00:00	SMGW-GW02	✓	✓	✓	✓
ES2334030-006	04-Oct-2023 00:00	SBT-GW-1002			✓	

Proactive Holding Time Report

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

Requested Deliverables

EMMA KLINE

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

Enviro

- A4 - AU Tax Invoice (INV)	Email	enviro.sbt@cpbg-sbt.com.au

Jack Brennan

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

WSASBT PROGRESSCLAIMS

- A4 - AU Tax Invoice (INV)	Email	wsasbt.progressclaims@cpbg-sbt.com.au

CERTIFICATE OF ANALYSIS

Work Order	: **ES2334030**	Page	: 1 of 12
Amendment	: **1**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 05-Oct-2023 09:00
Order number	: ----	Date Analysis Commenced	: 05-Oct-2023
C-O-C number	: ----	Issue Date	: 06-Nov-2023 12:06
Sampler	: Jack Brennan		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 6		
No. of samples analysed	: 6		

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

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EG020: It is recognised that total concentration is less than dissolved for some metal analytes. However, the difference is within experimental variation of the methods.
- TDS by method EA-015 may bias high for various samples due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- Amendment (06/11/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020T and EG020F for all samples.
- EP080: Particular sample required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	MW1	SBT-GW-1001	SBT-GW-1005	SBT-GW-1017	SMGW-GW02
			Sampling date / time	04-Oct-2023 00:00	04-Oct-2023 00:00	04-Oct-2023 00:00	04-Oct-2023 00:00	04-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2334030-001	ES2334030-002	ES2334030-003	ES2334030-004	ES2334030-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.04**	**4.40**	**7.14**	**6.32**	**6.10**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**1060**	**32600**	**25000**	**18200**	**8830**
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**734**	**24200**	**17500**	**14300**	**5740**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**174**	<1	**636**	**90**	**43**
Total Alkalinity as CaCO3	----	1	mg/L	**174**	<1	**636**	**90**	**43**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**92**	**489**	**745**	**644**	**268**
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**130**	**11900**	**7800**	**5890**	**3040**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**49**	**69**	**352**	**41**	**21**
Magnesium	7439-95-4	1	mg/L	**19**	**1150**	**991**	**488**	**162**
Sodium	7440-23-5	1	mg/L	**152**	**5760**	**3660**	**3410**	**1760**
Potassium	7440-09-7	1	mg/L	**7**	**22**	**55**	**3**	**1**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**0.10**	**16.3**	**0.04**	**0.11**	<0.01
Arsenic	7440-38-2	0.001	mg/L	<0.001	**0.005**	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	**0.0021**	<0.0001	**0.0003**	**0.0002**
Chromium	7440-47-3	0.001	mg/L	<0.001	**0.004**	<0.001	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	**1.01**	**0.004**	**0.226**	**0.073**
Copper	7440-50-8	0.001	mg/L	**0.003**	**0.037**	<0.001	**0.002**	**0.002**
Lead	7439-92-1	0.001	mg/L	<0.001	**0.033**	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	**0.009**	**6.03**	**0.928**	**15.0**	**0.280**
Nickel	7440-02-0	0.001	mg/L	<0.001	**0.490**	**0.004**	**0.034**	**0.021**
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	**0.014**	**1.76**	**0.014**	**0.080**	**0.060**
Iron	7439-89-6	0.05	mg/L	**0.05**	**3.43**	**0.95**	**0.06**	<0.05
EG020T: Total Metals by ICP-MS								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW1	SBT-GW-1001	SBT-GW-1005	SBT-GW-1017	SMGW-GW02
				Sampling date / time	04-Oct-2023 00:00	04-Oct-2023 00:00	04-Oct-2023 00:00	04-Oct-2023 00:00	04-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2334030-001	ES2334030-002	ES2334030-003	ES2334030-004	ES2334030-005
					Result	Result	Result	Result	Result
EG020T: Total Metals by ICP-MS - Continued									
Aluminium	7429-90-5	0.01	mg/L		4.06	19.8	3.29	13.4	0.20
Arsenic	7440-38-2	0.001	mg/L		0.002	0.007	0.002	0.006	<0.001
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	0.0021	0.0004	0.0003	0.0003
Chromium	7440-47-3	0.001	mg/L		0.008	0.013	0.004	0.023	0.002
Cobalt	7440-48-4	0.001	mg/L		0.006	0.999	0.003	0.338	0.078
Copper	7440-50-8	0.001	mg/L		0.012	0.089	0.005	0.124	0.003
Lead	7439-92-1	0.001	mg/L		0.019	0.047	0.017	0.132	0.003
Manganese	7439-96-5	0.001	mg/L		0.113	6.41	1.06	17.3	0.279
Nickel	7440-02-0	0.001	mg/L		0.004	0.615	0.010	0.062	0.028
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.01	<0.01	0.09	<0.01
Zinc	7440-66-6	0.005	mg/L		0.070	1.82	0.097	0.284	0.071
Iron	7439-89-6	0.05	mg/L		6.48	5.97	4.25	20.9	0.70
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		0.70	0.58	0.15	0.26	0.06
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		27.9	0.12	0.42	0.06	0.01
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		27.9	0.12	0.42	0.06	0.01
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		3.1	0.8	1.2	6.0	0.4
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		31.0	0.9	1.6	6.1	0.4
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		0.26	0.04	0.22	3.90	0.06
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		0.02	0.01	<0.01	<0.01	0.01
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		9.06	346	248	181	92.2
ø Total Cations	----	0.01	meq/L		10.8	349	260	191	91.0
ø Ionic Balance	----	0.01	%		8.76	0.48	2.26	2.49	0.67
EP005: Total Organic Carbon (TOC)									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW1	SBT-GW-1001	SBT-GW-1005	SBT-GW-1017	SMGW-GW02
				Sampling date / time	04-Oct-2023 00:00	04-Oct-2023 00:00	04-Oct-2023 00:00	04-Oct-2023 00:00	04-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2334030-001	ES2334030-002	ES2334030-003	ES2334030-004	ES2334030-005
					Result	Result	Result	Result	Result
EP005: Total Organic Carbon (TOC) - Continued									
Total Organic Carbon	----	1	mg/L		**5**	**12**	**7**	**9**	**3**
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	5	µg/L		<5	----	----	<5	<5
Isopropylbenzene	98-82-8	5	µg/L		<5	----	----	<5	<5
n-Propylbenzene	103-65-1	5	µg/L		<5	----	----	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L		<5	----	----	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L		<5	----	----	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L		<5	----	----	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L		<5	----	----	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L		<5	----	----	<5	<5
n-Butylbenzene	104-51-8	5	µg/L		<5	----	----	<5	<5
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		<50	----	----	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L		<50	----	----	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		<50	----	----	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L		<50	----	----	<50	<50
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		<5	----	----	<5	<5
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		<5	----	----	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L		<5	----	----	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		<5	----	----	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		<5	----	----	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	----	----	<5	<5
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	----	----	<50	<50
Chloromethane	74-87-3	50	µg/L		<50	----	----	<50	<50
Vinyl chloride	75-01-4	50	µg/L		<50	----	----	<50	<50
Bromomethane	74-83-9	50	µg/L		<50	----	----	<50	<50
Chloroethane	75-00-3	50	µg/L		<50	----	----	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L		<50	----	----	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L		<5	----	----	<5	<5
Iodomethane	74-88-4	5	µg/L		<5	----	----	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L		**6**	----	----	<5	<5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW1	SBT-GW-1001	SBT-GW-1005	SBT-GW-1017	SMGW-GW02
				Sampling date / time	04-Oct-2023 00:00	04-Oct-2023 00:00	04-Oct-2023 00:00	04-Oct-2023 00:00	04-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2334030-001	ES2334030-002	ES2334030-003	ES2334030-004	ES2334030-005
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1-Dichloroethane	75-34-3	5	µg/L		<5	----	----	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L		**599**	----	----	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L		<5	----	----	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L		<5	----	----	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L		<5	----	----	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L		<5	----	----	<5	<5
Trichloroethene	79-01-6	5	µg/L		**518**	----	----	<5	**63**
Dibromomethane	74-95-3	5	µg/L		<5	----	----	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L		<5	----	----	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L		<5	----	----	<5	<5
Tetrachloroethene	127-18-4	5	µg/L		**2160**	----	----	<5	**488**
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		<5	----	----	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		<5	----	----	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	----	----	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		<5	----	----	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L		<5	----	----	<5	<5
Pentachloroethane	76-01-7	5	µg/L		<5	----	----	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	----	----	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L		<5	----	----	<5	<5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<5	----	----	<5	<5
Bromobenzene	108-86-1	5	µg/L		<5	----	----	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L		<5	----	----	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L		<5	----	----	<5	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L		<5	----	----	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L		<5	----	----	<5	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L		<5	----	----	<5	<5
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		<5	----	----	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		<5	----	----	<5	<5
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	----	----	<5	<5
Bromodichloromethane	75-27-4	5	µg/L		<5	----	----	<5	<5
Dibromochloromethane	124-48-1	5	µg/L		<5	----	----	<5	<5
Bromoform	75-25-2	5	µg/L		<5	----	----	<5	<5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW1	SBT-GW-1001	SBT-GW-1005	SBT-GW-1017	SMGW-GW02
				Sampling date / time	04-Oct-2023 00:00	04-Oct-2023 00:00	04-Oct-2023 00:00	04-Oct-2023 00:00	04-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2334030-001	ES2334030-002	ES2334030-003	ES2334030-004	ES2334030-005
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		**3770**	----	----	<20	**660**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		**3980**	----	----	<20	**700**
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		**3980**	----	----	<20	**700**
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<5	----	----	<1	<1
Toluene	108-88-3	2	µg/L		<5	----	----	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<5	----	----	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<10	----	----	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<5	----	----	<2	<2
^ Total Xylenes	----	2	µg/L		<2	----	----	<2	<2
^ Sum of BTEX	----	1	µg/L		<2	----	----	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	----	----	<5	<5
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	<0.02	**0.02**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		**0.02**	----	----	<0.01	<0.01
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		**0.25**	----	----	<0.01	**0.04**
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		**0.02**	----	----	<0.01	<0.01
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	<0.05	<0.05

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW1	SBT-GW-1001	SBT-GW-1005	SBT-GW-1017	SMGW-GW02
				Sampling date / time	04-Oct-2023 00:00	04-Oct-2023 00:00	04-Oct-2023 00:00	04-Oct-2023 00:00	04-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2334030-001	ES2334030-002	ES2334030-003	ES2334030-004	ES2334030-005
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	<0.05	<0.05
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		**0.27**	----	----	<0.01	**0.04**
Sum of PFAS (WA DER List)	----	0.01	µg/L		**0.29**	----	----	<0.01	**0.06**
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		**97.7**	----	----	**129**	**89.6**
Toluene-D8	2037-26-5	5	%		**104**	----	----	**111**	**96.6**
4-Bromofluorobenzene	460-00-4	5	%		**101**	----	----	**115**	**97.5**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**85.5**	----	----	**96.4**	**77.9**
Toluene-D8	2037-26-5	2	%		**103**	----	----	**98.0**	**95.6**
4-Bromofluorobenzene	460-00-4	2	%		**108**	----	----	**112**	**103**
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**102**	----	----	**107**	**103**
13C8-PFOA	----	0.02	%		**101**	----	----	**99.5**	**97.0**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SBT-GW-1002	----	----	----	----
			Sampling date / time	04-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2334030-006	--------	--------	--------	--------
				Result	----	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**4.35**	----	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**7640**	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**5660**	----	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	<1	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**192**	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**2710**	----	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**2**	----	----	----	----
Magnesium	7439-95-4	1	mg/L	**164**	----	----	----	----
Sodium	7440-23-5	1	mg/L	**1510**	----	----	----	----
Potassium	7440-09-7	1	mg/L	**3**	----	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**3.29**	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L	**0.002**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	**0.0001**	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L	**0.099**	----	----	----	----
Copper	7440-50-8	0.001	mg/L	**0.026**	----	----	----	----
Lead	7439-92-1	0.001	mg/L	**0.018**	----	----	----	----
Manganese	7439-96-5	0.001	mg/L	**0.073**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	**0.033**	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	**0.162**	----	----	----	----
Iron	7439-89-6	0.05	mg/L	**0.98**	----	----	----	----
EG020T: Total Metals by ICP-MS								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SBT-GW-1002	----	----	----	----
			Sampling date / time	04-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2334030-006	--------	--------	--------	--------
				Result	----	----	----	----
EG020T: Total Metals by ICP-MS - Continued								
Aluminium	7429-90-5	0.01	mg/L	**5.39**	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L	**0.004**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	**0.0001**	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	**0.001**	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L	**0.112**	----	----	----	----
Copper	7440-50-8	0.001	mg/L	**0.038**	----	----	----	----
Lead	7439-92-1	0.001	mg/L	**0.039**	----	----	----	----
Manganese	7439-96-5	0.001	mg/L	**0.074**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	**0.044**	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L	<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	**0.182**	----	----	----	----
Iron	7439-89-6	0.05	mg/L	**2.19**	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.03**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	**0.16**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.16**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**3.0**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**3.2**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**1.02**	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	**0.01**	----	----	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**80.4**	----	----	----	----
ø Total Cations	----	0.01	meq/L	**79.4**	----	----	----	----
ø Ionic Balance	----	0.01	%	**0.68**	----	----	----	----
EP005: Total Organic Carbon (TOC)								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1002	----	----	----	----
				Sampling date / time	04-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2334030-006	--------	--------	--------	--------
					Result	----	----	----	----
EP005: Total Organic Carbon (TOC) - Continued									
Total Organic Carbon	----	1	mg/L		**16**	**----**	**----**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

QUALITY CONTROL REPORT

Work Order	: **ES2334030**	Page	: 1 of 16
Amendment	: **1**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 05-Oct-2023
Order number	: ----	Date Analysis Commenced	: 05-Oct-2023
C-O-C number	: ----	Issue Date	: 06-Nov-2023
Sampler	: Jack Brennan		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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 (%)*
EA005P: pH by PC Titrator (QC Lot: 5341557)									
ES2334030-005	SMGW-GW02	EA005-P: pH Value	----	0.01	pH Unit	6.10	6.10	0.0	0% - 20%
ES2333674-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	11.7	11.7	0.1	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5341556)									
ES2333971-009	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	194	192	1.0	0% - 20%
ES2334078-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	2010	2000	0.1	0% - 20%
EW2304382-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	677	674	0.4	0% - 20%
EW2304366-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1200	1190	0.4	0% - 20%
ES2334030-005	SMGW-GW02	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	8830	8820	0.1	0% - 20%
ES2333674-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1340	1360	1.5	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5345282)									
ES2332851-008	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1010	906	10.6	0% - 20%
ES2333735-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	365	380	4.0	0% - 20%
ES2333840-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	423	386	9.3	0% - 20%
ES2333840-012	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	426	419	1.7	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5341558)									
ES2334030-005	SMGW-GW02	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	43	42	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	43	42	0.0	0% - 20%
ES2333674-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	215	212	1.1	0% - 20%
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	140	144	2.8	0% - 20%
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	355	357	0.4	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 (%)*
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5341799)									
ES2334169-003	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	321	316	1.6	0% - 20%
ES2334030-001	MW1	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	92	95	3.2	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5341798)									
ES2334169-003	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1440	1440	0.1	0% - 20%
ES2334030-001	MW1	ED045G: Chloride	16887-00-6	1	mg/L	130	126	3.1	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5343448)									
ES2333737-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	5	5	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	6	6	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	32	31	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	2	2	0.0	No Limit
ES2334030-006	SBT-GW-1002	ED093F: Calcium	7440-70-2	1	mg/L	2	2	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	164	166	1.2	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	1510	1500	0.2	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	3	3	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5343447)									
ES2333737-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.043	0.044	2.8	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.022	0.022	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.04	0.04	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	2.48	2.49	0.8	0% - 20%
ES2334030-006	SBT-GW-1002	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0001	0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.099	0.099	0.0	0% - 20%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.026	0.027	0.0	0% - 20%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.018	0.018	0.0	0% - 50%
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.073	0.072	2.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.033	0.031	6.1	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.162	0.158	2.1	0% - 20%
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	3.29	3.35	1.8	0% - 20%
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	0.98	1.03	5.3	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 (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5343692)									
ES2333746-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.012	0.012	0.0	0% - 50%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.023	<0.005	125	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.02	0.04	63.1	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.07	0.05	29.1	No Limit
ES2334127-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.031	0.032	3.4	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.230	0.228	0.7	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.008	0.007	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.02	0.02	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.06	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5342021)									
ES2334030-001	MW1	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.70	0.70	0.0	0% - 20%
ES2334140-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.03	0.03	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5341797)									
ES2334140-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.09	0.10	13.8	0% - 50%
ES2334030-001	MW1	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5342020)									
ES2334030-001	MW1	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	27.9	27.9	0.0	0% - 20%
ES2334140-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.82	0.82	0.0	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5342024)									
ES2334029-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	<0.1	0.0	No Limit
ES2334139-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.6	0.6	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5342023)									
ES2334029-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2334139-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.02	0.02	0.0	No Limit

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 (%)*
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5341796)									
ES2334208-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.09	0.11	20.3	0% - 50%
ES2334030-001	MW1	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	0.02	0.0	No Limit
EP005: Total Organic Carbon (TOC) (QC Lot: 5342156)									
ES2333859-004	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	5	5	0.0	No Limit
ES2334030-002	SBT-GW-1001	EP005: Total Organic Carbon	----	1	mg/L	12	12	0.0	0% - 50%
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 5343235)									
WN2311938-010	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES2333556-038	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 5343235)									
WN2311938-010	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES2333556-038	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 5343235)									
WN2311938-010	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES2333556-038	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 5343235)									
WN2311938-010	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit

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 (%)*
EP074D: Fumigants (QC Lot: 5343235) - continued									
WN2311938-010	Anonymous	EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES2333556-038	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5343235)									
WN2311938-010	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES2333556-038	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit

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 (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5343235) - continued									
ES2333556-038	Anonymous	EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5343235)									
WN2311938-010	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES2333556-038	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit

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 (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 5343235) - continued									
ES2333556-038	Anonymous	EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5343235)									
WN2311938-010	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	5	5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	16	16	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	26	26	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	11	11	0.0	No Limit
ES2333556-038	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5343236)									
ES2333556-038	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5343236)									
ES2333556-038	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5343236)									
ES2333556-038	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5341589)									
ES2334041-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5341589)									
ES2334041-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.09	0.11	18.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	0.19	0.20	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5341589)									
ES2334041-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit

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 (%)*
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5341589) - continued									
ES2334041-001	Anonymous	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 5341557)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 5341556)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	91.6	89.9	110
				<1	2100 µS/cm	95.5	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5345282)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	97.7	87.0	109
				<10	293 mg/L	104	75.2	126
				<10	2380 mg/L	97.6	83.0	124
ED037P: Alkalinity by PC Titrator (QCLot: 5341558)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	101	81.0	115
				----	50 mg/L	104	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5341799)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	98.3	82.0	122
				<1	500 mg/L	98.8	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5341798)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	94.7	80.9	127
				<1	1000 mg/L	99.3	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5343448)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	95.4	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	106	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	106	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	101	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5343447)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	98.4	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.8	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.3	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	86.9	85.0	111
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	95.9	82.0	112
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	94.1	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.2	83.0	111

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5343447) - continued								
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	94.2	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	87.2	82.0	112
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	93.1	83.0	109
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.5	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	93.4	82.0	112
EG020T: Total Metals by ICP-MS (QCLot: 5343692)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	105	82.0	120
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	104	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	86.0	116
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	101	84.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	102	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	100	85.0	115
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	104	85.0	113
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	84.0	116
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	102	85.0	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	102	79.0	117
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	103	85.0	117
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5342021)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	101	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5341797)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	95.7	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5342020)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	100	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5342024)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	81.9	69.0	101
				<0.1	1 mg/L	83.2	70.0	118
				<0.1	5 mg/L	86.4	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5342023)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	101	71.3	126
				<0.01	0.442 mg/L	91.1	71.3	126
				<0.01	1 mg/L	105	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5341796)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	99.5	85.0	117

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP005: Total Organic Carbon (TOC) (QCLot: 5342156)								
EP005: Total Organic Carbon	----	1	mg/L	<1	10 mg/L	108	72.0	120
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5343235)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	103	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	107	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	97.8	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	101	74.0	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	98.8	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	96.7	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	97.4	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	101	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	96.8	65.0	123
EP074B: Oxygenated Compounds (QCLot: 5343235)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	105	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	76.1	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	106	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	81.7	65.0	137
EP074C: Sulfonated Compounds (QCLot: 5343235)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	89.9	72.8	127
EP074D: Fumigants (QCLot: 5343235)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	97.3	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	112	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	106	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	99.8	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	100	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5343235)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	112	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	114	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	88.4	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	103	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	99.9	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	96.2	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	99.6	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	72.6	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	98.2	74.0	118

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5343235) - continued								
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	105	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	102	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	98.7	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	100	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	92.8	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	122	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	102	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	106	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	106	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	106	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	97.5	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	99.6	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	84.4	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	98.0	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	111	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	88.4	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	93.0	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	106	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	102	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5343235)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	108	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	101	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	102	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	95.6	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	101	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	100.0	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	104	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	97.6	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	102	67.0	123
EP074G: Trihalomethanes (QCLot: 5343235)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	106	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	107	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	91.8	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	93.4	73.5	126

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5343236)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	85.8	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5343236)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	77.8	75.0	127
EP080: BTEXN (QCLot: 5343236)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	96.4	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	100	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	104	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	105	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	104	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	103	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5341589)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	92.9	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	100	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	98.0	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5341589)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	102	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	99.6	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	105	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5341589)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	114	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	97.9	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	111	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	84.8	71.4	144

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.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5341799)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5341799) - continued							
ES2334030-001	MW1	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5341798)							
ES2334030-001	MW1	ED045G: Chloride	16887-00-6	50 mg/L	128	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5343447)							
ES2333737-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	99.5	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	102	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	93.3	70.0	130
		EG020A-F: Cobalt	7440-48-4	1 mg/L	102	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	99.9	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	97.1	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	97.1	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	82.7	70.0	130
		EG020A-F: Vanadium	7440-62-2	1 mg/L	98.6	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	102	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5343692)							
ES2333755-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	110	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	110	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	110	70.0	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	109	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	108	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	108	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	111	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	108	70.0	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	110	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	108	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5342021)							
ES2334030-001	MW1	EK055G: Ammonia as N	7664-41-7	1 mg/L	112	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5341797)							
ES2334030-001	MW1	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	127	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5342020)							
ES2334030-001	MW1	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	# Not Determined	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5342024)							
ES2334029-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	78.9	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5342023)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5342023) - continued							
ES2334029-002	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	100	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5341796)							
ES2334030-001	MW1	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	127	70.0	130
EP005: Total Organic Carbon (TOC) (QCLot: 5342156)							
ES2334026-001	Anonymous	EP005: Total Organic Carbon	----	100 mg/L	108	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5343235)							
ES2333556-038	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	84.2	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	101	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5343235)							
ES2333556-038	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	99.1	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5343236)							
ES2333556-038	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	82.7	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5343236)							
ES2333556-038	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	76.3	70.0	130
EP080: BTEXN (QCLot: 5343236)							
ES2333556-038	Anonymous	EP080: Benzene	71-43-2	25 µg/L	78.7	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	83.4	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	89.6	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	85.3	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	91.1	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	102	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2334030**	Page	: 1 of 11
Amendment	: **1**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 05-Oct-2023
Site	:	Issue Date	: 06-Nov-2023
Sampler	: Jack Brennan	No. of samples received	: 6
Order number	: ----	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.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2334030--001	MW1	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ar	ES2334030--001	MW1	**Nitrite + Nitrate as N**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)		Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural							
MW1,	SBT-GW-1001,	----	----	----	05-Oct-2023	04-Oct-2023	**1**
SBT-GW-1005,	SBT-GW-1017,						
SMGW-GW02,	SBT-GW-1002						

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count: QC	Count: Regular	Rate (%): Actual	Rate (%): Expected	Quality Control Specification
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	10	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P)							
MW1, SBT-GW-1001, SBT-GW-1005, SBT-GW-1017, SMGW-GW02, SBT-GW-1002	**04-Oct-2023**	**----**	----	----	**05-Oct-2023**	04-Oct-2023	×
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P)							
MW1, SBT-GW-1001, SBT-GW-1005, SBT-GW-1017, SMGW-GW02, SBT-GW-1002	**04-Oct-2023**	**----**	----	----	**05-Oct-2023**	01-Nov-2023	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H)							
MW1, SBT-GW-1001, SBT-GW-1005, SBT-GW-1017, SMGW-GW02, SBT-GW-1002	**04-Oct-2023**	**----**	----	----	**09-Oct-2023**	11-Oct-2023	✓
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
MW1, SBT-GW-1001, SBT-GW-1005, SBT-GW-1017, SMGW-GW02, SBT-GW-1002	**04-Oct-2023**	**----**	----	----	**05-Oct-2023**	18-Oct-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
MW1, SBT-GW-1001, SBT-GW-1005, SBT-GW-1017, SMGW-GW02, SBT-GW-1002	**04-Oct-2023**	**----**	----	----	**06-Oct-2023**	01-Nov-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
MW1, SBT-GW-1001, SBT-GW-1005, SBT-GW-1017, SMGW-GW02, SBT-GW-1002	**04-Oct-2023**	**----**	----	----	**06-Oct-2023**	01-Nov-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)							
MW1, SBT-GW-1001, SBT-GW-1005, SBT-GW-1017, SMGW-GW02, SBT-GW-1002	**04-Oct-2023**	**----**	----	----	**06-Oct-2023**	01-Nov-2023	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
MW1, SBT-GW-1001, SBT-GW-1005, SBT-GW-1017, SMGW-GW02, SBT-GW-1002	**04-Oct-2023**	**----**	----	----	**06-Oct-2023**	01-Apr-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
MW1, SBT-GW-1001, SBT-GW-1005, SBT-GW-1017, SMGW-GW02, SBT-GW-1002	**04-Oct-2023**	**06-Oct-2023**	01-Apr-2024	✓	**06-Oct-2023**	01-Apr-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
MW1, SBT-GW-1001, SBT-GW-1005, SBT-GW-1017, SMGW-GW02, SBT-GW-1002	**04-Oct-2023**	**----**	----	----	**06-Oct-2023**	01-Nov-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G)							
MW1, SBT-GW-1001, SBT-GW-1005, SBT-GW-1017, SMGW-GW02, SBT-GW-1002	**04-Oct-2023**	**----**	----	----	**06-Oct-2023**	06-Oct-2023	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
MW1, SBT-GW-1001, SBT-GW-1005, SBT-GW-1017, SMGW-GW02, SBT-GW-1002	**04-Oct-2023**	**----**	----	----	**06-Oct-2023**	01-Nov-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
MW1, SBT-GW-1001, SBT-GW-1005, SBT-GW-1017, SMGW-GW02, SBT-GW-1002	**04-Oct-2023**	**06-Oct-2023**	01-Nov-2023	✓	**06-Oct-2023**	01-Nov-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
MW1, SBT-GW-1001, SBT-GW-1005, SBT-GW-1017, SMGW-GW02, SBT-GW-1002	**04-Oct-2023**	**06-Oct-2023**	01-Nov-2023	✓	**06-Oct-2023**	01-Nov-2023	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G)							
MW1, SBT-GW-1001, SBT-GW-1005, SBT-GW-1017, SMGW-GW02, SBT-GW-1002	**04-Oct-2023**	**----**	----	----	**06-Oct-2023**	06-Oct-2023	✓
EP005: Total Organic Carbon (TOC)							
Amber TOC Vial - Sulfuric Acid (EP005)							
MW1, SBT-GW-1001, SBT-GW-1005, SBT-GW-1017, SMGW-GW02, SBT-GW-1002	**04-Oct-2023**	**----**	----	----	**09-Oct-2023**	01-Nov-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074) SBT-GW-1017		**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**06-Oct-2023**	18-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP074) MW1,	SMGW-GW02	**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**09-Oct-2023**	18-Oct-2023	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) SBT-GW-1017		**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**06-Oct-2023**	18-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP074) MW1,	SMGW-GW02	**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**09-Oct-2023**	18-Oct-2023	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) SBT-GW-1017		**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**06-Oct-2023**	18-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP074) MW1,	SMGW-GW02	**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**09-Oct-2023**	18-Oct-2023	✓
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) SBT-GW-1017		**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**06-Oct-2023**	18-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP074) MW1,	SMGW-GW02	**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**09-Oct-2023**	18-Oct-2023	✓
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) SBT-GW-1017		**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**06-Oct-2023**	18-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP074) MW1,	SMGW-GW02	**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**09-Oct-2023**	18-Oct-2023	✓
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) SBT-GW-1017		**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**06-Oct-2023**	18-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP074) MW1,	SMGW-GW02	**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**09-Oct-2023**	18-Oct-2023	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) SBT-GW-1017		**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**06-Oct-2023**	18-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP074) MW1,	SMGW-GW02	**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**09-Oct-2023**	18-Oct-2023	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP080) SBT-GW-1017		**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**06-Oct-2023**	18-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW1,	SMGW-GW02	**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**09-Oct-2023**	18-Oct-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080) SBT-GW-1017	**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**06-Oct-2023**	18-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW1, SMGW-GW02	**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**09-Oct-2023**	18-Oct-2023	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) SBT-GW-1017	**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**06-Oct-2023**	18-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW1, SMGW-GW02	**04-Oct-2023**	**06-Oct-2023**	18-Oct-2023	✓	**09-Oct-2023**	18-Oct-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) MW1, SBT-GW-1017, SMGW-GW02	**04-Oct-2023**	**06-Oct-2023**	01-Apr-2024	✓	**09-Oct-2023**	01-Apr-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) MW1, SBT-GW-1017, SMGW-GW02	**04-Oct-2023**	**06-Oct-2023**	01-Apr-2024	✓	**09-Oct-2023**	01-Apr-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) MW1, SBT-GW-1017, SMGW-GW02	**04-Oct-2023**	**06-Oct-2023**	01-Apr-2024	✓	**09-Oct-2023**	01-Apr-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) MW1, SBT-GW-1017, SMGW-GW02	**04-Oct-2023**	**06-Oct-2023**	01-Apr-2024	✓	**09-Oct-2023**	01-Apr-2024	✓

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)							
Alkalinity by Auto Titrator	ED037-P	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	6	37	**16.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	37	**10.81**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	40	**12.50**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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 Control Samples (LCS) - Continued							
Total Phosphorus as P By Discrete Analyser	EK067G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	37	**8.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	10	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	14	**7.14**	**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
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Total Organic Carbon	EP005	WATER	In house: Referenced to APHA 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0690 E: adelaide@alsglobal.com
BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
GLADSTONE 48 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5800 E: gladstone@alsglobal.com
MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
NEWCASTLE 5/585 Maitland Rd Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com
NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com
WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: CPBG	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	Standard TAT: 10/10/2023	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: 14 Great Western HWY, Werrington 2747		~~Non Standard or urgent TAT (List due date):~~	Custody Seal Intact? Yes No N/A
PROJECT: WSA SBT Project	**ALS QUOTE NO.:**	ES23CPBGHE0004	Free Ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER:		COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Emma Kline	**CONTACT PH:**	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Jack Brennan (JB)	**SAMPLER MOBILE:** 0478707139	**RELINQUISHED BY:**	**RECEIVED BY:** Asmd
COC emailed to ALS? (YES / NO)	**EDD FORMAT (or default):**		
Email Reports to: Jack.Brennan@cpbg-sbt.com.au		DATE/TIME:	DATE/TIME: 5/10 0900
Email Invoice to (will default to PM if no other addresses are listed): enviro.sbt@cpbg-sbt.com.au		**RELINQUISHED BY:** DATE/TIME:	**RECEIVED BY:** DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	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
						Green (P)	Purple (G)	Purple (P)	Red (P)	Red (P)	Purple (G)	Purple (G)	Purple (G)	Orange (G)	Grey (P)			
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	EA005, EA010, EA015, EP005, NT-01, NT-02	EP005	NT-08a	EG020F	EG020T	W-9 (VOC only)	W-9 (TRH only)	W-9 (TRH/BTEXN)	EP075	EP231			
	MW1	4/10/2023	W		9	X	X	X	X	X	XX				XX			
	SBT-GW-1001	4/10/2023	W		5	X	X	X	X	X								
	SBT-GW-1005	4/10/2023	W		5	X	X	X	X	X								
	SBT-GW-1017	4/10/2023	W		9	X	X	X	X	X			XX		XX			
	SMGW-GW02	4/10/2023	W		7	X		X	X	X	X				XX			
	SBT-GW-1002	4/10/2023	W		5	X	X	X	X	X								
TOTAL					26													

Environmental Division Sydney
Work Order Reference
ES2334030

Telephone : +61-2-8784 8555

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	: **ES2334258**	Page	: 1 of 13
Amendment	: **1**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: CHRISTOPHER BLYTH	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 06-Oct-2023 09:00
Order number	: ----	Date Analysis Commenced	: 06-Oct-2023
C-O-C number	: ----	Issue Date	: 06-Nov-2023 12:04
Sampler	: Emily Fuda / Phil Rowan (PR)		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 1		
No. of samples analysed	: 1		

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
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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.

- EP075: Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- TDS by method EA-015 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- Amendment (06/11/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020T and EG020F for all samples.
- EP075: Where reported, 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1016	----	----	----	----
				Sampling date / time	05-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2334258-001	--------	--------	--------	--------
					Result	----	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**5.59**	----	----	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**28200**	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		**22000**	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**18**	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**18**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**1590**	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**10600**	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**179**	----	----	----	----
Magnesium	7439-95-4	1	mg/L		**1140**	----	----	----	----
Sodium	7440-23-5	1	mg/L		**4920**	----	----	----	----
Potassium	7440-09-7	1	mg/L		**4**	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.06**	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L		**0.001**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		**0.0002**	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		**0.254**	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.001**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		**0.002**	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**1.46**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.067**	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.161**	----	----	----	----
Iron	7439-89-6	0.05	mg/L		**13.4**	----	----	----	----
EG020T: Total Metals by ICP-MS									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SBT-GW-1016	----	----	----	----
			Sampling date / time	05-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2334258-001	--------	--------	--------	--------
				Result	----	----	----	----
EG020T: Total Metals by ICP-MS - Continued								
Aluminium	7429-90-5	0.01	mg/L	**72.2**	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L	**0.031**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	**0.0003**	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	**0.143**	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L	**0.301**	----	----	----	----
Copper	7440-50-8	0.001	mg/L	**0.172**	----	----	----	----
Lead	7439-92-1	0.001	mg/L	**0.118**	----	----	----	----
Manganese	7439-96-5	0.001	mg/L	**1.85**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	**0.110**	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L	**0.20**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	**0.438**	----	----	----	----
Iron	7439-89-6	0.05	mg/L	**116**	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.37**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	**0.05**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.05**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**7.5**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**7.6**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**1.53**	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	----	----	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**332**	----	----	----	----
ø Total Cations	----	0.01	meq/L	**317**	----	----	----	----
ø Ionic Balance	----	0.01	%	**2.40**	----	----	----	----
EP005: Total Organic Carbon (TOC)								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1016	----	----	----	----
				Sampling date / time	05-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2334258-001	--------	--------	--------	--------
					Result	----	----	----	----
EP005: Total Organic Carbon (TOC) - Continued									
Total Organic Carbon	----	1	mg/L		**6**	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	5	µg/L		<5	----	----	----	----
Isopropylbenzene	98-82-8	5	µg/L		<5	----	----	----	----
n-Propylbenzene	103-65-1	5	µg/L		<5	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L		<5	----	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L		<5	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L		<5	----	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L		<5	----	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L		<5	----	----	----	----
n-Butylbenzene	104-51-8	5	µg/L		<5	----	----	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		<50	----	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L		<50	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		<50	----	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L		<50	----	----	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		<5	----	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		<5	----	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L		<5	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		<5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		<5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	----	----	----	----
Chloromethane	74-87-3	50	µg/L		<50	----	----	----	----
Vinyl chloride	75-01-4	50	µg/L		<50	----	----	----	----
Bromomethane	74-83-9	50	µg/L		<50	----	----	----	----
Chloroethane	75-00-3	50	µg/L		<50	----	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		<50	----	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L		<5	----	----	----	----
Iodomethane	74-88-4	5	µg/L		<5	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L		<5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1016	----	----	----	----
				Sampling date / time	05-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2334258-001	--------	--------	--------	--------
					Result	----	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1-Dichloroethane	75-34-3	5	µg/L		<5	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L		<5	----	----	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L		<5	----	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L		<5	----	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L		<5	----	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L		<5	----	----	----	----
Trichloroethene	79-01-6	5	µg/L		<5	----	----	----	----
Dibromomethane	74-95-3	5	µg/L		<5	----	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L		<5	----	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L		<5	----	----	----	----
Tetrachloroethene	127-18-4	5	µg/L		<5	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		<5	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		<5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		<5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L		<5	----	----	----	----
Pentachloroethane	76-01-7	5	µg/L		<5	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	----	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L		<5	----	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<5	----	----	----	----
Bromobenzene	108-86-1	5	µg/L		<5	----	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L		<5	----	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L		<5	----	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L		<5	----	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L		<5	----	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L		<5	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		<5	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		<5	----	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	----	----	----	----
Bromodichloromethane	75-27-4	5	µg/L		<5	----	----	----	----
Dibromochloromethane	124-48-1	5	µg/L		<5	----	----	----	----
Bromoform	75-25-2	5	µg/L		<5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1016	----	----	----	----
				Sampling date / time	05-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2334258-001	--------	--------	--------	--------
					Result	----	----	----	----
EP075A: Phenolic Compounds									
Phenol	108-95-2	2	µg/L		<2	----	----	----	----
2-Chlorophenol	95-57-8	2	µg/L		<2	----	----	----	----
2-Methylphenol	95-48-7	2	µg/L		<2	----	----	----	----
3- & 4-Methylphenol	1319-77-3	4	µg/L		<4	----	----	----	----
2-Nitrophenol	88-75-5	2	µg/L		<2	----	----	----	----
2.4-Dimethylphenol	105-67-9	2	µg/L		<2	----	----	----	----
2.4-Dichlorophenol	120-83-2	2	µg/L		<2	----	----	----	----
2.6-Dichlorophenol	87-65-0	2	µg/L		<2	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L		<2	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	2	µg/L		<2	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	2	µg/L		<2	----	----	----	----
Pentachlorophenol	87-86-5	4	µg/L		<4	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	2	µg/L		<2	----	----	----	----
2-Methylnaphthalene	91-57-6	2	µg/L		<2	----	----	----	----
2-Chloronaphthalene	91-58-7	2	µg/L		<2	----	----	----	----
Acenaphthylene	208-96-8	2	µg/L		<2	----	----	----	----
Acenaphthene	83-32-9	2	µg/L		<2	----	----	----	----
Fluorene	86-73-7	2	µg/L		<2	----	----	----	----
Phenanthrene	85-01-8	2	µg/L		<2	----	----	----	----
Anthracene	120-12-7	2	µg/L		<2	----	----	----	----
Fluoranthene	206-44-0	2	µg/L		<2	----	----	----	----
Pyrene	129-00-0	2	µg/L		<2	----	----	----	----
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L		<2	----	----	----	----
Benz(a)anthracene	56-55-3	2	µg/L		<2	----	----	----	----
Chrysene	218-01-9	2	µg/L		<2	----	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L		<4	----	----	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L		<2	----	----	----	----
Benzo(a)pyrene	50-32-8	2	µg/L		<2	----	----	----	----
3-Methylcholanthrene	56-49-5	2	µg/L		<2	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L		<2	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	2	µg/L		<2	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	2	µg/L		<2	----	----	----	----
^ Sum of PAHs	----	2	µg/L		<2	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1016	----	----	----	----
				Sampling date / time	05-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2334258-001	--------	--------	--------	--------
					Result	----	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (zero)	----	2	µg/L		<2	----	----	----	----
EP075C: Phthalate Esters									
Dimethyl phthalate	131-11-3	2	µg/L		<2	----	----	----	----
Diethyl phthalate	84-66-2	2	µg/L		<2	----	----	----	----
Di-n-butyl phthalate	84-74-2	2	µg/L		<2	----	----	----	----
Butyl benzyl phthalate	85-68-7	2	µg/L		<2	----	----	----	----
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L		<10	----	----	----	----
Di-n-octylphthalate	117-84-0	2	µg/L		<2	----	----	----	----
EP075D: Nitrosamines									
N-Nitrosomethylethylamine	10595-95-6	2	µg/L		<2	----	----	----	----
N-Nitrosodiethylamine	55-18-5	2	µg/L		<2	----	----	----	----
N-Nitrosopyrrolidine	930-55-2	4	µg/L		<4	----	----	----	----
N-Nitrosomorpholine	59-89-2	2	µg/L		<2	----	----	----	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L		<2	----	----	----	----
N-Nitrosopiperidine	100-75-4	2	µg/L		<2	----	----	----	----
N-Nitrosodibutylamine	924-16-3	2	µg/L		<2	----	----	----	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L		<4	----	----	----	----
Methapyrilene	91-80-5	2	µg/L		<2	----	----	----	----
EP075E: Nitroaromatics and Ketones									
2-Picoline	109-06-8	2	µg/L		<2	----	----	----	----
Acetophenone	98-86-2	2	µg/L		<2	----	----	----	----
Nitrobenzene	98-95-3	2	µg/L		<2	----	----	----	----
Isophorone	78-59-1	2	µg/L		<2	----	----	----	----
2.6-Dinitrotoluene	606-20-2	4	µg/L		<4	----	----	----	----
2.4-Dinitrotoluene	121-14-2	4	µg/L		<4	----	----	----	----
1-Naphthylamine	134-32-7	2	µg/L		<2	----	----	----	----
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L		<2	----	----	----	----
5-Nitro-o-toluidine	99-55-8	2	µg/L		<2	----	----	----	----
Azobenzene	103-33-3	2	µg/L		<2	----	----	----	----
1.3.5-Trinitrobenzene	99-35-4	2	µg/L		<2	----	----	----	----
Phenacetin	62-44-2	2	µg/L		<2	----	----	----	----
4-Aminobiphenyl	92-67-1	2	µg/L		<2	----	----	----	----
Pentachloronitrobenzene	82-68-8	2	µg/L		<2	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1016	----	----	----	----
				Sampling date / time	05-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2334258-001	--------	--------	--------	--------
					Result	----	----	----	----
EP075E: Nitroaromatics and Ketones - Continued									
Pronamide	23950-58-5	2	µg/L		<2	----	----	----	----
Dimethylaminoazobenzene	60-11-7	2	µg/L		<2	----	----	----	----
Chlorobenzilate	510-15-6	2	µg/L		<2	----	----	----	----
EP075F: Haloethers									
Bis(2-chloroethyl) ether	111-44-4	2	µg/L		<2	----	----	----	----
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L		<2	----	----	----	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L		<2	----	----	----	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L		<2	----	----	----	----
EP075G: Chlorinated Hydrocarbons									
1.3-Dichlorobenzene	541-73-1	2	µg/L		<2	----	----	----	----
1.4-Dichlorobenzene	106-46-7	2	µg/L		<2	----	----	----	----
1.2-Dichlorobenzene	95-50-1	2	µg/L		<2	----	----	----	----
Hexachloroethane	67-72-1	2	µg/L		<2	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	2	µg/L		<2	----	----	----	----
Hexachloropropylene	1888-71-7	2	µg/L		<2	----	----	----	----
Hexachlorobutadiene	87-68-3	2	µg/L		<2	----	----	----	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L		<10	----	----	----	----
Pentachlorobenzene	608-93-5	2	µg/L		<2	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L		<4	----	----	----	----
EP075H: Anilines and Benzidines									
Aniline	62-53-3	2	µg/L		<2	----	----	----	----
4-Chloroaniline	106-47-8	2	µg/L		<2	----	----	----	----
2-Nitroaniline	88-74-4	4	µg/L		<4	----	----	----	----
3-Nitroaniline	99-09-2	4	µg/L		<4	----	----	----	----
Dibenzofuran	132-64-9	2	µg/L		<2	----	----	----	----
4-Nitroaniline	100-01-6	2	µg/L		<2	----	----	----	----
Carbazole	86-74-8	2	µg/L		<2	----	----	----	----
3.3`-Dichlorobenzidine	91-94-1	2	µg/L		<2	----	----	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	2	µg/L		<2	----	----	----	----
beta-BHC	319-85-7	2	µg/L		<2	----	----	----	----
gamma-BHC	58-89-9	2	µg/L		<2	----	----	----	----
delta-BHC	319-86-8	2	µg/L		<2	----	----	----	----
Heptachlor	76-44-8	2	µg/L		<2	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1016	----	----	----	----
				Sampling date / time	05-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2334258-001	--------	--------	--------	--------
					Result	----	----	----	----
EP075I: Organochlorine Pesticides - Continued									
Aldrin	309-00-2	2	µg/L		<2	----	----	----	----
Heptachlor epoxide	1024-57-3	2	µg/L		<2	----	----	----	----
alpha-Endosulfan	959-98-8	2	µg/L		<2	----	----	----	----
4.4`-DDE	72-55-9	2	µg/L		<2	----	----	----	----
Dieldrin	60-57-1	2	µg/L		<2	----	----	----	----
Endrin	72-20-8	2	µg/L		<2	----	----	----	----
beta-Endosulfan	33213-65-9	2	µg/L		<2	----	----	----	----
4.4`-DDD	72-54-8	2	µg/L		<2	----	----	----	----
Endosulfan sulfate	1031-07-8	2	µg/L		<2	----	----	----	----
4.4`-DDT	50-29-3	4	µg/L		<4	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	4	µg/L		<4	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-3	4	µg/L		<4	----	----	----	----
EP075J: Organophosphorus Pesticides									
Dichlorvos	62-73-7	2	µg/L		<2	----	----	----	----
Dimethoate	60-51-5	2	µg/L		<2	----	----	----	----
Diazinon	333-41-5	2	µg/L		<2	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	2	µg/L		<2	----	----	----	----
Malathion	121-75-5	2	µg/L		<2	----	----	----	----
Fenthion	55-38-9	2	µg/L		<2	----	----	----	----
Chlorpyrifos	2921-88-2	2	µg/L		<2	----	----	----	----
Pirimphos-ethyl	23505-41-1	2	µg/L		<2	----	----	----	----
Chlorfenvinphos	470-90-6	2	µg/L		<2	----	----	----	----
Prothiofos	34643-46-4	2	µg/L		<2	----	----	----	----
Ethion	563-12-2	2	µg/L		<2	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1016	----	----	----	----
				Sampling date / time	05-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2334258-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L		<100	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	----	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1016	----	----	----	----
				Sampling date / time	05-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2334258-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		91.8	----	----	----	----
Toluene-D8	2037-26-5	5	%		92.2	----	----	----	----
4-Bromofluorobenzene	460-00-4	5	%		90.9	----	----	----	----
EP075S: Acid Extractable Surrogates									
2-Fluorophenol	367-12-4	2	%		50.9	----	----	----	----
Phenol-d6	13127-88-3	2	%		40.5	----	----	----	----
2-Chlorophenol-D4	93951-73-6	2	%		66.3	----	----	----	----
2.4.6-Tribromophenol	118-79-6	2	%		79.9	----	----	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	2	%		67.2	----	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	2	%		58.8	----	----	----	----
2-Fluorobiphenyl	321-60-8	2	%		73.9	----	----	----	----
Anthracene-d10	1719-06-8	2	%		85.5	----	----	----	----
4-Terphenyl-d14	1718-51-0	2	%		97.1	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		91.1	----	----	----	----
Toluene-D8	2037-26-5	2	%		91.7	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		100	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		95.5	----	----	----	----
13C8-PFOA	----	0.02	%		100	----	----	----	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	117
Phenol-d6	13127-88-3	10	69
2-Chlorophenol-D4	93951-73-6	21	130
2.4.6-Tribromophenol	118-79-6	10	151
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	142
1.2-Dichlorobenzene-D4	2199-69-1	24	121
2-Fluorobiphenyl	321-60-8	27	135
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	21	123
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

QUALITY CONTROL REPORT

Work Order	: **ES2334258**	Page	: 1 of 18
Amendment	: **1**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: CHRISTOPHER BLYTH	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 06-Oct-2023
Order number	: ----	Date Analysis Commenced	: 06-Oct-2023
C-O-C number	: ----	Issue Date	: 06-Nov-2023
Sampler	: Emily Fuda / Phil Rowan (PR)		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 1		
No. of samples analysed	: 1		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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 (%)*
EA005P: pH by PC Titrator (QC Lot: 5350165)									
ES2334272-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.85	7.81	0.5	0% - 20%
ES2334289-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.01	8.03	0.2	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5350164)									
ES2334128-003	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	2870	2880	0.2	0% - 20%
ES2334289-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	337	336	0.0	0% - 20%
ES2333600-013	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1180	1180	0.5	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5354397)									
ES2334063-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	61	62	0.0	No Limit
ES2334366-003	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1600	1600	0.1	0% - 20%
ES2334410-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	193	164	16.5	0% - 50%
ES2334410-011	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	208	224	7.2	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5350162)									
EW2304414-003	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	14	15	9.2	0% - 50%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	14	15	9.2	0% - 50%
ES2333600-013	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	44	50	11.7	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	44	50	11.7	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5344954)									
ES2334283-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	73	72	1.7	0% - 20%
ES2334022-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	43	43	0.0	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 (%)*
ED045G: Chloride by Discrete Analyser (QC Lot: 5344953)									
ES2334022-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	60	63	6.0	0% - 20%
ES2334325-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	7	7	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 5351112)									
ES2333600-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	9	8	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	46	45	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	1100	1080	2.6	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	6	5	0.0	No Limit
ES2334402-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	102	96	6.6	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	71	68	4.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	296	281	5.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	6	6	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5351113)									
ES2333600-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	4.14	4.15	0.2	0% - 20%
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.014	0.013	0.0	0% - 50%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.008	0.007	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
ES2334402-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.182	0.173	5.1	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 5349191)									
ES2334300-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit

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 (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5349191) - continued									
ES2334300-001	Anonymous	EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.028	0.028	0.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.009	0.009	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.032	0.031	3.9	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.084	0.083	0.0	0% - 50%
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.24	0.16	42.1	No Limit
ES2333852-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.092	0.094	3.1	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.031	0.032	3.8	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.14	0.19	27.7	0% - 50%
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.84	0.92	9.2	0% - 50%
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5348745)									
ES2334246-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.03	0.03	0.0	No Limit
ES2334366-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.06	0.06	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5344952)									
ES2334258-001	SBT-GW-1016	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2334021-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	4.53	4.87	7.3	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5348746)									
ES2334246-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.47	0.47	0.0	0% - 20%
ES2334366-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	1.99	1.99	0.0	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5348742)									
ES2334246-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.1	<0.1	0.0	No Limit
ES2334366-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.5	1.5	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5348741)									
ES2334246-002	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.23	0.22	0.0	0% - 20%
ES2334366-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.14	0.16	10.6	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5344951)									
ES2334021-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	8.52	8.66	1.6	0% - 20%
EW2304410-003	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit

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 (%)*
EP005: Total Organic Carbon (TOC) (QC Lot: 5348620)									
ES2334239-001	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	7	7	0.0	No Limit
ES2334288-002	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	7	7	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 5347746)									
ES2334258-001	SBT-GW-1016	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 5347746)									
ES2334258-001	SBT-GW-1016	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 5347746)									
ES2334258-001	SBT-GW-1016	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 5347746)									
ES2334258-001	SBT-GW-1016	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5347746)									
ES2334258-001	SBT-GW-1016	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit

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 (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5347746) - continued									
ES2334258-001	SBT-GW-1016	EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5347746)									
ES2334258-001	SBT-GW-1016	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5347746)									
ES2334258-001	SBT-GW-1016	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5347747)									
ES2334258-001	SBT-GW-1016	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5347747)									
ES2334258-001	SBT-GW-1016	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5347747)									
ES2334258-001	SBT-GW-1016	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit

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 (%)*
EP080: BTEXN (QC Lot: 5347747) - continued									
ES2334258-001	SBT-GW-1016	EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 5350165)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 5350164)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	98.9	89.9	110
				<1	2100 µS/cm	97.3	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5354397)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	94.4	87.0	109
				<10	293 mg/L	104	75.2	126
				<10	2470 mg/L	96.0	83.0	124
ED037P: Alkalinity by PC Titrator (QCLot: 5350162)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	99.0	81.0	115
				----	50 mg/L	108	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5344954)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	93.7	82.0	122
				<1	500 mg/L	106	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5344953)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	103	80.9	127
				<1	1000 mg/L	102	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5351112)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	99.3	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	94.9	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	94.3	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	109	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5351113)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	90.6	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	91.8	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	91.2	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	92.1	85.0	111
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	90.0	82.0	112
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.8	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	92.0	83.0	111

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5351113) - continued								
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	90.8	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	89.6	82.0	112
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	90.8	83.0	109
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	90.2	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	93.6	82.0	112
EG020T: Total Metals by ICP-MS (QCLot: 5349191)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	104	82.0	120
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	102	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	102	86.0	116
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	102	84.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	103	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	103	85.0	115
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	103	85.0	113
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	84.0	116
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	103	85.0	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	79.0	117
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	112	85.0	117
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5348745)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	97.5	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5344952)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	101	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5348746)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	110	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5348742)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	97.8	69.0	101
				<0.1	1 mg/L	99.6	70.0	118
				<0.1	5 mg/L	102	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5348741)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	95.9	71.3	126
				<0.01	0.442 mg/L	106	71.3	126
				<0.01	1 mg/L	100	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5344951)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	97.9	85.0	117

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP005: Total Organic Carbon (TOC) (QCLot: 5348620)								
EP005: Total Organic Carbon	----	1	mg/L	<1	10 mg/L	105	72.0	120
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5347746)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	98.9	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	102	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	96.6	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	99.9	74.0	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	98.4	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	98.6	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	98.2	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	97.3	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	95.4	65.0	123
EP074B: Oxygenated Compounds (QCLot: 5347746)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	102	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	98.6	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	99.4	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	97.7	65.0	137
EP074C: Sulfonated Compounds (QCLot: 5347746)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	89.2	72.8	127
EP074D: Fumigants (QCLot: 5347746)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	97.7	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	98.6	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	94.6	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	97.1	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	103	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5347746)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	91.3	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	97.9	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	96.7	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	98.6	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	97.4	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	98.1	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	94.6	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	89.8	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	95.5	74.0	118

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5347746) - continued								
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	107	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	100	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	93.9	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	95.4	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	93.0	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	101	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	93.2	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	97.4	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	103	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	104	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	95.8	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	99.6	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	92.4	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	97.3	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	106	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	104	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	97.6	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	94.0	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	102	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5347746)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	98.5	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	98.8	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	101	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	99.4	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	99.6	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	102	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	101	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	100	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	106	67.0	123
EP074G: Trihalomethanes (QCLot: 5347746)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	101	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	95.5	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	93.3	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	97.2	73.5	126

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075A: Phenolic Compounds (QCLot: 5343916)								
EP075: Phenol	108-95-2	2	µg/L	<2	10 µg/L	40.8	25.5	64.1
EP075: 2-Chlorophenol	95-57-8	2	µg/L	<2	10 µg/L	72.2	52.0	88.0
EP075: 2-Methylphenol	95-48-7	2	µg/L	<2	10 µg/L	65.3	50.0	94.0
EP075: 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	10 µg/L	58.7	45.0	96.2
EP075: 2-Nitrophenol	88-75-5	2	µg/L	<2	10 µg/L	76.1	48.0	98.0
EP075: 2.4-Dimethylphenol	105-67-9	2	µg/L	<2	10 µg/L	63.8	50.0	94.0
EP075: 2.4-Dichlorophenol	120-83-2	2	µg/L	<2	10 µg/L	79.4	61.9	109
EP075: 2.6-Dichlorophenol	87-65-0	2	µg/L	<2	10 µg/L	78.7	61.5	108
EP075: 4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	10 µg/L	83.7	61.4	107
EP075: 2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	10 µg/L	82.8	57.6	112
EP075: 2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	10 µg/L	84.4	58.0	110
EP075: Pentachlorophenol	87-86-5	4	µg/L	<4	20 µg/L	73.1	12.8	95.0
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 5343916)								
EP075: Naphthalene	91-20-3	2	µg/L	<2	10 µg/L	77.6	51.0	95.0
EP075: 2-Methylnaphthalene	91-57-6	2	µg/L	<2	10 µg/L	80.1	59.0	108
EP075: 2-Chloronaphthalene	91-58-7	2	µg/L	<2	10 µg/L	86.0	60.6	106
EP075: Acenaphthylene	208-96-8	2	µg/L	<2	10 µg/L	82.1	64.0	108
EP075: Acenaphthene	83-32-9	2	µg/L	<2	10 µg/L	79.6	65.0	108
EP075: Fluorene	86-73-7	2	µg/L	<2	10 µg/L	81.8	65.2	107
EP075: Phenanthrene	85-01-8	2	µg/L	<2	10 µg/L	90.6	66.7	108
EP075: Anthracene	120-12-7	2	µg/L	<2	10 µg/L	91.4	65.8	108
EP075: Fluoranthene	206-44-0	2	µg/L	<2	10 µg/L	108	64.9	109
EP075: Pyrene	129-00-0	2	µg/L	<2	10 µg/L	108	60.1	111
EP075: N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	10 µg/L	108	59.7	110
EP075: Benz(a)anthracene	56-55-3	2	µg/L	<2	10 µg/L	107	62.2	112
EP075: Chrysene	218-01-9	2	µg/L	<2	10 µg/L	106	59.3	114
EP075: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	20 µg/L	88.5	60.1	111
EP075: 7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	10 µg/L	87.7	50.0	108
EP075: Benzo(a)pyrene	50-32-8	2	µg/L	<2	10 µg/L	88.8	59.2	112
EP075: 3-Methylcholanthrene	56-49-5	2	µg/L	<2	10 µg/L	89.0	60.1	110
EP075: Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L	<2	10 µg/L	85.6	59.6	110
EP075: Dibenz(a.h)anthracene	53-70-3	2	µg/L	<2	10 µg/L	85.6	57.2	109
EP075: Benzo(g.h.i)perylene	191-24-2	2	µg/L	<2	10 µg/L	81.4	60.6	110
EP075: Benzo(a)pyrene TEQ (zero)	----	2	µg/L	<2	----	----	----	----

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075C: Phthalate Esters (QCLot: 5343916)								
EP075: Dimethyl phthalate	131-11-3	2	µg/L	<2	10 µg/L	90.5	64.3	112
EP075: Diethyl phthalate	84-66-2	2	µg/L	<2	10 µg/L	90.6	67.3	111
EP075: Di-n-butyl phthalate	84-74-2	2	µg/L	<2	10 µg/L	101	68.4	122
EP075: Butyl benzyl phthalate	85-68-7	2	µg/L	<2	10 µg/L	110	61.2	114
EP075: bis(2-ethylhexyl) phthalate	117-81-7	----	µg/L	----	10 µg/L	109	60.0	132
EP075: Di-n-octylphthalate	117-84-0	2	µg/L	<2	10 µg/L	92.3	62.1	115
EP075D: Nitrosamines (QCLot: 5343916)								
EP075: N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	10 µg/L	64.6	46.0	110
EP075: N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	10 µg/L	72.7	60.6	113
EP075: N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	10 µg/L	58.8	45.0	91.0
EP075: N-Nitrosomorpholine	59-89-2	2	µg/L	<2	10 µg/L	59.8	42.0	100
EP075: N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	10 µg/L	76.4	63.5	108
EP075: N-Nitrosopiperidine	100-75-4	2	µg/L	<2	10 µg/L	73.0	61.7	107
EP075: N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	10 µg/L	77.6	62.5	108
EP075: N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	20 µg/L	87.0	64.6	112
EP075: Methapyrilene	91-80-5	2	µg/L	<2	10 µg/L	# 15.6	23.3	125
EP075E: Nitroaromatics and Ketones (QCLot: 5343916)								
EP075: 2-Picoline	109-06-8	2	µg/L	<2	10 µg/L	47.4	41.0	109
EP075: Acetophenone	98-86-2	2	µg/L	<2	10 µg/L	73.7	68.3	112
EP075: Nitrobenzene	98-95-3	2	µg/L	<2	10 µg/L	75.1	68.3	112
EP075: Isophorone	78-59-1	2	µg/L	<2	10 µg/L	78.9	67.6	111
EP075: 2.6-Dinitrotoluene	606-20-2	4	µg/L	<4	10 µg/L	87.2	64.4	113
EP075: 2.4-Dinitrotoluene	121-14-2	4	µg/L	<4	10 µg/L	89.5	59.5	109
EP075: 1-Naphthylamine	134-32-7	2	µg/L	<2	10 µg/L	79.3	46.8	102
EP075: 4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	10 µg/L	83.2	40.0	96.0
EP075: 5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	10 µg/L	86.4	58.3	106
EP075: Azobenzene	103-33-3	2	µg/L	<2	10 µg/L	87.4	66.0	112
EP075: 1.3.5-Trinitrobenzene	99-35-4	2	µg/L	<2	10 µg/L	86.2	46.0	108
EP075: Phenacetin	62-44-2	2	µg/L	<2	10 µg/L	77.6	57.8	101
EP075: 4-Aminobiphenyl	92-67-1	2	µg/L	<2	10 µg/L	69.2	60.1	112
EP075: Pentachloronitrobenzene	82-68-8	2	µg/L	<2	10 µg/L	79.1	59.0	109
EP075: Pronamide	23950-58-5	2	µg/L	<2	10 µg/L	93.2	62.7	109
EP075: Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	10 µg/L	93.2	59.4	108

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075E: Nitroaromatics and Ketones (QCLot: 5343916) - continued								
EP075: Chlorobenzilate	510-15-6	2	µg/L	<2	10 µg/L	# 112	57.7	110
EP075F: Haloethers (QCLot: 5343916)								
EP075: Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	10 µg/L	72.7	69.1	112
EP075: Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	10 µg/L	77.9	66.2	111
EP075: 4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	10 µg/L	80.0	64.7	109
EP075: 4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	10 µg/L	76.2	61.6	108
EP075G: Chlorinated Hydrocarbons (QCLot: 5343916)								
EP075: 1.4-Dichlorobenzene	106-46-7	2	µg/L	<2	10 µg/L	70.5	41.0	97.0
EP075: 1.3-Dichlorobenzene	541-73-1	2	µg/L	<2	10 µg/L	70.0	40.0	96.0
EP075: 1.2-Dichlorobenzene	95-50-1	2	µg/L	<2	10 µg/L	68.8	41.0	95.0
EP075: Hexachloroethane	67-72-1	2	µg/L	<2	10 µg/L	65.9	46.0	88.0
EP075: 1.2.4-Trichlorobenzene	120-82-1	2	µg/L	<2	10 µg/L	69.1	46.0	96.0
EP075: Hexachloropropylene	1888-71-7	2	µg/L	<2	10 µg/L	70.9	34.0	96.0
EP075: Hexachlorobutadiene	87-68-3	2	µg/L	<2	10 µg/L	70.4	37.4	100
EP075: Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	10 µg/L	69.0	23.5	107
EP075: Pentachlorobenzene	608-93-5	2	µg/L	<2	10 µg/L	75.2	64.5	107
EP075: Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	10 µg/L	75.2	65.7	110
EP075H: Anilines and Benzidines (QCLot: 5343916)								
EP075: Aniline	62-53-3	2	µg/L	<2	10 µg/L	70.5	50.0	104
EP075: 4-Chloroaniline	106-47-8	2	µg/L	<2	10 µg/L	76.6	42.0	106
EP075: 2-Nitroaniline	88-74-4	4	µg/L	<4	10 µg/L	89.3	60.9	110
EP075: 3-Nitroaniline	99-09-2	4	µg/L	<4	10 µg/L	86.6	51.5	96.9
EP075: Dibenzofuran	132-64-9	2	µg/L	<2	10 µg/L	80.8	65.3	108
EP075: 4-Nitroaniline	100-01-6	2	µg/L	<2	10 µg/L	76.4	48.9	99.5
EP075: Carbazole	86-74-8	2	µg/L	<2	10 µg/L	95.8	64.3	107
EP075: 3.3`-Dichlorobenzidine	91-94-1	2	µg/L	<2	10 µg/L	115	60.3	119
EP075I: Organochlorine Pesticides (QCLot: 5343916)								
EP075: alpha-BHC	319-84-6	2	µg/L	<2	10 µg/L	80.0	64.3	110
EP075: beta-BHC	319-85-7	2	µg/L	<2	10 µg/L	86.2	53.0	107
EP075: gamma-BHC	58-89-9	2	µg/L	<2	10 µg/L	87.4	51.0	111
EP075: delta-BHC	319-86-8	2	µg/L	<2	10 µg/L	89.0	57.0	111
EP075: Heptachlor	76-44-8	2	µg/L	<2	10 µg/L	94.4	57.9	108
EP075: Aldrin	309-00-2	2	µg/L	<2	10 µg/L	99.1	56.0	112
EP075: Heptachlor epoxide	1024-57-3	2	µg/L	<2	10 µg/L	91.0	50.0	118

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075I: Organochlorine Pesticides (QCLot: 5343916) - continued								
EP075: alpha-Endosulfan	959-98-8	2	µg/L	<2	10 µg/L	109	59.0	111
EP075: 4.4`-DDE	72-55-9	2	µg/L	<2	10 µg/L	104	53.0	115
EP075: Dieldrin	60-57-1	2	µg/L	<2	10 µg/L	107	59.0	115
EP075: Endrin	72-20-8	2	µg/L	<2	10 µg/L	# 118	58.0	114
EP075: beta-Endosulfan	33213-65-9	2	µg/L	<2	10 µg/L	103	54.0	116
EP075: 4.4`-DDD	72-54-8	2	µg/L	<2	10 µg/L	107	55.0	115
EP075: Endosulfan sulfate	1031-07-8	2	µg/L	<2	10 µg/L	108	52.8	114
EP075: 4.4`-DDT	50-29-3	4	µg/L	<4	10 µg/L	109	56.0	114
EP075: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	<4	----	----	----	----
EP075: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	<4	----	----	----	----
EP075J: Organophosphorus Pesticides (QCLot: 5343916)								
EP075: Dichlorvos	62-73-7	2	µg/L	<2	10 µg/L	92.2	51.0	113
EP075: Dimethoate	60-51-5	2	µg/L	<2	10 µg/L	79.6	43.0	109
EP075: Diazinon	333-41-5	2	µg/L	<2	10 µg/L	93.6	49.0	113
EP075: Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	10 µg/L	91.6	54.1	116
EP075: Malathion	121-75-5	2	µg/L	<2	10 µg/L	111	54.0	124
EP075: Fenthion	55-38-9	2	µg/L	<2	10 µg/L	100	57.0	115
EP075: Chlorpyrifos	2921-88-2	2	µg/L	<2	10 µg/L	102	53.0	109
EP075: Pirimphos-ethyl	23505-41-1	2	µg/L	<2	10 µg/L	107	55.0	111
EP075: Chlorfenvinphos	470-90-6	2	µg/L	<2	10 µg/L	104	50.0	116
EP075: Prothiofos	34643-46-4	2	µg/L	<2	10 µg/L	111	54.0	118
EP075: Ethion	563-12-2	2	µg/L	<2	10 µg/L	113	51.0	117
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5343915)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	74.0	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	74.7	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	91.0	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5347747)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	93.7	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5343915)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	71.4	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	64.4	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	70.1	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5347747)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5347747) - continued								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	91.8	75.0	127
EP080: BTEXN (QCLot: 5347747)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	99.3	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	105	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	106	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	120	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	119	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	95.2	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5344026)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	82.8	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	92.4	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	92.7	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5344026)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	93.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	97.5	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	98.7	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	94.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	90.8	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5344026)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	84.4	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	87.8	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	111	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	84.2	71.4	144

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.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5344954)							
ES2334022-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
ED045G: Chloride by Discrete Analyser (QCLot: 5344953)							
ES2334022-001	Anonymous	ED045G: Chloride	16887-00-6	50 mg/L	111	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5351113)							
ES2333600-003	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	100	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	93.1	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	90.0	70.0	130
		EG020A-F: Cobalt	7440-48-4	1 mg/L	96.2	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	93.5	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	83.8	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	81.6	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	94.1	70.0	130
		EG020A-F: Vanadium	7440-62-2	1 mg/L	94.0	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	89.9	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5349191)							
ES2333852-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	99.8	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	99.2	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	98.0	70.0	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	99.8	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	99.1	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	92.5	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	98.2	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	99.5	70.0	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	99.4	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	98.0	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5348745)							
ES2334246-002	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	118	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5344952)							
ES2334021-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	# Not Determined	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5348746)							
ES2334246-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	117	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5348742)							
ES2334246-007	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	107	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5348741)							
ES2334246-007	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	106	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5344951)							
ES2334021-001	Anonymous						

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5344951) - continued							
ES2334021-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	# Not Determined	70.0	130
EP005: Total Organic Carbon (TOC) (QCLot: 5348620)							
ES2334239-001	Anonymous	EP005: Total Organic Carbon	----	100 mg/L	103	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5347746)							
ES2334258-001	SBT-GW-1016	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	73.0	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	85.1	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5347746)							
ES2334258-001	SBT-GW-1016	EP074: Chlorobenzene	108-90-7	25 µg/L	91.3	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5347747)							
ES2334258-001	SBT-GW-1016	EP080: C6 - C9 Fraction	----	325 µg/L	94.2	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5347747)							
ES2334258-001	SBT-GW-1016	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	85.9	70.0	130
EP080: BTEXN (QCLot: 5347747)							
ES2334258-001	SBT-GW-1016	EP080: Benzene	71-43-2	25 µg/L	95.2	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	102	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	106	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	121	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	118	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	90.4	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2334258**	Page	: 1 of 12
Amendment	: **1**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: CHRISTOPHER BLYTH	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 06-Oct-2023
Site	:	Issue Date	: 06-Nov-2023
Sampler	: Emily Fuda / Phil Rowan (PR)	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

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.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075D: Nitrosamines	QC-5343916-002	----	**Methapyrilene**	91-80-5	15.6 %	23.3-125%	**Recovery less than lower control limit**
EP075E: Nitroaromatics and Ketones	QC-5343916-002	----	**Chlorobenzilate**	510-15-6	112 %	57.7-110%	**Recovery greater than upper control limit**
EP075I: Organochlorine Pesticides	QC-5343916-002	----	**Endrin**	72-20-8	118 %	58.0-114%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2334022--001	Anonymous	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK057G: Nitrite as N by Discrete Analyser	ES2334021--001	Anonymous	**Nitrite as N**	14797-65-0	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK071G: Reactive Phosphorus as P by discrete analyse	ES2334021--001	Anonymous	**Reactive Phosphorus as P**	14265-44-2	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural						
SBT-GW-1016	----	----	----	10-Oct-2023	05-Oct-2023	**5**
EK057G: Nitrite as N by Discrete Analyser						
Clear Plastic Bottle - Natural						
SBT-GW-1016	----	----	----	08-Oct-2023	07-Oct-2023	**1**
EK071G: Reactive Phosphorus as P by discrete analyser						
Clear Plastic Bottle - Natural						
SBT-GW-1016	----	----	----	08-Oct-2023	07-Oct-2023	**1**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	0				
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	19	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / *Container* / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P)							
SBT-GW-1016	**05-Oct-2023**	**----**	----	**----**	**10-Oct-2023**	05-Oct-2023	×
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P)							
SBT-GW-1016	**05-Oct-2023**	**----**	----	**----**	**10-Oct-2023**	02-Nov-2023	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H)							
SBT-GW-1016	**05-Oct-2023**	**----**	----	**----**	**12-Oct-2023**	12-Oct-2023	✓
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
SBT-GW-1016	**05-Oct-2023**	**----**	----	**----**	**10-Oct-2023**	19-Oct-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
SBT-GW-1016	**05-Oct-2023**	**----**	----	**----**	**08-Oct-2023**	02-Nov-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
SBT-GW-1016	**05-Oct-2023**	**----**	----	**----**	**08-Oct-2023**	02-Nov-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)							
SBT-GW-1016	**05-Oct-2023**	**----**	----	**----**	**12-Oct-2023**	02-Nov-2023	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
SBT-GW-1016	**05-Oct-2023**	**----**	----	**----**	**12-Oct-2023**	02-Apr-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
SBT-GW-1016	**05-Oct-2023**	**10-Oct-2023**	02-Apr-2024	✓	**10-Oct-2023**	02-Apr-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
SBT-GW-1016	**05-Oct-2023**	**----**	----	----	**10-Oct-2023**	02-Nov-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G)							
SBT-GW-1016	**05-Oct-2023**	**----**	----	----	**08-Oct-2023**	07-Oct-2023	×
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
SBT-GW-1016	**05-Oct-2023**	**----**	----	----	**10-Oct-2023**	02-Nov-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
SBT-GW-1016	**05-Oct-2023**	**10-Oct-2023**	02-Nov-2023	✓	**10-Oct-2023**	02-Nov-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
SBT-GW-1016	**05-Oct-2023**	**10-Oct-2023**	02-Nov-2023	✓	**10-Oct-2023**	02-Nov-2023	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G)							
SBT-GW-1016	**05-Oct-2023**	**----**	----	----	**08-Oct-2023**	07-Oct-2023	×
EP005: Total Organic Carbon (TOC)							
Amber TOC Vial - Sulfuric Acid (EP005)							
SBT-GW-1016	**05-Oct-2023**	**----**	----	----	**11-Oct-2023**	02-Nov-2023	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074)							
SBT-GW-1016	**05-Oct-2023**	**12-Oct-2023**	19-Oct-2023	✓	**12-Oct-2023**	19-Oct-2023	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074)							
SBT-GW-1016	**05-Oct-2023**	**12-Oct-2023**	19-Oct-2023	✓	**12-Oct-2023**	19-Oct-2023	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074)							
SBT-GW-1016	**05-Oct-2023**	**12-Oct-2023**	19-Oct-2023	✓	**12-Oct-2023**	19-Oct-2023	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074)							
SBT-GW-1016	**05-Oct-2023**	**12-Oct-2023**	19-Oct-2023	✓	**12-Oct-2023**	19-Oct-2023	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074)							
SBT-GW-1016	**05-Oct-2023**	**12-Oct-2023**	19-Oct-2023	✓	**12-Oct-2023**	19-Oct-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) SBT-GW-1016	**05-Oct-2023**	**12-Oct-2023**	19-Oct-2023	✓	**12-Oct-2023**	19-Oct-2023	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) SBT-GW-1016	**05-Oct-2023**	**12-Oct-2023**	19-Oct-2023	✓	**12-Oct-2023**	19-Oct-2023	✓
EP075A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1016	**05-Oct-2023**	**06-Oct-2023**	12-Oct-2023	✓	**10-Oct-2023**	15-Nov-2023	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1016	**05-Oct-2023**	**06-Oct-2023**	12-Oct-2023	✓	**10-Oct-2023**	15-Nov-2023	✓
EP075C: Phthalate Esters							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1016	**05-Oct-2023**	**06-Oct-2023**	12-Oct-2023	✓	**10-Oct-2023**	15-Nov-2023	✓
EP075D: Nitrosamines							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1016	**05-Oct-2023**	**06-Oct-2023**	12-Oct-2023	✓	**10-Oct-2023**	15-Nov-2023	✓
EP075E: Nitroaromatics and Ketones							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1016	**05-Oct-2023**	**06-Oct-2023**	12-Oct-2023	✓	**10-Oct-2023**	15-Nov-2023	✓
EP075F: Haloethers							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1016	**05-Oct-2023**	**06-Oct-2023**	12-Oct-2023	✓	**10-Oct-2023**	15-Nov-2023	✓
EP075G: Chlorinated Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1016	**05-Oct-2023**	**06-Oct-2023**	12-Oct-2023	✓	**10-Oct-2023**	15-Nov-2023	✓
EP075H: Anilines and Benzidines							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1016	**05-Oct-2023**	**06-Oct-2023**	12-Oct-2023	✓	**10-Oct-2023**	15-Nov-2023	✓
EP075I: Organochlorine Pesticides							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1016	**05-Oct-2023**	**06-Oct-2023**	12-Oct-2023	✓	**10-Oct-2023**	15-Nov-2023	✓
EP075J: Organophosphorus Pesticides							
Amber Glass Bottle - Unpreserved (EP075) SBT-GW-1016	**05-Oct-2023**	**06-Oct-2023**	12-Oct-2023	✓	**10-Oct-2023**	15-Nov-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) SBT-GW-1016	**05-Oct-2023**	**06-Oct-2023**	12-Oct-2023	✓	**10-Oct-2023**	15-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) SBT-GW-1016	**05-Oct-2023**	**12-Oct-2023**	19-Oct-2023	✓	**12-Oct-2023**	19-Oct-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
SBT-GW-1016	**05-Oct-2023**	**06-Oct-2023**	12-Oct-2023	✓	**10-Oct-2023**	15-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
SBT-GW-1016	**05-Oct-2023**	**12-Oct-2023**	19-Oct-2023	✓	**12-Oct-2023**	19-Oct-2023	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
SBT-GW-1016	**05-Oct-2023**	**12-Oct-2023**	19-Oct-2023	✓	**12-Oct-2023**	19-Oct-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
SBT-GW-1016	**05-Oct-2023**	**09-Oct-2023**	02-Apr-2024	✓	**11-Oct-2023**	02-Apr-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
SBT-GW-1016	**05-Oct-2023**	**09-Oct-2023**	02-Apr-2024	✓	**11-Oct-2023**	02-Apr-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
SBT-GW-1016	**05-Oct-2023**	**09-Oct-2023**	02-Apr-2024	✓	**11-Oct-2023**	02-Apr-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
SBT-GW-1016	**05-Oct-2023**	**09-Oct-2023**	02-Apr-2024	✓	**11-Oct-2023**	02-Apr-2024	✓

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)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	28	**10.71**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	4	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	28	**10.71**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	40	**12.50**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard

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 Control Samples (LCS) - Continued							
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	19	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	4	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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*	
Matrix Spikes (MS) - Continued							
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	8	**12.50**	**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
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Total Organic Carbon	EP005	WATER	In house: Referenced to APHA 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
Semivolatile Organic Compounds	EP075	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5/585 Maitland Rd Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: CPBG	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	Standard TAT: 13/10/2023	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: 14 Great Western HWY, Werrington 2747		~~Non Standard or urgent TAT (List due date):~~	Custody Seal Intact? Yes No N/A
PROJECT: WSA SBT Project	**ALS QUOTE NO.:**	ES23CPBGHE0004	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER:		COC SEQUENCE NUMBER (Circle)	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Emma Kline	**CONTACT PH:**	COC: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Emily Fuda / Phil Rowan (PR)	**SAMPLER MOBILE:** 0412656685	OF: 1 2 3 4 5 6 7	
COC emailed to ALS? (YES / NO)	**EDD FORMAT (or default):**	**RELINQUISHED BY:**	**RECEIVED BY:** Fuda
Email Reports to: Emily.Fuda@cpbg-sbt.com.au		DATE/TIME: 6/10/2023	DATE/TIME: 6/10/23
Email Invoice to (will default to PM if no other addresses are listed): enviro.sbt@cpbg-sbt.com.au			

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

RELINQUISHED BY: DATE/TIME:

RECEIVED BY: DATE/TIME:

ALS USE | **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**

						Green (P)	Purple (G)	Purple (P)	Red (P)	Red (P)	Purple (G)	Purple (G)	Purple (G)	Orange (G)	Grey (P)				
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	EA005, EA010, EA015, EP005, NT-01, NT-02	EP006	NT-08a	EG020F	EG020T	W-9 (VOC only)	W-9 (TRH only)	W-9 (TRH/BTEXN)	EP075	EP231				
1	SBT-GW-1016	5/10/2023	W		10	X	X	X	X	X			XX	x	XX				
TOTAL					10														

Environmental Division Sydney
Work Order Reference
ES2334258

Telephone : +61-2-8784 8555

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	: **ES2334421**	Page	: 1 of 5
Amendment	: **1**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 06-Oct-2023 17:05
Order number	: ----	Date Analysis Commenced	: 06-Oct-2023
C-O-C number	: ----	Issue Date	: 06-Nov-2023 12:09
Sampler	: Emma Fuda, Jack Brennan		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 1		
No. of samples analysed	: 1		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

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.

- Ek071G: LOR raised for Reactive P on sample1 due to sample matrix.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Amendment (06/11/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020T and EG020F for all samples.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1021	----	----	----	----
				Sampling date / time	06-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2334421-001	--------	--------	--------	--------
					Result	----	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**6.95**	----	----	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**2390**	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		**1610**	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**93**	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**93**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**750**	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**190**	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**44**	----	----	----	----
Magnesium	7439-95-4	1	mg/L		**21**	----	----	----	----
Sodium	7440-23-5	1	mg/L		**406**	----	----	----	----
Potassium	7440-09-7	1	mg/L		**12**	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.23**	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L		**0.012**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		**0.003**	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.002**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		**0.001**	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**0.098**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.017**	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.035**	----	----	----	----
Iron	7439-89-6	0.05	mg/L		**3.67**	----	----	----	----
EG020T: Total Metals by ICP-MS									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1021	----	----	----	----
				Sampling date / time	06-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2334421-001	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS - Continued									
Aluminium	7429-90-5	0.01	mg/L		**0.71**	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L		**0.034**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		**0.002**	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		**0.004**	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.003**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		**0.004**	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**0.112**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.023**	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.043**	----	----	----	----
Iron	7439-89-6	0.05	mg/L		**7.20**	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.88**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		**0.20**	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**2.24**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**2.44**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**2.9**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**5.3**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.11**	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.10	----	----	----	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**22.8**	----	----	----	----
ø Total Cations	----	0.01	meq/L		**21.9**	----	----	----	----
ø Ionic Balance	----	0.01	%		**2.11**	----	----	----	----
EP005: Total Organic Carbon (TOC)									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1021	----	----	----	----
				Sampling date / time	06-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2334421-001	--------	--------	--------	--------
					Result	----	----	----	----
EP005: Total Organic Carbon (TOC) - Continued									
Total Organic Carbon	----	1	mg/L		**17**	**----**	**----**	**----**	**----**

QUALITY CONTROL REPORT

Work Order	: **ES2334421**	Page	: 1 of 8
Amendment	: **1**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 06-Oct-2023
Order number	: ----	Date Analysis Commenced	: 06-Oct-2023
C-O-C number	: ----	Issue Date	: 06-Nov-2023
Sampler	: Emma Fuda, Jack Brennan		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 1		
No. of samples analysed	: 1		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

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 (%)*
EA005P: pH by PC Titrator (QC Lot: 5344865)									
ES2334421-001	SBT-GW-1021	EA005-P: pH Value	----	0.01	pH Unit	6.95	7.07	1.7	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5344862)									
ES2334244-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	174	178	2.5	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5354398)									
ES2334906-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1130	974	15.1	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5344864)									
ES2334270-003	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	91	92	1.9	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	91	92	1.9	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5345704)									
ES2334421-001	SBT-GW-1021	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	750	850	12.4	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5345705)									
ES2334421-001	SBT-GW-1021	ED045G: Chloride	16887-00-6	1	mg/L	190	210	9.8	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5351116)									
ES2334402-003	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	95	99	4.1	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	71	74	4.6	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	266	279	4.8	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	5	5	0.0	No Limit
ES2334402-013	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	220	225	1.9	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	286	290	1.3	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	888	909	2.4	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	22	23	0.0	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 (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5351115)									
ES2334402-003	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.147	0.152	3.3	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
ES2334402-013	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.008	0.008	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	1.55	1.58	1.8	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.009	0.009	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.038	0.038	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 5349204)									
ES2334008-018	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
ES2334372-013	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit

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 (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5349204) - continued									
ES2334372-013	Anonymous	EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5351306)									
ES2334344-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	379	365	3.6	0% - 20%
ES2334586-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5345706)									
ES2334421-001	SBT-GW-1021	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.20	0.23	10.4	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5351307)									
ES2334344-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.10	<0.10	0.0	No Limit
ES2334586-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.01	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5351305)									
ES2334344-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	435	436	0.3	0% - 20%
EW2304403-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	84.5	78.3	7.6	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5351304)									
ES2334344-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	1.76	3.17	56.9	No Limit
EW2304403-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	5.84	5.63	3.6	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5345707)									
ES2334421-001	SBT-GW-1021	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.10	<0.10	0.0	No Limit
EP005: Total Organic Carbon (TOC) (QC Lot: 5348620)									
ES2334239-001	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	7	7	0.0	No Limit
ES2334288-002	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	7	7	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 5344865)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	101	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 5344862)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	102	89.9	110
				<1	2100 µS/cm	101	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5354398)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	97.0	87.0	109
				<10	293 mg/L	101	75.2	126
				<10	2470 mg/L	98.1	83.0	124
ED037P: Alkalinity by PC Titrator (QCLot: 5344864)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	83.6	81.0	115
				----	50 mg/L	85.7	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5345704)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	90.4	82.0	122
				<1	500 mg/L	98.6	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5345705)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	92.5	80.9	127
				<1	1000 mg/L	100	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5351116)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	101	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	97.5	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	97.5	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	113	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5351115)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	92.0	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	93.2	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	93.1	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	91.2	85.0	111
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	92.2	82.0	112
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	91.8	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	92.8	83.0	111

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5351115) - continued								
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	91.7	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	90.8	82.0	112
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	92.5	83.0	109
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	91.9	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	98.3	82.0	112
EG020T: Total Metals by ICP-MS (QCLot: 5349204)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	91.0	82.0	120
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.9	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.0	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	91.4	86.0	116
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	92.2	84.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.6	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	91.1	85.0	115
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	93.6	85.0	113
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	92.6	84.0	116
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	93.3	85.0	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	93.2	79.0	117
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	100	85.0	117
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5351306)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	99.5	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5345706)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	99.2	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5351307)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	105	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5351305)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	92.4	69.0	101
				<0.1	1 mg/L	106	70.0	118
				<0.1	5 mg/L	105	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5351304)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	94.2	71.3	126
				<0.01	0.442 mg/L	94.7	71.3	126
				<0.01	1 mg/L	104	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5345707)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	106	85.0	117

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP005: Total Organic Carbon (TOC) (QCLot: 5348620)								
EP005: Total Organic Carbon	----	1	mg/L	<1	10 mg/L	105	72.0	120

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.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5345704)							
ES2334421-001	SBT-GW-1021	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5345705)							
ES2334421-001	SBT-GW-1021	ED045G: Chloride	16887-00-6	500 mg/L	113	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5351115)							
ES2334402-004	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	95.6	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	94.8	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	92.1	70.0	130
		EG020A-F: Cobalt	7440-48-4	1 mg/L	94.0	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	93.8	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	85.7	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	92.5	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	93.0	70.0	130
		EG020A-F: Vanadium	7440-62-2	1 mg/L	93.6	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	93.5	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5349204)							
ES2334044-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	110	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	111	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	105	70.0	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	110	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	117	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	113	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	108	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	108	70.0	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	107	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	109	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5351306)							
ES2334344-001	Anonymous						

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5351306) - continued							
ES2334344-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	# Not Determined	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5345706)							
ES2334421-001	SBT-GW-1021	EK057G: Nitrite as N	14797-65-0	5 mg/L	102	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5351307)							
ES2334344-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	5 mg/L	108	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5351305)							
ES2334344-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	# Not Determined	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5351304)							
ES2334344-002	Anonymous	EK067G: Total Phosphorus as P	----	50 mg/L	104	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5345707)							
ES2334421-001	SBT-GW-1021	EK071G: Reactive Phosphorus as P	14265-44-2	5 mg/L	102	70.0	130
EP005: Total Organic Carbon (TOC) (QCLot: 5348620)							
ES2334239-001	Anonymous	EP005: Total Organic Carbon	----	100 mg/L	103	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2334421**	Page	: 1 of 7
Amendment	: **1**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 06-Oct-2023
Site	:	Issue Date	: 06-Nov-2023
Sampler	: Emma Fuda, Jack Brennan	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

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.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **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.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2334421--001	SBT-GW-1021	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK055G: Ammonia as N by Discrete Analyser	ES2334344--001	Anonymous	**Ammonia as N**	7664-41-7	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser	ES2334344--002	Anonymous	**Total Kjeldahl Nitrogen as N**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P) SBT-GW-1021	**06-Oct-2023**	**----**	----	**----**	**06-Oct-2023**	06-Oct-2023	✓
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P) SBT-GW-1021	**06-Oct-2023**	**----**	----	**----**	**06-Oct-2023**	03-Nov-2023	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H) SBT-GW-1021	**06-Oct-2023**	**----**	----	**----**	**12-Oct-2023**	13-Oct-2023	✓
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) SBT-GW-1021	**06-Oct-2023**	**----**	----	**----**	**06-Oct-2023**	20-Oct-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) SBT-GW-1021	**06-Oct-2023**	**----**	----	**----**	**07-Oct-2023**	03-Nov-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) SBT-GW-1021	**06-Oct-2023**	**----**	----	**----**	**07-Oct-2023**	03-Nov-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)							
SBT-GW-1021	**06-Oct-2023**	**----**	----	**----**	**12-Oct-2023**	03-Nov-2023	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
SBT-GW-1021	**06-Oct-2023**	**----**	----	**----**	**12-Oct-2023**	03-Apr-2024	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
SBT-GW-1021	**06-Oct-2023**	**10-Oct-2023**	03-Apr-2024	✓	**10-Oct-2023**	03-Apr-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
SBT-GW-1021	**06-Oct-2023**	**----**	----	**----**	**11-Oct-2023**	03-Nov-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G)							
SBT-GW-1021	**06-Oct-2023**	**----**	----	**----**	**07-Oct-2023**	08-Oct-2023	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
SBT-GW-1021	**06-Oct-2023**	**----**	----	**----**	**11-Oct-2023**	03-Nov-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
SBT-GW-1021	**06-Oct-2023**	**11-Oct-2023**	03-Nov-2023	✓	**11-Oct-2023**	03-Nov-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
SBT-GW-1021	**06-Oct-2023**	**11-Oct-2023**	03-Nov-2023	✓	**11-Oct-2023**	03-Nov-2023	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G)							
SBT-GW-1021	**06-Oct-2023**	**----**	----	**----**	**07-Oct-2023**	08-Oct-2023	✓
EP005: Total Organic Carbon (TOC)							
Amber TOC Vial - Sulfuric Acid (EP005)							
SBT-GW-1021	**06-Oct-2023**	**----**	----	**----**	**11-Oct-2023**	03-Nov-2023	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	3	**66.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	4	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	3	**66.67**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	1	**200.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	4	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	3	7	**42.86**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	17	**17.65**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	18	**16.67**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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*	
Method Blanks (MB) - Continued							
Conductivity by Auto Titrator	EA010-P	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	18	**5.56**	**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
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Total Organic Carbon	EP005	WATER	In house: Referenced to APHA 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

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☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

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☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: CPBG	**TURNAROUND REQUIREMENTS :** Standard TAT: **13/10/2023**	**FOR LABORATORY USE ONLY (Circle)**	
OFFICE: 14 Great Western HWY, Werrington 2747	(Standard TAT may be longer for some tests e.g., Ultra Trace Organics) ~~Non Standard or urgent TAT (List due date):~~	Custody Seal Intact?	Yes No N/A
PROJECT: WSA SBT Project	**ALS QUOTE NO.:** ES23CPBGHE0004	Free ice / frozen ice bricks present upon receipt?	Yes No N/A
ORDER NUMBER:	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt:	°C
PROJECT MANAGER: Emma Kline **CONTACT PH:**	OF: 1 2 3 4 5 6 7	Other comment:	
SAMPLER: Emily Fuda (EF), Jack Brennan (JB) **SAMPLER MOBILE:** 0478707139	**RELINQUISHED BY:**	**RECEIVED BY:** Jack	**RELINQUISHED BY:**
COC emailed to ALS? (YES / NO) **EDD FORMAT (or default):**			
Email Reports to: Jack.Brennan@cpbg-sbt.com.au; Emily.Fuda@cpbg-sbt.com.au	DATE/TIME: 6/10/2023	DATE/TIME: 06/10/23 1705	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed): **enviro.sbt@cpbg-sbt.com.au**			**RECEIVED BY:** DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	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
						Green (P)	Purple (G)	Purple (P)	Red (P)	Red (P)	Purple (G)	Purple (G)	Purple (G)	Orange (G)	Grey (P)			
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	EA005, EA010, EA015, EP005, NT-01, NT-02	EP005	NT-08a	EG020F	EG020T	W-9 (VOC only)	W-9 (TRH only)	W-9 (TRH/BTEXN)	EP075	EP231			
1	SBT-GW-1021	6/10/2023	W		5	X	X	X	X	X								
TOTAL					5													

Environmental Division Sydney
Work Order Reference
ES2334421

Telephone : +61-2-8784 8555

HT

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	: **ES2334701**	Page	: 1 of 15
Amendment	: **2**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 10-Oct-2023 10:00
Order number	: ----	Date Analysis Commenced	: 10-Oct-2023
C-O-C number	: ----	Issue Date	: 15-Nov-2023 14:21
Sampler	: Alan Hillany, Emly Fuda		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 8		
No. of samples analysed	: 6		

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

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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.

- EP075: Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EG020: It is recognised that total concentration is less than dissolved for some metal analytes. However, the difference is within experimental variation of the methods.
- EP074&EP080: Result for ES2334701-04 has been confirmed by re-analysis.
- TDS by method EA-015 may bias high for various samples due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- Amendment (20/10/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020F for all samples.
- Amendment (15/11/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020F for all samples.
- EP075: Where reported, 'Sum of PAH' is the sum of the USEPA 16 priority PAHs
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SBT-GW-1002	SBT-GW-1024	SBT-GW-1805	SBT-GW-1805-DUP01	SBT-GW-1805-TRIP01
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2334701-001	ES2334701-004	ES2334701-005	ES2334701-006	ES2334701-007
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**4.42**	**6.60**	**6.80**	**6.73**	**6.76**
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**9150**	**9470**	**2050**	**2080**	**2070**
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**5340**	**5740**	**1470**	**1580**	**1380**
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	**82**	**68**	**72**	**59**
Total Alkalinity as CaCO3	----	1	mg/L	<1	**82**	**68**	**72**	**59**
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**186**	**476**	**336**	**354**	**337**
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**3230**	**3210**	**501**	**500**	**502**
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**4**	**113**	**42**	**41**	**41**
Magnesium	7439-95-4	1	mg/L	**174**	**193**	**48**	**48**	**48**
Sodium	7440-23-5	1	mg/L	**1600**	**1670**	**311**	**311**	**311**
Potassium	7440-09-7	1	mg/L	**4**	**8**	**2**	**2**	**9**
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**1.46**	**0.04**	<0.01	**0.10**	<0.01
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	**0.0002**	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	**0.004**	<0.001	<0.001	<0.001	**0.005**
Cobalt	7440-48-4	0.001	mg/L	**0.106**	**0.024**	**0.002**	**0.003**	**0.003**
Copper	7440-50-8	0.001	mg/L	**0.014**	**0.002**	<0.001	**0.002**	<0.001
Lead	7439-92-1	0.001	mg/L	**0.003**	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	**0.043**	**0.488**	**0.188**	**0.264**	**0.291**
Nickel	7440-02-0	0.001	mg/L	**0.044**	**0.019**	**0.007**	**0.008**	**0.009**
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L	**0.194**	**0.046**	**0.014**	**0.010**	**0.017**
Iron	7439-89-6	0.05	mg/L	**0.25**	<0.05	<0.05	**0.40**	<0.05
EG020T: Total Metals by ICP-MS								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SBT-GW-1002	SBT-GW-1024	SBT-GW-1805	SBT-GW-1805-DUP01	SBT-GW-1805-TRIP01
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2334701-001	ES2334701-004	ES2334701-005	ES2334701-006	ES2334701-007
				Result	Result	Result	Result	Result
EG020T: Total Metals by ICP-MS - Continued								
Aluminium	7429-90-5	0.01	mg/L	1.64	0.23	1.77	8.98	4.58
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.0002	<0.0001	0.0002	<0.0001
Cobalt	7440-48-4	0.001	mg/L	0.107	0.024	0.011	0.045	0.023
Copper	7440-50-8	0.001	mg/L	0.011	0.004	0.020	0.140	0.046
Lead	7439-92-1	0.001	mg/L	0.004	<0.001	0.015	0.111	0.046
Manganese	7439-96-5	0.001	mg/L	0.044	0.459	0.659	2.22	1.01
Nickel	7440-02-0	0.001	mg/L	0.044	0.021	0.018	0.045	0.017
Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	<0.01	0.07	0.03
Zinc	7440-66-6	0.005	mg/L	0.196	0.098	0.043	0.205	0.084
Iron	7439-89-6	0.05	mg/L	0.85	0.42	10.9	81.0	36.3
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.10	0.37	0.39	0.24	0.32
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	0.17	0.75	0.75	0.41	0.57
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	0.17	0.75	0.75	0.41	0.57
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.2	0.6	6.6	13.4	4.1
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	0.4	1.4	7.4	13.8	4.7
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.04	0.03	2.58	5.46	1.49
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	95.0	102	22.5	22.9	22.4
ø Total Cations	----	0.01	meq/L	84.2	94.4	19.6	19.6	19.8
ø Ionic Balance	----	0.01	%	6.01	3.93	6.80	7.86	6.18
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	13	7	7	3	2
EP074A: Monocyclic Aromatic Hydrocarbons								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1002	SBT-GW-1024	SBT-GW-1805	SBT-GW-1805-DUP01	SBT-GW-1805-TRIP01
				Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2334701-001	ES2334701-004	ES2334701-005	ES2334701-006	ES2334701-007
					Result	Result	Result	Result	Result
EP074A: Monocyclic Aromatic Hydrocarbons - Continued									
Styrene	100-42-5	5	µg/L		----	<5	----	----	----
Isopropylbenzene	98-82-8	5	µg/L		----	<5	----	----	----
n-Propylbenzene	103-65-1	5	µg/L		----	<5	----	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L		----	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L		----	<5	----	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L		----	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L		----	<5	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L		----	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L		----	<5	----	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		----	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L		----	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		----	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L		----	<50	----	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		----	<5	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		----	<5	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L		----	<5	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		----	<5	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		----	<5	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		----	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		----	<50	----	----	----
Chloromethane	74-87-3	50	µg/L		----	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L		----	<50	----	----	----
Bromomethane	74-83-9	50	µg/L		----	<50	----	----	----
Chloroethane	75-00-3	50	µg/L		----	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		----	<50	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L		----	<5	----	----	----
Iodomethane	74-88-4	5	µg/L		----	<5	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L		----	<5	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L		----	<5	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L		----	<5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1002	SBT-GW-1024	SBT-GW-1805	SBT-GW-1805-DUP01	SBT-GW-1805-TRIP01
				Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2334701-001	ES2334701-004	ES2334701-005	ES2334701-006	ES2334701-007
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1.1-Trichloroethane	71-55-6	5	µg/L		----	<5	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L		----	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L		----	<5	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L		----	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L		----	<5	----	----	----
Dibromomethane	74-95-3	5	µg/L		----	<5	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L		----	<5	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L		----	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L		----	<5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		----	<5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		----	<5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		----	<5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		----	<5	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L		----	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L		----	<5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		----	<5	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L		----	<5	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		----	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L		----	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L		----	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L		----	<5	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L		----	<5	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L		----	<5	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L		----	<5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		----	<5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		----	<5	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		----	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L		----	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L		----	<5	----	----	----
Bromoform	75-25-2	5	µg/L		----	<5	----	----	----
EP075A: Phenolic Compounds									
Phenol	108-95-2	2	µg/L		----	<2	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1002	SBT-GW-1024	SBT-GW-1805	SBT-GW-1805-DUP01	SBT-GW-1805-TRIP01
				Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2334701-001	ES2334701-004	ES2334701-005	ES2334701-006	ES2334701-007
					Result	Result	Result	Result	Result
EP075A: Phenolic Compounds - Continued									
2-Chlorophenol	95-57-8	2	µg/L		----	<2	----	----	----
2-Methylphenol	95-48-7	2	µg/L		----	<2	----	----	----
3- & 4-Methylphenol	1319-77-3	4	µg/L		----	<4	----	----	----
2-Nitrophenol	88-75-5	2	µg/L		----	<2	----	----	----
2.4-Dimethylphenol	105-67-9	2	µg/L		----	<2	----	----	----
2.4-Dichlorophenol	120-83-2	2	µg/L		----	<2	----	----	----
2.6-Dichlorophenol	87-65-0	2	µg/L		----	<2	----	----	----
4-Chloro-3-methylphenol	59-50-7	2	µg/L		----	<2	----	----	----
2.4.6-Trichlorophenol	88-06-2	2	µg/L		----	<2	----	----	----
2.4.5-Trichlorophenol	95-95-4	2	µg/L		----	<2	----	----	----
Pentachlorophenol	87-86-5	4	µg/L		----	<4	----	----	----
EP075B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	2	µg/L		----	<2	----	----	----
2-Methylnaphthalene	91-57-6	2	µg/L		----	<2	----	----	----
2-Chloronaphthalene	91-58-7	2	µg/L		----	<2	----	----	----
Acenaphthylene	208-96-8	2	µg/L		----	<2	----	----	----
Acenaphthene	83-32-9	2	µg/L		----	<2	----	----	----
Fluorene	86-73-7	2	µg/L		----	<2	----	----	----
Phenanthrene	85-01-8	2	µg/L		----	<2	----	----	----
Anthracene	120-12-7	2	µg/L		----	<2	----	----	----
Fluoranthene	206-44-0	2	µg/L		----	<2	----	----	----
Pyrene	129-00-0	2	µg/L		----	<2	----	----	----
N-2-Fluorenyl Acetamide	53-96-3	2	µg/L		----	<2	----	----	----
Benz(a)anthracene	56-55-3	2	µg/L		----	<2	----	----	----
Chrysene	218-01-9	2	µg/L		----	<2	----	----	----
Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L		----	<4	----	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L		----	<2	----	----	----
Benzo(a)pyrene	50-32-8	2	µg/L		----	<2	----	----	----
3-Methylcholanthrene	56-49-5	2	µg/L		----	<2	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L		----	<2	----	----	----
Dibenz(a.h)anthracene	53-70-3	2	µg/L		----	<2	----	----	----
Benzo(g.h.i)perylene	191-24-2	2	µg/L		----	<2	----	----	----
^ Sum of PAHs	----	2	µg/L		----	<2	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	2	µg/L		----	<2	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SBT-GW-1002	SBT-GW-1024	SBT-GW-1805	SBT-GW-1805-DUP01	SBT-GW-1805-TRIP01
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2334701-001	ES2334701-004	ES2334701-005	ES2334701-006	ES2334701-007
				Result	Result	Result	Result	Result
EP075B: Polynuclear Aromatic Hydrocarbons - Continued								
EP075C: Phthalate Esters								
Dimethyl phthalate	131-11-3	2	µg/L	----	<2	----	----	----
Diethyl phthalate	84-66-2	2	µg/L	----	<2	----	----	----
Di-n-butyl phthalate	84-74-2	2	µg/L	----	<2	----	----	----
Butyl benzyl phthalate	85-68-7	2	µg/L	----	<2	----	----	----
bis(2-ethylhexyl) phthalate	117-81-7	10	µg/L	----	<10	----	----	----
Di-n-octylphthalate	117-84-0	2	µg/L	----	<2	----	----	----
EP075D: Nitrosamines								
N-Nitrosomethylethylamine	10595-95-6	2	µg/L	----	<2	----	----	----
N-Nitrosodiethylamine	55-18-5	2	µg/L	----	<2	----	----	----
N-Nitrosopyrrolidine	930-55-2	4	µg/L	----	<4	----	----	----
N-Nitrosomorpholine	59-89-2	2	µg/L	----	<2	----	----	----
N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	----	<2	----	----	----
N-Nitrosopiperidine	100-75-4	2	µg/L	----	<2	----	----	----
N-Nitrosodibutylamine	924-16-3	2	µg/L	----	<2	----	----	----
N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	----	<4	----	----	----
Methapyrilene	91-80-5	2	µg/L	----	<2	----	----	----
EP075E: Nitroaromatics and Ketones								
2-Picoline	109-06-8	2	µg/L	----	<2	----	----	----
Acetophenone	98-86-2	2	µg/L	----	<2	----	----	----
Nitrobenzene	98-95-3	2	µg/L	----	<2	----	----	----
Isophorone	78-59-1	2	µg/L	----	<2	----	----	----
2.6-Dinitrotoluene	606-20-2	4	µg/L	----	<4	----	----	----
2.4-Dinitrotoluene	121-14-2	4	µg/L	----	<4	----	----	----
1-Naphthylamine	134-32-7	2	µg/L	----	<2	----	----	----
4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	----	<2	----	----	----
5-Nitro-o-toluidine	99-55-8	2	µg/L	----	<2	----	----	----
Azobenzene	103-33-3	2	µg/L	----	<2	----	----	----
1.3.5-Trinitrobenzene	99-35-4	2	µg/L	----	<2	----	----	----
Phenacetin	62-44-2	2	µg/L	----	<2	----	----	----
4-Aminobiphenyl	92-67-1	2	µg/L	----	<2	----	----	----
Pentachloronitrobenzene	82-68-8	2	µg/L	----	<2	----	----	----
Pronamide	23950-58-5	2	µg/L	----	<2	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1002	SBT-GW-1024	SBT-GW-1805	SBT-GW-1805-DUP01	SBT-GW-1805-TRIP01
				Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2334701-001	ES2334701-004	ES2334701-005	ES2334701-006	ES2334701-007
					Result	Result	Result	Result	Result
EP075E: Nitroaromatics and Ketones - Continued									
Dimethylaminoazobenzene	60-11-7	2	µg/L		----	<2	----	----	----
Chlorobenzilate	510-15-6	2	µg/L		----	<2	----	----	----
EP075F: Haloethers									
Bis(2-chloroethyl) ether	111-44-4	2	µg/L		----	<2	----	----	----
Bis(2-chloroethoxy) methane	111-91-1	2	µg/L		----	<2	----	----	----
4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L		----	<2	----	----	----
4-Bromophenyl phenyl ether	101-55-3	2	µg/L		----	<2	----	----	----
EP075G: Chlorinated Hydrocarbons									
1.3-Dichlorobenzene	541-73-1	2	µg/L		----	<2	----	----	----
1.4-Dichlorobenzene	106-46-7	2	µg/L		----	<2	----	----	----
1.2-Dichlorobenzene	95-50-1	2	µg/L		----	<2	----	----	----
Hexachloroethane	67-72-1	2	µg/L		----	<2	----	----	----
1.2.4-Trichlorobenzene	120-82-1	2	µg/L		----	<2	----	----	----
Hexachloropropylene	1888-71-7	2	µg/L		----	<2	----	----	----
Hexachlorobutadiene	87-68-3	2	µg/L		----	<2	----	----	----
Hexachlorocyclopentadiene	77-47-4	10	µg/L		----	<10	----	----	----
Pentachlorobenzene	608-93-5	2	µg/L		----	<2	----	----	----
Hexachlorobenzene (HCB)	118-74-1	4	µg/L		----	<4	----	----	----
EP075H: Anilines and Benzidines									
Aniline	62-53-3	2	µg/L		----	<2	----	----	----
4-Chloroaniline	106-47-8	2	µg/L		----	<2	----	----	----
2-Nitroaniline	88-74-4	4	µg/L		----	<4	----	----	----
3-Nitroaniline	99-09-2	4	µg/L		----	<4	----	----	----
Dibenzofuran	132-64-9	2	µg/L		----	<2	----	----	----
4-Nitroaniline	100-01-6	2	µg/L		----	<2	----	----	----
Carbazole	86-74-8	2	µg/L		----	<2	----	----	----
3.3`-Dichlorobenzidine	91-94-1	2	µg/L		----	<2	----	----	----
EP075I: Organochlorine Pesticides									
alpha-BHC	319-84-6	2	µg/L		----	<2	----	----	----
beta-BHC	319-85-7	2	µg/L		----	<2	----	----	----
gamma-BHC	58-89-9	2	µg/L		----	<2	----	----	----
delta-BHC	319-86-8	2	µg/L		----	<2	----	----	----
Heptachlor	76-44-8	2	µg/L		----	<2	----	----	----
Aldrin	309-00-2	2	µg/L		----	<2	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1002	SBT-GW-1024	SBT-GW-1805	SBT-GW-1805-DUP01	SBT-GW-1805-TRIP01
				Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2334701-001	ES2334701-004	ES2334701-005	ES2334701-006	ES2334701-007
					Result	Result	Result	Result	Result
EP075I: Organochlorine Pesticides - Continued									
Heptachlor epoxide	1024-57-3	2	µg/L		----	<2	----	----	----
alpha-Endosulfan	959-98-8	2	µg/L		----	<2	----	----	----
4.4`-DDE	72-55-9	2	µg/L		----	<2	----	----	----
Dieldrin	60-57-1	2	µg/L		----	<2	----	----	----
Endrin	72-20-8	2	µg/L		----	<2	----	----	----
beta-Endosulfan	33213-65-9	2	µg/L		----	<2	----	----	----
4.4`-DDD	72-54-8	2	µg/L		----	<2	----	----	----
Endosulfan sulfate	1031-07-8	2	µg/L		----	<2	----	----	----
4.4`-DDT	50-29-3	4	µg/L		----	<4	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L		----	<4	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L		----	<4	----	----	----
EP075J: Organophosphorus Pesticides									
Dichlorvos	62-73-7	2	µg/L		----	<2	----	----	----
Dimethoate	60-51-5	2	µg/L		----	<2	----	----	----
Diazinon	333-41-5	2	µg/L		----	<2	----	----	----
Chlorpyrifos-methyl	5598-13-0	2	µg/L		----	<2	----	----	----
Malathion	121-75-5	2	µg/L		----	<2	----	----	----
Fenthion	55-38-9	2	µg/L		----	<2	----	----	----
Chlorpyrifos	2921-88-2	2	µg/L		----	<2	----	----	----
Pirimphos-ethyl	23505-41-1	2	µg/L		----	<2	----	----	----
Chlorfenvinphos	470-90-6	2	µg/L		----	<2	----	----	----
Prothiofos	34643-46-4	2	µg/L		----	<2	----	----	----
Ethion	563-12-2	2	µg/L		----	<2	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		----	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L		----	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L		----	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L		----	<50	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		----	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		----	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		----	<20	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1002	SBT-GW-1024	SBT-GW-1805	SBT-GW-1805-DUP01	SBT-GW-1805-TRIP01
				Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2334701-001	ES2334701-004	ES2334701-005	ES2334701-006	ES2334701-007
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C10 - C16 Fraction	----	100	µg/L		----	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L		----	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L		----	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		----	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		----	<100	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		----	<1	----	----	----
Toluene	108-88-3	2	µg/L		----	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		----	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		----	<2	----	----	----
^ Total Xylenes	----	2	µg/L		----	<2	----	----	----
^ Sum of BTEX	----	1	µg/L		----	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		----	<5	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		----	<0.02	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		----	<0.01	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		----	<0.01	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		----	<0.1	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		----	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		----	<0.02	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		----	<0.02	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		----	<0.01	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		----	<0.05	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		----	<0.05	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		----	<0.05	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1002	SBT-GW-1024	SBT-GW-1805	SBT-GW-1805-DUP01	SBT-GW-1805-TRIP01
				Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ES2334701-001	ES2334701-004	ES2334701-005	ES2334701-006	ES2334701-007
					Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued									
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		----	<0.05	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		----	<0.01	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		----	<0.01	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		----	84.0	----	----	----
Toluene-D8	2037-26-5	5	%		----	90.3	----	----	----
4-Bromofluorobenzene	460-00-4	5	%		----	88.6	----	----	----
EP075S: Acid Extractable Surrogates									
2-Fluorophenol	367-12-4	2	%		----	40.2	----	----	----
Phenol-d6	13127-88-3	2	%		----	29.2	----	----	----
2-Chlorophenol-D4	93951-73-6	2	%		----	59.5	----	----	----
2.4.6-Tribromophenol	118-79-6	2	%		----	47.2	----	----	----
EP075T: Base/Neutral Extractable Surrogates									
Nitrobenzene-D5	4165-60-0	2	%		----	66.5	----	----	----
1.2-Dichlorobenzene-D4	2199-69-1	2	%		----	55.9	----	----	----
2-Fluorobiphenyl	321-60-8	2	%		----	66.8	----	----	----
Anthracene-d10	1719-06-8	2	%		----	73.7	----	----	----
4-Terphenyl-d14	1718-51-0	2	%		----	69.3	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		----	81.9	----	----	----
Toluene-D8	2037-26-5	2	%		----	88.0	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		----	98.0	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		----	98.0	----	----	----
13C8-PFOA	----	0.02	%		----	85.6	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1048	----	----	----	----
				Sampling date / time	09-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2334701-008	--------	--------	--------	--------
					Result	----	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**6.20**	----	----	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**11200**	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		**7480**	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**12**	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**12**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**210**	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**4400**	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**21**	----	----	----	----
Magnesium	7439-95-4	1	mg/L		**316**	----	----	----	----
Sodium	7440-23-5	1	mg/L		**1930**	----	----	----	----
Potassium	7440-09-7	1	mg/L		**6**	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.14**	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		**0.0003**	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		**0.147**	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.008**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**1.62**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.094**	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.258**	----	----	----	----
Iron	7439-89-6	0.05	mg/L		<0.05	----	----	----	----
EG020T: Total Metals by ICP-MS									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1048	----	----	----	----
				Sampling date / time	09-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2334701-008	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS - Continued									
Aluminium	7429-90-5	0.01	mg/L		**0.80**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		**0.0004**	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		**0.153**	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.014**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		**0.004**	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**1.68**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.099**	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.269**	----	----	----	----
Iron	7439-89-6	0.05	mg/L		**1.08**	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.09**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**0.36**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.36**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**0.7**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**1.1**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.09**	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.01	----	----	----	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**129**	----	----	----	----
ø Total Cations	----	0.01	meq/L		**111**	----	----	----	----
ø Ionic Balance	----	0.01	%		**7.32**	----	----	----	----
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		**9**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP075S: Acid Extractable Surrogates			
2-Fluorophenol	367-12-4	10	117
Phenol-d6	13127-88-3	10	69
2-Chlorophenol-D4	93951-73-6	21	130
2.4.6-Tribromophenol	118-79-6	10	151
EP075T: Base/Neutral Extractable Surrogates			
Nitrobenzene-D5	4165-60-0	29	142
1.2-Dichlorobenzene-D4	2199-69-1	24	121
2-Fluorobiphenyl	321-60-8	27	135
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	21	123
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

QUALITY CONTROL REPORT

Work Order	: **ES2334701**	Page	: 1 of 21
Amendment	: **2**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 10-Oct-2023
Order number	: ----	Date Analysis Commenced	: 10-Oct-2023
C-O-C number	: ----	Issue Date	: 15-Nov-2023
Sampler	: Alan Hillany, Emly Fuda		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 8		
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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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 (%)
EA005P: pH by PC Titrator (QC Lot: 5353002)									
ES2334701-001	SBT-GW-1002	EA005-P: pH Value	----	0.01	pH Unit	4.42	4.05	8.7	0% - 20%
ES2334316-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.16	8.36	2.4	0% - 20%
EA005P: pH by PC Titrator (QC Lot: 5353005)									
ES2334701-008	SBT-GW-1048	EA005-P: pH Value	----	0.01	pH Unit	6.20	6.65	7.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5353001)									
ES2334570-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	942	942	0.0	0% - 20%
ES2334570-012	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	447	446	0.3	0% - 20%
ES2334316-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	455	455	0.0	0% - 20%
ES2334482-004	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	3690	3680	0.2	0% - 20%
ES2334701-008	SBT-GW-1048	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	11200	9260	19.5	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5358385)									
ES2334645-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	5290	5420	2.5	0% - 20%
ES2334751-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	12700	12800	1.3	0% - 20%
ES2334807-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1850	1830	1.3	0% - 20%
EW2304455-006	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	93	76	20.2	No Limit
ED037P: Alkalinity by PC Titrator (QC Lot: 5353003)									
ES2334480-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	49	50	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	49	50	0.0	0% - 20%
ES2334482-004	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	422	426	0.9	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 (%)*
ED037P: Alkalinity by PC Titrator (QC Lot: 5353003) - continued									
ES2334482-004	Anonymous	ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	422	426	0.9	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5353004)									
ES2334701-008	SBT-GW-1048	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	12	12	0.0	0% - 50%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	12	12	0.0	0% - 50%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5350942)									
ES2334701-001	SBT-GW-1002	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	186	184	1.1	0% - 20%
ES2334751-004	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	427	441	3.3	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5350943)									
ES2334701-001	SBT-GW-1002	ED045G: Chloride	16887-00-6	1	mg/L	3230	3290	1.9	0% - 20%
ES2334751-004	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	3170	3180	0.1	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5357092)									
ES2334701-001	SBT-GW-1002	ED093F: Calcium	7440-70-2	1	mg/L	4	4	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	174	174	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	1600	1600	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	4	4	0.0	No Limit
ES2334878-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	4	4	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	3	3	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	7	7	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	4	4	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5357091)									
ES2334701-001	SBT-GW-1002	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.106	0.107	1.4	0% - 20%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.014	0.015	0.0	0% - 50%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.043	0.043	0.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.044	0.043	0.0	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.194	0.197	1.5	0% - 20%
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	1.46	1.46	0.0	0% - 20%
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	0.25	0.25	0.0	No Limit
ES2334878-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit

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 (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5357091) - continued									
ES2334878-001	Anonymous	EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.374	0.371	1.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	0.76	0.76	0.0	0% - 50%
EG020T: Total Metals by ICP-MS (QC Lot: 5357117)									
ES2334537-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.1 µg/L	<0.0001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.008	0.008	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	13 µg/L	0.013	0.0	0% - 50%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<1 µg/L	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.277	0.276	0.6	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	75 µg/L	0.075	0.0	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	122 µg/L	0.125	2.3	0% - 20%
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.04	0.04	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.10	0.10	0.0	No Limit
ES2334653-007	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.152	0.151	0.0	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.02	0.02	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.79	0.78	1.7	0% - 50%
EG020T: Total Metals by ICP-MS (QC Lot: 5357119)									
ES2334701-004	SBT-GW-1024	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0002	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.024	0.024	0.0	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.459	0.462	0.7	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.021	0.022	0.0	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.098	0.113	13.8	0% - 20%
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.23	0.24	0.0	0% - 20%
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.42	0.44	4.4	No Limit
ES2334702-012	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

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 (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5357119) - continued									
ES2334702-012	Anonymous	EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5351417)									
ES2334692-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.06	0.08	26.7	No Limit
ES2334694-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5350940)									
ES2334598-023	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2334701-001	SBT-GW-1002	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5351418)									
ES2334692-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.63	0.64	2.3	0% - 20%
ES2334694-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.12	0.11	0.0	0% - 50%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5351422)									
ES2334692-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.1	1.1	0.0	No Limit
ES2334694-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.4	0.4	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5351421)									
ES2334692-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	1.56	1.52	2.7	0% - 50%
ES2334694-002	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.04	0.04	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5350941)									
ES2334701-001	SBT-GW-1002	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2334751-004	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP005: Total Organic Carbon (TOC) (QC Lot: 5354363)									
ES2334701-001	SBT-GW-1002	EP005: Total Organic Carbon	----	1	mg/L	13	15	18.6	0% - 50%
ES2334765-001	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	<1	<1	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 5350731)									
CA2306088-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit

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 (%)*
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 5350731) - continued									
CA2306088-001	Anonymous	EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES2334751-001	Anonymous	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 5350731)									
CA2306088-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
ES2334751-001	Anonymous	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 5350731)									
CA2306088-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES2334751-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 5350731)									
CA2306088-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
ES2334751-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5350731)									
CA2306088-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit

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 (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5350731) - continued									
CA2306088-001	Anonymous	EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
ES2334751-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit

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 (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5350731) - continued									
ES2334751-001	Anonymous	EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5350731)									
CA2306088-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
ES2334751-001	Anonymous	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5350731)									
CA2306088-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
ES2334751-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit

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 (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5350730)									
CA2306088-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2334751-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5350730)									
CA2306088-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2334751-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5350730)									
CA2306088-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2334751-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5351329)									
ES2334747-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.93	0.80	14.7	0% - 50%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.95	0.98	3.3	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	10.8	10.4	3.6	0% - 20%
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5351329)									
ES2334747-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	1.41	1.41	0.0	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	4.04	4.29	6.0	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.53	0.54	0.0	0% - 50%
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.2	<0.2	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5351329)									
ES2334747-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	0.52	0.50	4.1	0% - 50%
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	0.09	0.08	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	0.06	0.05	21.8	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 5353002)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	99.8	99.2	101
EA005P: pH by PC Titrator (QCLot: 5353005)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	99.8	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 5353001)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	102	89.9	110
				<1	2100 µS/cm	99.5	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5358385)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	98.4	87.0	109
				<10	293 mg/L	101	75.2	126
				<10	2470 mg/L	97.2	83.0	124
ED037P: Alkalinity by PC Titrator (QCLot: 5353003)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	99.9	81.0	115
				----	50 mg/L	106	80.0	120
ED037P: Alkalinity by PC Titrator (QCLot: 5353004)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	98.7	81.0	115
				----	50 mg/L	104	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5350942)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	100	82.0	122
				<1	500 mg/L	98.7	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5350943)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	101	80.9	127
				<1	1000 mg/L	103	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5357092)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	98.0	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	99.4	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.0	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	110	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5357091)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	93.9	80.0	116

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5357091) - continued								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.3	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.1	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	93.0	85.0	111
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	95.2	82.0	112
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.9	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.9	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	94.6	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.9	82.0	112
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	94.9	83.0	109
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.0	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	97.7	82.0	112
EG020T: Total Metals by ICP-MS (QCLot: 5357117)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	96.4	82.0	120
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.5	84.0	112
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	95.4	84.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.2	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	98.8	85.0	115
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	95.5	85.0	113
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.8	84.0	116
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	96.6	85.0	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.8	79.0	117
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	98.8	85.0	117
EG020T: Total Metals by ICP-MS (QCLot: 5357119)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	98.3	82.0	120
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.4	84.0	112
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	97.2	84.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.8	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	98.6	85.0	115
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	97.4	85.0	113
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.6	84.0	116
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	96.5	85.0	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	95.9	79.0	117
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	99.8	85.0	117
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5351417)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5351417) - continued								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	99.0	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5350940)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	99.8	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5351418)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	105	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5351422)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	89.3	69.0	101
				<0.1	1 mg/L	81.2	70.0	118
				<0.1	5 mg/L	90.8	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5351421)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	101	71.3	126
				<0.01	0.442 mg/L	94.4	71.3	126
				<0.01	1 mg/L	107	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5350941)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	103	85.0	117
EP005: Total Organic Carbon (TOC) (QCLot: 5354363)								
EP005: Total Organic Carbon	----	1	mg/L	<1	10 mg/L	97.9	72.0	120
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5350731)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	90.1	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	89.4	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	85.7	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	89.2	74.0	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	88.5	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	89.7	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	86.3	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	88.8	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	86.0	65.0	123
EP074B: Oxygenated Compounds (QCLot: 5350731)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	96.1	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	90.8	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	98.0	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	91.2	65.0	137
EP074C: Sulfonated Compounds (QCLot: 5350731)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	73.7	72.8	127

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074D: Fumigants (QCLot: 5350731)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	83.5	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	87.7	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	84.8	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	91.2	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	97.9	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5350731)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	67.4	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	75.0	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	74.6	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	78.7	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	79.0	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	78.6	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	76.7	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	70.2	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	79.9	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	91.7	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	86.6	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	81.1	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	84.0	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	77.7	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	94.5	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	83.2	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	91.5	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	95.2	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	97.3	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	85.5	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	86.8	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	88.0	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	95.5	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	102	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	102	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	83.8	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	93.4	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	90.3	58.0	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP074F: Halogenated Aromatic Compounds (QCLot: 5350731)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	90.6	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	88.1	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	90.5	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	90.7	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	92.2	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	93.4	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	93.7	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	91.9	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	97.4	67.0	123
EP074G: Trihalomethanes (QCLot: 5350731)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	89.3	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	86.0	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	85.3	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	87.6	73.5	126
EP075A: Phenolic Compounds (QCLot: 5350574)								
EP075: Phenol	108-95-2	2	µg/L	<2	10 µg/L	39.1	25.5	64.1
EP075: 2-Chlorophenol	95-57-8	2	µg/L	<2	10 µg/L	74.1	52.0	88.0
EP075: 2-Methylphenol	95-48-7	2	µg/L	<2	10 µg/L	69.9	50.0	94.0
EP075: 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2	10 µg/L	63.0	45.0	96.2
EP075: 2-Nitrophenol	88-75-5	2	µg/L	<2	10 µg/L	74.5	48.0	98.0
EP075: 2.4-Dimethylphenol	105-67-9	2	µg/L	<2	10 µg/L	73.7	50.0	94.0
EP075: 2.4-Dichlorophenol	120-83-2	2	µg/L	<2	10 µg/L	74.4	61.9	109
EP075: 2.6-Dichlorophenol	87-65-0	2	µg/L	<2	10 µg/L	78.5	61.5	108
EP075: 4-Chloro-3-methylphenol	59-50-7	2	µg/L	<2	10 µg/L	85.6	61.4	107
EP075: 2.4.6-Trichlorophenol	88-06-2	2	µg/L	<2	10 µg/L	81.7	57.6	112
EP075: 2.4.5-Trichlorophenol	95-95-4	2	µg/L	<2	10 µg/L	84.5	58.0	110
EP075: Pentachlorophenol	87-86-5	4	µg/L	<4	20 µg/L	83.4	12.8	95.0
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 5350574)								
EP075: Naphthalene	91-20-3	2	µg/L	<2	10 µg/L	77.7	51.0	95.0
EP075: 2-Methylnaphthalene	91-57-6	2	µg/L	<2	10 µg/L	78.4	59.0	108
EP075: 2-Chloronaphthalene	91-58-7	2	µg/L	<2	10 µg/L	69.9	60.6	106
EP075: Acenaphthylene	208-96-8	2	µg/L	<2	10 µg/L	80.5	64.0	108
EP075: Acenaphthene	83-32-9	2	µg/L	<2	10 µg/L	81.8	65.0	108
EP075: Fluorene	86-73-7	2	µg/L	<2	10 µg/L	79.3	65.2	107

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075B: Polynuclear Aromatic Hydrocarbons (QCLot: 5350574) - continued								
EP075: Phenanthrene	85-01-8	2	µg/L	<2	10 µg/L	85.2	66.7	108
EP075: Anthracene	120-12-7	2	µg/L	<2	10 µg/L	85.6	65.8	108
EP075: Fluoranthene	206-44-0	2	µg/L	<2	10 µg/L	83.7	64.9	109
EP075: Pyrene	129-00-0	2	µg/L	<2	10 µg/L	82.8	60.1	111
EP075: N-2-Fluorenyl Acetamide	53-96-3	2	µg/L	<2	10 µg/L	84.4	59.7	110
EP075: Benz(a)anthracene	56-55-3	2	µg/L	<2	10 µg/L	78.8	62.2	112
EP075: Chrysene	218-01-9	2	µg/L	<2	10 µg/L	81.6	59.3	114
EP075: Benzo(b+j) & Benzo(k)fluoranthene	205-99-2 207-08-9	4	µg/L	<4	20 µg/L	76.3	60.1	111
EP075: 7.12-Dimethylbenz(a)anthracene	57-97-6	2	µg/L	<2	10 µg/L	78.7	50.0	108
EP075: Benzo(a)pyrene	50-32-8	2	µg/L	<2	10 µg/L	74.1	59.2	112
EP075: 3-Methylcholanthrene	56-49-5	2	µg/L	<2	10 µg/L	94.6	60.1	110
EP075: Indeno(1.2.3.cd)pyrene	193-39-5	2	µg/L	<2	10 µg/L	89.7	59.6	110
EP075: Dibenz(a.h)anthracene	53-70-3	2	µg/L	<2	10 µg/L	89.6	57.2	109
EP075: Benzo(g.h.i)perylene	191-24-2	2	µg/L	<2	10 µg/L	89.2	60.6	110
EP075: Benzo(a)pyrene TEQ (zero)	----	2	µg/L	<2	----	----	----	----
EP075C: Phthalate Esters (QCLot: 5350574)								
EP075: Dimethyl phthalate	131-11-3	2	µg/L	<2	10 µg/L	89.8	64.3	112
EP075: Diethyl phthalate	84-66-2	2	µg/L	<2	10 µg/L	94.4	67.3	111
EP075: Di-n-butyl phthalate	84-74-2	2	µg/L	<2	10 µg/L	90.6	68.4	122
EP075: Butyl benzyl phthalate	85-68-7	2	µg/L	<2	10 µg/L	85.9	61.2	114
EP075: bis(2-ethylhexyl) phthalate	117-81-7	----	µg/L	----	10 µg/L	120	60.0	132
EP075: Di-n-octylphthalate	117-84-0	2	µg/L	<2	10 µg/L	84.5	62.1	115
EP075D: Nitrosamines (QCLot: 5350574)								
EP075: N-Nitrosomethylethylamine	10595-95-6	2	µg/L	<2	10 µg/L	65.8	46.0	110
EP075: N-Nitrosodiethylamine	55-18-5	2	µg/L	<2	10 µg/L	78.3	60.6	113
EP075: N-Nitrosopyrrolidine	930-55-2	4	µg/L	<4	10 µg/L	63.0	45.0	91.0
EP075: N-Nitrosomorpholine	59-89-2	2	µg/L	<2	10 µg/L	63.6	42.0	100
EP075: N-Nitrosodi-n-propylamine	621-64-7	2	µg/L	<2	10 µg/L	85.4	63.5	108
EP075: N-Nitrosopiperidine	100-75-4	2	µg/L	<2	10 µg/L	76.0	61.7	107
EP075: N-Nitrosodibutylamine	924-16-3	2	µg/L	<2	10 µg/L	# 111	62.5	108
EP075: N-Nitrosodiphenyl & Diphenylamine	86-30-6 122-39-4	4	µg/L	<4	20 µg/L	81.0	64.6	112
EP075: Methapyrilene	91-80-5	2	µg/L	<2	10 µg/L	34.9	23.3	125
EP075E: Nitroaromatics and Ketones (QCLot: 5350574)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075E: Nitroaromatics and Ketones (QCLot: 5350574) - continued								
EP075: 2-Picoline	109-06-8	2	µg/L	<2	10 µg/L	48.2	41.0	109
EP075: Acetophenone	98-86-2	2	µg/L	<2	10 µg/L	79.9	68.3	112
EP075: Nitrobenzene	98-95-3	2	µg/L	<2	10 µg/L	81.5	68.3	112
EP075: Isophorone	78-59-1	2	µg/L	<2	10 µg/L	83.8	67.6	111
EP075: 2.6-Dinitrotoluene	606-20-2	4	µg/L	<4	10 µg/L	87.3	64.4	113
EP075: 2.4-Dinitrotoluene	121-14-2	4	µg/L	<4	10 µg/L	88.8	59.5	109
EP075: 1-Naphthylamine	134-32-7	2	µg/L	<2	10 µg/L	79.2	46.8	102
EP075: 4-Nitroquinoline-N-oxide	56-57-5	2	µg/L	<2	10 µg/L	91.8	40.0	96.0
EP075: 5-Nitro-o-toluidine	99-55-8	2	µg/L	<2	10 µg/L	81.8	58.3	106
EP075: Azobenzene	103-33-3	2	µg/L	<2	10 µg/L	84.4	66.0	112
EP075: 1.3.5-Trinitrobenzene	99-35-4	2	µg/L	<2	10 µg/L	87.7	46.0	108
EP075: Phenacetin	62-44-2	2	µg/L	<2	10 µg/L	78.8	57.8	101
EP075: 4-Aminobiphenyl	92-67-1	2	µg/L	<2	10 µg/L	73.3	60.1	112
EP075: Pentachloronitrobenzene	82-68-8	2	µg/L	<2	10 µg/L	80.9	59.0	109
EP075: Pronamide	23950-58-5	2	µg/L	<2	10 µg/L	84.1	62.7	109
EP075: Dimethylaminoazobenzene	60-11-7	2	µg/L	<2	10 µg/L	76.0	59.4	108
EP075: Chlorobenzilate	510-15-6	2	µg/L	<2	10 µg/L	79.7	57.7	110
EP075F: Haloethers (QCLot: 5350574)								
EP075: Bis(2-chloroethyl) ether	111-44-4	2	µg/L	<2	10 µg/L	83.7	69.1	112
EP075: Bis(2-chloroethoxy) methane	111-91-1	2	µg/L	<2	10 µg/L	78.0	66.2	111
EP075: 4-Chlorophenyl phenyl ether	7005-72-3	2	µg/L	<2	10 µg/L	77.6	64.7	109
EP075: 4-Bromophenyl phenyl ether	101-55-3	2	µg/L	<2	10 µg/L	80.8	61.6	108
EP075G: Chlorinated Hydrocarbons (QCLot: 5350574)								
EP075: 1.4-Dichlorobenzene	106-46-7	2	µg/L	<2	10 µg/L	73.7	41.0	97.0
EP075: 1.3-Dichlorobenzene	541-73-1	2	µg/L	<2	10 µg/L	73.4	40.0	96.0
EP075: 1.2-Dichlorobenzene	95-50-1	2	µg/L	<2	10 µg/L	74.2	41.0	95.0
EP075: Hexachloroethane	67-72-1	2	µg/L	<2	10 µg/L	72.2	46.0	88.0
EP075: 1.2.4-Trichlorobenzene	120-82-1	2	µg/L	<2	10 µg/L	69.2	46.0	96.0
EP075: Hexachloropropylene	1888-71-7	2	µg/L	<2	10 µg/L	74.0	34.0	96.0
EP075: Hexachlorobutadiene	87-68-3	2	µg/L	<2	10 µg/L	74.0	37.4	100
EP075: Hexachlorocyclopentadiene	77-47-4	10	µg/L	<10	10 µg/L	76.8	23.5	107
EP075: Pentachlorobenzene	608-93-5	2	µg/L	<2	10 µg/L	75.8	64.5	107
EP075: Hexachlorobenzene (HCB)	118-74-1	4	µg/L	<4	10 µg/L	76.6	65.7	110
EP075H: Anilines and Benzidines (QCLot: 5350574)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075H: Anilines and Benzidines (QCLot: 5350574) - continued								
EP075: Aniline	62-53-3	2	µg/L	<2	10 µg/L	72.4	50.0	104
EP075: 4-Chloroaniline	106-47-8	2	µg/L	<2	10 µg/L	79.9	42.0	106
EP075: 2-Nitroaniline	88-74-4	4	µg/L	<4	10 µg/L	88.0	60.9	110
EP075: 3-Nitroaniline	99-09-2	4	µg/L	<4	10 µg/L	80.8	51.5	96.9
EP075: Dibenzofuran	132-64-9	2	µg/L	<2	10 µg/L	84.4	65.3	108
EP075: 4-Nitroaniline	100-01-6	2	µg/L	<2	10 µg/L	72.7	48.9	99.5
EP075: Carbazole	86-74-8	2	µg/L	<2	10 µg/L	88.4	64.3	107
EP075: 3.3`-Dichlorobenzidine	91-94-1	2	µg/L	<2	10 µg/L	83.5	60.3	119
EP075I: Organochlorine Pesticides (QCLot: 5350574)								
EP075: alpha-BHC	319-84-6	2	µg/L	<2	10 µg/L	82.7	64.3	110
EP075: beta-BHC	319-85-7	2	µg/L	<2	10 µg/L	88.8	53.0	107
EP075: gamma-BHC	58-89-9	2	µg/L	<2	10 µg/L	89.6	51.0	111
EP075: delta-BHC	319-86-8	2	µg/L	<2	10 µg/L	84.5	57.0	111
EP075: Heptachlor	76-44-8	2	µg/L	<2	10 µg/L	79.8	57.9	108
EP075: Aldrin	309-00-2	2	µg/L	<2	10 µg/L	80.7	56.0	112
EP075: Heptachlor epoxide	1024-57-3	2	µg/L	<2	10 µg/L	73.4	50.0	118
EP075: alpha-Endosulfan	959-98-8	2	µg/L	<2	10 µg/L	83.4	59.0	111
EP075: 4.4`-DDE	72-55-9	2	µg/L	<2	10 µg/L	78.9	53.0	115
EP075: Dieldrin	60-57-1	2	µg/L	<2	10 µg/L	76.7	59.0	115
EP075: Endrin	72-20-8	2	µg/L	<2	10 µg/L	73.4	58.0	114
EP075: beta-Endosulfan	33213-65-9	2	µg/L	<2	10 µg/L	80.0	54.0	116
EP075: 4.4`-DDD	72-54-8	2	µg/L	<2	10 µg/L	81.1	55.0	115
EP075: Endosulfan sulfate	1031-07-8	2	µg/L	<2	10 µg/L	84.2	52.8	114
EP075: 4.4`-DDT	50-29-3	4	µg/L	<4	10 µg/L	79.4	56.0	114
EP075: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	4	µg/L	<4	----	----	----	----
EP075: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	4	µg/L	<4	----	----	----	----
EP075J: Organophosphorus Pesticides (QCLot: 5350574)								
EP075: Dichlorvos	62-73-7	2	µg/L	<2	10 µg/L	93.8	51.0	113
EP075: Dimethoate	60-51-5	2	µg/L	<2	10 µg/L	82.8	43.0	109
EP075: Diazinon	333-41-5	2	µg/L	<2	10 µg/L	82.0	49.0	113
EP075: Chlorpyrifos-methyl	5598-13-0	2	µg/L	<2	10 µg/L	81.2	54.1	116
EP075: Malathion	121-75-5	2	µg/L	<2	10 µg/L	105	54.0	124
EP075: Fenthion	55-38-9	2	µg/L	<2	10 µg/L	80.5	57.0	115

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075J: Organophosphorus Pesticides (QCLot: 5350574) - continued								
EP075: Chlorpyrifos	2921-88-2	2	µg/L	<2	10 µg/L	83.7	53.0	109
EP075: Pirimphos-ethyl	23505-41-1	2	µg/L	<2	10 µg/L	84.7	55.0	111
EP075: Chlorfenvinphos	470-90-6	2	µg/L	<2	10 µg/L	86.8	50.0	116
EP075: Prothiofos	34643-46-4	2	µg/L	<2	10 µg/L	85.7	54.0	118
EP075: Ethion	563-12-2	2	µg/L	<2	10 µg/L	85.1	51.0	117
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5350573)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	66.6	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	88.6	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	93.7	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5350730)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	79.2	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5350573)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	64.5	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	78.0	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	84.8	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5350730)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	85.4	75.0	127
EP080: BTEXN (QCLot: 5350730)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.6	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	107	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	101	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	109	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	107	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	95.8	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5351329)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	86.6	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	106	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	95.1	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5351329)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	81.2	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	125	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	130

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5351329) - continued								
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	99.6	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5351329)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	85.1	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	80.3	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	85.7	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	72.9	71.4	144

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.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5350942)							
ES2334701-001	SBT-GW-1002	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5350943)							
ES2334701-001	SBT-GW-1002	ED045G: Chloride	16887-00-6	50 mg/L	# Not Determined	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5357091)							
ES2334701-004	SBT-GW-1024	EG020A-F: Arsenic	7440-38-2	1 mg/L	101	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	93.5	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	92.0	70.0	130
		EG020A-F: Cobalt	7440-48-4	1 mg/L	97.1	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	95.9	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	86.4	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	91.3	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	95.6	70.0	130
		EG020A-F: Vanadium	7440-62-2	1 mg/L	95.3	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	94.7	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5357117)							
ES2334534-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.25 mg/L	98.8	70.0	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	97.9	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	97.5	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	90.0	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	99.1	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020T: Total Metals by ICP-MS (QCLot: 5357117) - continued							
ES2334534-002	Anonymous	EG020A-T: Nickel	7440-02-0	1 mg/L	97.4	70.0	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	99.0	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	96.9	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5357119)							
ES2334701-005	SBT-GW-1805	EG020A-T: Cadmium	7440-43-9	0.25 mg/L	92.5	70.0	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	92.4	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	91.4	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	82.5	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	90.8	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	91.4	70.0	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	91.8	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	91.5	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5351417)							
ES2334692-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	111	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5350940)							
ES2334598-023	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	102	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5351418)							
ES2334692-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	122	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5351422)							
ES2334692-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	50 mg/L	96.9	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5351421)							
ES2334692-002	Anonymous	EK067G: Total Phosphorus as P	----	10 mg/L	103	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5350941)							
ES2334701-001	SBT-GW-1002	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	101	70.0	130
EP005: Total Organic Carbon (TOC) (QCLot: 5354363)							
ES2334701-004	SBT-GW-1024	EP005: Total Organic Carbon	----	100 mg/L	117	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5350731)							
CA2306088-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	76.5	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	87.0	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5350731)							
CA2306088-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	96.9	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5350730)							
CA2306088-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	104	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5350730)							
CA2306088-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	102	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080: BTEXN (QCLot: 5350730)							
CA2306088-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	97.6	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	110	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	100	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	130	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	123	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	94.1	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5351329)							
ES2334747-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	# Not Determined	72.0	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	88.0	68.0	131
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	106	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5351329)							
ES2334747-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	121	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	80.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	93.9	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	92.9	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	102	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5351329)							
ES2334747-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	93.5	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	85.6	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	76.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	118	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2334701**	Page	: 1 of 13
Amendment	: **2**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 10-Oct-2023
Site	:	Issue Date	: 15-Nov-2023
Sampler	: Alan Hillany, Emly Fuda	No. of samples received	: 8
Order number	: ----	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.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP075D: Nitrosamines	QC-5350574-002	----	**N-Nitrosodibutylamine**	924-16-3	111 %	62.5-108%	**Recovery greater than upper control limit**
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2334701--001	SBT-GW-1002	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED045G: Chloride by Discrete Analyser	ES2334701--001	SBT-GW-1002	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	ES2334747--001	Anonymous	**Perfluorobutane sulfonic acid (PFBS)**	375-73-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural							
SBT-GW-1002,	SBT-GW-1024,	----	----	----	11-Oct-2023	09-Oct-2023	**2**
SBT-GW-1805,	SBT-GW-1805-DUP01,						
SBT-GW-1805-TRIP01,	SBT-GW-1048						

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
	1				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	14	7.14	10.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Semivolatile Organic Compounds	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER** Evaluation: ✗ = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P)							
SBT-GW-1002, SBT-GW-1024, SBT-GW-1805, SBT-GW-1805-DUP01, SBT-GW-1805-TRIP01, SBT-GW-1048	**09-Oct-2023**	**----**	----	**----**	**11-Oct-2023**	09-Oct-2023	✗
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P)							
SBT-GW-1002, SBT-GW-1024, SBT-GW-1805, SBT-GW-1805-DUP01, SBT-GW-1805-TRIP01, SBT-GW-1048	**09-Oct-2023**	**----**	----	**----**	**11-Oct-2023**	06-Nov-2023	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H)							
SBT-GW-1002, SBT-GW-1024, SBT-GW-1805, SBT-GW-1805-DUP01, SBT-GW-1805-TRIP01, SBT-GW-1048	**09-Oct-2023**	**----**	----	**----**	**13-Oct-2023**	16-Oct-2023	✓
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
SBT-GW-1002, SBT-GW-1024, SBT-GW-1805, SBT-GW-1805-DUP01, SBT-GW-1805-TRIP01, SBT-GW-1048	**09-Oct-2023**	**----**	----	**----**	**11-Oct-2023**	23-Oct-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
SBT-GW-1002, SBT-GW-1024, SBT-GW-1805, SBT-GW-1805-DUP01, SBT-GW-1805-TRIP01, SBT-GW-1048	**09-Oct-2023**	**----**	----	**----**	**10-Oct-2023**	06-Nov-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
SBT-GW-1002, SBT-GW-1024, SBT-GW-1805, SBT-GW-1805-DUP01, SBT-GW-1805-TRIP01, SBT-GW-1048	**09-Oct-2023**	**----**	----	**----**	**10-Oct-2023**	06-Nov-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)							
SBT-GW-1002, SBT-GW-1024, SBT-GW-1805, SBT-GW-1805-DUP01, SBT-GW-1805-TRIP01, SBT-GW-1048	**09-Oct-2023**	**----**	----	----	**14-Oct-2023**	06-Nov-2023	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
SBT-GW-1002, SBT-GW-1024, SBT-GW-1805, SBT-GW-1805-DUP01, SBT-GW-1805-TRIP01, SBT-GW-1048	**09-Oct-2023**	**----**	----	----	**14-Oct-2023**	06-Apr-2024	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
SBT-GW-1002, SBT-GW-1024, SBT-GW-1805, SBT-GW-1805-DUP01, SBT-GW-1805-TRIP01, SBT-GW-1048	**09-Oct-2023**	**13-Oct-2023**	06-Apr-2024	✓	**13-Oct-2023**	06-Apr-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
SBT-GW-1002, SBT-GW-1024, SBT-GW-1805, SBT-GW-1805-DUP01, SBT-GW-1805-TRIP01, SBT-GW-1048	**09-Oct-2023**	**----**	----	----	**11-Oct-2023**	06-Nov-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G)							
SBT-GW-1002, SBT-GW-1024, SBT-GW-1805, SBT-GW-1805-DUP01, SBT-GW-1805-TRIP01, SBT-GW-1048	**09-Oct-2023**	**----**	----	----	**10-Oct-2023**	11-Oct-2023	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
SBT-GW-1002, SBT-GW-1024, SBT-GW-1805, SBT-GW-1805-DUP01, SBT-GW-1805-TRIP01, SBT-GW-1048	**09-Oct-2023**	**----**	----	----	**11-Oct-2023**	06-Nov-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
SBT-GW-1002, SBT-GW-1024, SBT-GW-1805, SBT-GW-1805-DUP01, SBT-GW-1805-TRIP01, SBT-GW-1048	**09-Oct-2023**	**11-Oct-2023**	06-Nov-2023	✓	**13-Oct-2023**	06-Nov-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
SBT-GW-1002, SBT-GW-1024, SBT-GW-1805, SBT-GW-1805-DUP01, SBT-GW-1805-TRIP01, SBT-GW-1048	**09-Oct-2023**	**11-Oct-2023**	06-Nov-2023	✓	**13-Oct-2023**	06-Nov-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G)							
SBT-GW-1002, SBT-GW-1024, SBT-GW-1805, SBT-GW-1805-DUP01, SBT-GW-1805-TRIP01, SBT-GW-1048	**09-Oct-2023**	**----**	----	----	**10-Oct-2023**	11-Oct-2023	✓
EP005: Total Organic Carbon (TOC)							
Amber TOC Vial - Sulfuric Acid (EP005)							
SBT-GW-1002, SBT-GW-1805, SBT-GW-1805-DUP01, SBT-GW-1805-TRIP01, SBT-GW-1048	**09-Oct-2023**	**----**	----	----	**13-Oct-2023**	06-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP005)							
SBT-GW-1024	**09-Oct-2023**	**----**	----	----	**13-Oct-2023**	06-Nov-2023	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074)							
SBT-GW-1024	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**17-Oct-2023**	23-Oct-2023	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074)							
SBT-GW-1024	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**17-Oct-2023**	23-Oct-2023	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074)							
SBT-GW-1024	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**17-Oct-2023**	23-Oct-2023	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074)							
SBT-GW-1024	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**17-Oct-2023**	23-Oct-2023	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074)							
SBT-GW-1024	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**17-Oct-2023**	23-Oct-2023	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074)							
SBT-GW-1024	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**17-Oct-2023**	23-Oct-2023	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074)							
SBT-GW-1024	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**17-Oct-2023**	23-Oct-2023	✓
EP075A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075)							
SBT-GW-1024	**09-Oct-2023**	**11-Oct-2023**	16-Oct-2023	✓	**15-Oct-2023**	20-Nov-2023	✓
EP075B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075)							
SBT-GW-1024	**09-Oct-2023**	**11-Oct-2023**	16-Oct-2023	✓	**15-Oct-2023**	20-Nov-2023	✓
EP075C: Phthalate Esters							
Amber Glass Bottle - Unpreserved (EP075)							
SBT-GW-1024	**09-Oct-2023**	**11-Oct-2023**	16-Oct-2023	✓	**15-Oct-2023**	20-Nov-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075D: Nitrosamines							
Amber Glass Bottle - Unpreserved (EP075)							
SBT-GW-1024	**09-Oct-2023**	**11-Oct-2023**	16-Oct-2023	✓	**15-Oct-2023**	20-Nov-2023	✓
EP075E: Nitroaromatics and Ketones							
Amber Glass Bottle - Unpreserved (EP075)							
SBT-GW-1024	**09-Oct-2023**	**11-Oct-2023**	16-Oct-2023	✓	**15-Oct-2023**	20-Nov-2023	✓
EP075F: Haloethers							
Amber Glass Bottle - Unpreserved (EP075)							
SBT-GW-1024	**09-Oct-2023**	**11-Oct-2023**	16-Oct-2023	✓	**15-Oct-2023**	20-Nov-2023	✓
EP075G: Chlorinated Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075)							
SBT-GW-1024	**09-Oct-2023**	**11-Oct-2023**	16-Oct-2023	✓	**15-Oct-2023**	20-Nov-2023	✓
EP075H: Anilines and Benzidines							
Amber Glass Bottle - Unpreserved (EP075)							
SBT-GW-1024	**09-Oct-2023**	**11-Oct-2023**	16-Oct-2023	✓	**15-Oct-2023**	20-Nov-2023	✓
EP075I: Organochlorine Pesticides							
Amber Glass Bottle - Unpreserved (EP075)							
SBT-GW-1024	**09-Oct-2023**	**11-Oct-2023**	16-Oct-2023	✓	**15-Oct-2023**	20-Nov-2023	✓
EP075J: Organophosphorus Pesticides							
Amber Glass Bottle - Unpreserved (EP075)							
SBT-GW-1024	**09-Oct-2023**	**11-Oct-2023**	16-Oct-2023	✓	**15-Oct-2023**	20-Nov-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
SBT-GW-1024	**09-Oct-2023**	**11-Oct-2023**	16-Oct-2023	✓	**11-Oct-2023**	20-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
SBT-GW-1024	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**17-Oct-2023**	23-Oct-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
SBT-GW-1024	**09-Oct-2023**	**11-Oct-2023**	16-Oct-2023	✓	**11-Oct-2023**	20-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
SBT-GW-1024	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**17-Oct-2023**	23-Oct-2023	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
SBT-GW-1024	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**17-Oct-2023**	23-Oct-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
SBT-GW-1024	**09-Oct-2023**	**11-Oct-2023**	06-Apr-2024	✓	**13-Oct-2023**	06-Apr-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
SBT-GW-1024	**09-Oct-2023**	**11-Oct-2023**	06-Apr-2024	✓	**13-Oct-2023**	06-Apr-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
SBT-GW-1024	**09-Oct-2023**	**11-Oct-2023**	06-Apr-2024	✓	**13-Oct-2023**	06-Apr-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
SBT-GW-1024	**09-Oct-2023**	**11-Oct-2023**	06-Apr-2024	✓	**13-Oct-2023**	06-Apr-2024	✓

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)							
Alkalinity by Auto Titrator	ED037-P	3	21	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	5	42	**11.90**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	3	23	**13.04**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	4	38	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	4	21	**19.05**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	42	**9.52**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	4	23	**17.39**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	40	**12.50**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard

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 Control Samples (LCS) - Continued							
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	42	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Organic Compounds	EP075	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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*	
Matrix Spikes (MS) - Continued							
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	17	**5.88**	**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
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Total Organic Carbon	EP005	WATER	In house: Referenced to APHA 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
Semivolatile Organic Compounds	EP075	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
☐NEWCASTLE 5/585 Maitland Rd Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com
☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: CPBG	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	Standard TAT: 17/10/2023	FOR LABORATORY USE ONLY (Circle)
OFFICE: 14 Great Western HWY, Werrington 2747		~~Non Standard or urgent TAT (List due date):~~	Custody Seal Intact? Yes No N/A
PROJECT: WSA SBT Project	ALS QUOTE NO.:	ES23CPBGHE0004	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER:		COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Emma Kline	CONTACT PH:	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Emily Fuda (EF) / Alan Hillany (AH)	SAMPLER MOBILE: 0412656685		
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):		
Email Reports to: Emily.Fuda@cpbg-sbt.com.au; Jack.Brennan@cpbg-sbt.com.au			
Email Invoice to (will default to PM if no other addresses are listed): enviro.sbt@cpbg-sbt.com.au			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME:	DATE/TIME: 10/10/23 10a	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	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
					Green (P)	Purple (G)	Purple (P)	Red (P)	Red (P)	Purple (G)	Purple (G)	Purple (G)	Orange (G)	Grey (P)			
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	EA005, EA010, EA015, EP005, NT-01, NT-02	EP005	NT-08a	EG020F	EG020T	W-9 (VOC only)	W-9 (TRH only)	W-9 (TRH/BTEXN)	EP075	EP231		
	SBT-GW-1002 1	9/10/2023	W		5	X	X	X	X	X							
	SBT-GW-1803 2	9/10/2023	W		5	X	X	X	X	X							
	SMGW-BH-A401 3	9/10/2023	W		9	X	X	X	X	X			XX		XX		
	SBT-GW-1024 4	9/10/2023	W		10	X	X	X	X	X			XX	X	XX		
	SBT-GW-1805 5	9/10/2023	W		5	X	X	X	X	X							
	SBT-GW-1805-DUP01 6	9/10/2023	W		5	X	X	X	X	X					XX		
	SBT-GW-1805-TRI01 7	9/10/2023	W		5	X	X	X	X	X					XX		
	SBT-GW-1048 8	9/10/2023	W		5	X	X	X	X	X							
TOTAL					49												

HT

Environmental Division Sydney
Work Order Reference
ES2334701

Telephone : +61-2-8784 8555

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	: **ES2334804**	Page	: 1 of 5
Amendment	: **1**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: CHRISTOPHER BLYTH	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 10-Oct-2023 15:30
Order number	: ----	Date Analysis Commenced	: 11-Oct-2023
C-O-C number	: ----	Issue Date	: 15-Nov-2023 14:25
Sampler	: Alan, EMILY FUDA		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 1		
No. of samples analysed	: 1		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

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.

- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EG020: It is recognised that total concentration is less than dissolved for some metal analytes. However, the difference is within experimental variation of the methods.
- TDS by method EA-015 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- Amendment (15/11/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020T and EG020F for all samples.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1803	----	----	----	----
				Sampling date / time	09-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2334804-001	--------	--------	--------	--------
					Result	----	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**7.62**	----	----	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**25000**	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		**21700**	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**267**	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**267**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**263**	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**9490**	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**895**	----	----	----	----
Magnesium	7439-95-4	1	mg/L		**483**	----	----	----	----
Sodium	7440-23-5	1	mg/L		**4260**	----	----	----	----
Potassium	7440-09-7	1	mg/L		**45**	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		<0.01	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		**0.0004**	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		**0.029**	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.004**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**0.335**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.035**	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.067**	----	----	----	----
Iron	7439-89-6	0.05	mg/L		<0.05	----	----	----	----
EG020T: Total Metals by ICP-MS									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1803	----	----	----	----
				Sampling date / time	09-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2334804-001	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS - Continued									
Aluminium	7429-90-5	0.01	mg/L		**0.84**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		**0.0003**	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		**0.036**	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.010**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		**0.003**	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**0.417**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.039**	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.084**	----	----	----	----
Iron	7439-89-6	0.05	mg/L		**2.75**	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.09**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**4.51**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**4.51**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**0.5**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**5.0**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.09**	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.01	----	----	----	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**278**	----	----	----	----
ø Total Cations	----	0.01	meq/L		**271**	----	----	----	----
ø Ionic Balance	----	0.01	%		**1.39**	----	----	----	----
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		**4**	----	----	----	----

QUALITY CONTROL REPORT

Work Order	: **ES2334804**	Page	: 1 of 8
Amendment	: **1**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: CHRISTOPHER BLYTH	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 10-Oct-2023
Order number	: ----	Date Analysis Commenced	: 11-Oct-2023
C-O-C number	: ----	Issue Date	: 15-Nov-2023
Sampler	: Alan, EMILY FUDA		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 1		
No. of samples analysed	: 1		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

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 (%)*
EA005P: pH by PC Titrator (QC Lot: 5356120)									
ES2334757-004	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.97	8.09	1.5	0% - 20%
ES2334694-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.68	8.01	4.2	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5356118)									
ES2334757-004	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	963	962	0.1	0% - 20%
ES2334795-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1090	1100	1.2	0% - 20%
ES2334499-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1920	1890	1.8	0% - 20%
ES2334694-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	308	303	1.4	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5360250)									
ES2334571-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	146	154	5.4	0% - 50%
ES2334571-011	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	43	45	4.5	No Limit
ES2334857-003	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	30	31	4.9	No Limit
ED037P: Alkalinity by PC Titrator (QC Lot: 5356119)									
ES2334499-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	324	328	0.9	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	324	328	0.9	0% - 20%
ES2334694-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	124	126	1.7	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	124	126	1.7	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5353379)									
ES2334645-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	853	860	0.8	0% - 20%
ES2334646-008	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	576	578	0.3	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 (%)*
ED045G: Chloride by Discrete Analyser (QC Lot: 5353380)									
ES2334645-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1100	1110	1.2	0% - 20%
ES2334646-008	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	565	567	0.4	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5357085)									
ES2334231-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	7	7	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	2	2	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	5	5	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	4	4	0.0	No Limit
ES2334499-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	198	197	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	110	109	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	117	118	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	3	3	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5357084)									
ES2334231-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.010	0.010	0.0	0% - 50%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.176	0.178	1.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.128	0.128	0.0	0% - 20%
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.36	0.36	0.0	0% - 20%
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	0.82	0.83	1.5	0% - 50%
ES2334499-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.700	0.702	0.3	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.004	0.005	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	6.83	6.84	0.2	0% - 20%
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	5.05	5.00	1.0	0% - 20%
EG020T: Total Metals by ICP-MS (QC Lot: 5357129)									
ES2334820-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.135	0.135	0.0	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 (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5357129) - continued									
ES2334820-005	Anonymous	EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.007	0.007	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
ES2334694-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.038	0.037	4.1	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.020	0.020	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.12	0.12	0.0	0% - 50%
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.51	0.52	0.0	0% - 50%
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5354862)									
ES2334764-008	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	196	192	2.0	0% - 20%
ES2334815-006	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.02	0.02	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5353381)									
ES2334645-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2334646-008	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.23	0.22	0.0	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5354863)									
ES2334764-008	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.10	<0.10	0.0	No Limit
ES2334815-006	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5354868)									
ES2334815-006	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	<0.1	0.0	No Limit
ES2334781-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	4.3	4.6	5.8	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5354867)									
ES2334815-006	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.07	0.07	0.0	No Limit
ES2334781-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.07	0.06	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5353382)									
ES2334712-006	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.06	0.06	0.0	No Limit
ES2334804-001	SBT-GW-1803	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP005: Total Organic Carbon (TOC) (QC Lot: 5354364)									
ES2334783-004	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	12	14	15.2	0% - 50%
ES2334815-006	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	1	<1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 5356120)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 5356118)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	97.4	89.9	110
				<1	2100 µS/cm	106	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5360250)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	97.1	87.0	109
				<10	293 mg/L	105	75.2	126
				<10	2470 mg/L	94.6	83.0	124
ED037P: Alkalinity by PC Titrator (QCLot: 5356119)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	99.4	81.0	115
				----	50 mg/L	104	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5353379)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	97.6	82.0	122
				<1	500 mg/L	95.5	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5353380)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	92.4	80.9	127
				<1	1000 mg/L	103	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5357085)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	98.6	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	102	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	102	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	111	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5357084)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	95.9	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.8	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.4	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.9	85.0	111
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	95.7	82.0	112
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.3	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.7	83.0	111

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5357084) - continued								
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	96.9	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.4	82.0	112
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	95.3	83.0	109
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.0	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	98.6	82.0	112
EG020T: Total Metals by ICP-MS (QCLot: 5357129)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	105	82.0	120
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.7	84.0	112
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	94.9	84.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.8	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.8	85.0	115
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	96.5	85.0	113
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.9	84.0	116
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	96.7	85.0	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.0	79.0	117
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	107	85.0	117
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5354862)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	95.2	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5353381)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	98.4	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5354863)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	98.8	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5354868)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	87.1	69.0	101
				<0.1	1 mg/L	91.0	70.0	118
				<0.1	5 mg/L	115	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5354867)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	93.8	71.3	126
				<0.01	0.442 mg/L	93.6	71.3	126
				<0.01	1 mg/L	116	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5353382)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	103	85.0	117
EP005: Total Organic Carbon (TOC) (QCLot: 5354364)								
EP005: Total Organic Carbon	----	1	mg/L	<1	10 mg/L	100	72.0	120

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.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5353379)							
ES2334645-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5353380)							
ES2334645-001	Anonymous	ED045G: Chloride	16887-00-6	50 mg/L	# Not Determined	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5357084)							
ES2334231-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	99.6	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	97.6	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	96.6	70.0	130
		EG020A-F: Cobalt	7440-48-4	1 mg/L	97.6	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	96.8	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	90.1	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	97.5	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	97.4	70.0	130
		EG020A-F: Vanadium	7440-62-2	1 mg/L	97.8	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	97.4	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5357129)							
ES2334694-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.25 mg/L	97.4	70.0	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	95.2	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	95.6	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	97.5	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	98.7	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	97.0	70.0	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	97.9	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	94.4	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5354862)							
ES2334764-008	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	# Not Determined	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5353381)							
ES2334645-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	101	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5354863)							
ES2334764-008	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	94.1	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5354868)							
ES2334781-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	82.6	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5354867)							
ES2334781-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	106	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5353382)							
ES2334712-006	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	104	70.0	130
EP005: Total Organic Carbon (TOC) (QCLot: 5354364)							
ES2334783-005	Anonymous	EP005: Total Organic Carbon	----	100 mg/L	114	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2334804**	Page	: 1 of 7
Amendment	: **1**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: CHRISTOPHER BLYTH	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 10-Oct-2023
Site	:	Issue Date	: 15-Nov-2023
Sampler	: Alan, EMILY FUDA	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

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.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2334645--001	Anonymous	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED045G: Chloride by Discrete Analyser	ES2334645--001	Anonymous	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK055G: Ammonia as N by Discrete Analyser	ES2334764--008	Anonymous	**Ammonia as N**	7664-41-7	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural SBT-GW-1803	----	----	----	12-Oct-2023	09-Oct-2023	**3**

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P) SBT-GW-1803	**09-Oct-2023**	**----**	----	----	**12-Oct-2023**	09-Oct-2023	×
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P) SBT-GW-1803	**09-Oct-2023**	**----**	----	----	**12-Oct-2023**	06-Nov-2023	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H) SBT-GW-1803	**09-Oct-2023**	**----**	----	----	**14-Oct-2023**	16-Oct-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
SBT-GW-1803	**09-Oct-2023**	**----**	----	**----**	**12-Oct-2023**	23-Oct-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
SBT-GW-1803	**09-Oct-2023**	**----**	----	**----**	**11-Oct-2023**	06-Nov-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
SBT-GW-1803	**09-Oct-2023**	**----**	----	**----**	**11-Oct-2023**	06-Nov-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)							
SBT-GW-1803	**09-Oct-2023**	**----**	----	**----**	**14-Oct-2023**	06-Nov-2023	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
SBT-GW-1803	**09-Oct-2023**	**----**	----	**----**	**14-Oct-2023**	06-Apr-2024	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
SBT-GW-1803	**09-Oct-2023**	**13-Oct-2023**	06-Apr-2024	✓	**13-Oct-2023**	06-Apr-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
SBT-GW-1803	**09-Oct-2023**	**----**	----	**----**	**12-Oct-2023**	06-Nov-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G)							
SBT-GW-1803	**09-Oct-2023**	**----**	----	**----**	**11-Oct-2023**	11-Oct-2023	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
SBT-GW-1803	**09-Oct-2023**	**----**	----	**----**	**12-Oct-2023**	06-Nov-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
SBT-GW-1803	**09-Oct-2023**	**12-Oct-2023**	06-Nov-2023	✓	**13-Oct-2023**	06-Nov-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
SBT-GW-1803	**09-Oct-2023**	**12-Oct-2023**	06-Nov-2023	✓	**13-Oct-2023**	06-Nov-2023	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G)							
SBT-GW-1803	**09-Oct-2023**	**----**	----	**----**	**11-Oct-2023**	11-Oct-2023	✓
EP005: Total Organic Carbon (TOC)							
Amber TOC Vial - Sulfuric Acid (EP005)							
SBT-GW-1803	**09-Oct-2023**	**----**	----	**----**	**13-Oct-2023**	06-Nov-2023	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	26	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	3	28	**10.71**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	26	**11.54**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	28	**17.86**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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*	
Method Blanks (MB) - Continued							
Conductivity by Auto Titrator	EA010-P	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	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
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Total Organic Carbon	EP005	WATER	In house: Referenced to APHA 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5/585 Maitland Rd Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: CPBG	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	Standard TAT: **17/10/2023**	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: 14 Great Western HWY, Werrington 2747		~~Non Standard or urgent TAT (List due date):~~	Custody Seal Intact? Yes No N/A
PROJECT: WSA SBT Project	**ALS QUOTE NO.:**	ES23CPBGHE0004	Free Ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER:			Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Emma Kline	**CONTACT PH:**		Other comment:
SAMPLER: Emily Fuda (EF) / Alan Hillany (AH)	**SAMPLER MOBILE:** 0412656685		
COC emailed to ALS? (YES / NO)	**EDD FORMAT (or default):**		
Email Reports to: Emily.Fuda@cpbg-sbt.com.au; Jack.Brennan@cpbg-sbt.com.au			
Email Invoice to (will default to PM if no other addresses are listed): enviro.sbt@cpbg-sbt.com.au			

COC SEQUENCE NUMBER (Circle)

COC:	1	2	3	4	5	6	7
OF:	1	2	3	4	5	6	7

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME:	DATE/TIME: 10/10/23 1530	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	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
						Green (P)	Purple (G)	Purple (P)	Red (P)	Red (P)	Purple (G)	Purple (G)	Purple (G)	Orange (G)	Grey (P)				
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL CONTAINERS	EA005, EA010, EA015, EP005, NT-01, NT-02	EP005	NT-08a	EG020F	EG020T	W-9 (VOC only)	W-9 (TRH only)	W-9 (TRH/BTEXN)	EP075	EP231				HT
1	SBT-GW-1803	9/10/2023	W		5	X	X	X	X	X									Sample ID meant to be included in the morning pick up 101023 from Cro
TOTAL					5														

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 P
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Environmental Division
Sydney
Work Order Reference
ES2334804

Telephone : + 61-2-8784 8555

CERTIFICATE OF ANALYSIS

Work Order	: **ES2335481**	Page	: 1 of 5
Amendment	: **3**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 13-Oct-2023 18:45
Order number	: ----	Date Analysis Commenced	: 13-Oct-2023
C-O-C number	: ----	Issue Date	: 21-Nov-2023 12:36
Sampler	: ----		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 1		
No. of samples analysed	: 1		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

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.

- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Amendment (08/11/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020T and EG020F for all samples.
- Amendment (15/11/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020F for all samples.
- Amendment (21/11/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020T for all samples.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-3006	----	----	----	----
				Sampling date / time	[13-Oct-2023]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2335481-001	--------	--------	--------	--------
					Result	----	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**7.90**	----	----	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**1090**	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		**648**	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**88**	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**88**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**198**	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**196**	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**28**	----	----	----	----
Magnesium	7439-95-4	1	mg/L		**11**	----	----	----	----
Sodium	7440-23-5	1	mg/L		**173**	----	----	----	----
Potassium	7440-09-7	1	mg/L		**4**	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.03**	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L		**0.002**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-3006	----	----	----	----
				Sampling date / time	[13-Oct-2023]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2335481-001	--------	--------	--------	--------
					Result	----	----	----	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Manganese	7439-96-5	0.001	mg/L		**0.070**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
Iron	7439-89-6	0.05	mg/L		<0.05	----	----	----	----
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**2.41**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		**0.019**	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		**0.006**	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.015**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		**0.008**	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**0.242**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.007**	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.040**	----	----	----	----
Iron	7439-89-6	0.05	mg/L		**4.42**	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.03**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**0.06**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.06**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**2.7**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-3006	----	----	----	----
				Sampling date / time	[13-Oct-2023]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2335481-001	--------	--------	--------	--------
					Result	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ **Total Nitrogen as N**	----	0.1	mg/L		**2.8**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.55**	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.01	----	----	----	----
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**11.4**	----	----	----	----
ø **Total Cations**	----	0.01	meq/L		**9.93**	----	----	----	----
ø **Ionic Balance**	----	0.01	%		**6.93**	----	----	----	----
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		**6**	----	----	----	----

QUALITY CONTROL REPORT

Work Order	: **ES2335481**	Page	: 1 of 9
Amendment	: **3**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 13-Oct-2023
Order number	: ----	Date Analysis Commenced	: 13-Oct-2023
C-O-C number	: ----	Issue Date	: 21-Nov-2023
Sampler	: ----		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 1		
No. of samples analysed	: 1		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

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
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

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 (%)*
EA005P: pH by PC Titrator (QC Lot: 5360035)									
ES2335372-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.51	7.57	0.8	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5360034)									
ES2335372-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	2750	2760	0.5	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5363914)									
ES2335023-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	9280	8940	3.7	0% - 20%
ES2335083-003	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	64	57	10.8	No Limit
ES2335203-006	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	92	95	3.2	No Limit
ES2335481-001	SBT-GW-3006	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	648	702	8.1	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5360037)									
ES2335481-001	SBT-GW-3006	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	88	80	9.3	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	88	80	9.3	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5360512)									
ES2334193-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	177	178	0.0	0% - 20%
ES2335428-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2100	2150	2.3	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5360513)									
ES2334193-002	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	468	461	1.5	0% - 20%
ES2335383-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	<1	<1	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 5363871)									

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED093F: Dissolved Major Cations (QC Lot: 5363871) - continued									
ES2335175-011	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	176	176	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	239	237	1.1	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	1630	1620	0.8	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	1770	1690	4.4	0% - 20%
ES2335175-022	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	250	248	0.7	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	256	254	0.6	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	1290	1280	0.8	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	40	40	0.0	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5363870)									
ES2335175-011	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.023	0.023	0.0	0% - 20%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	8.16	8.04	1.4	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.011	0.011	0.0	0% - 50%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	0.34	0.34	0.0	No Limit
ES2335175-022	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.011	0.010	0.0	0% - 50%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.423	0.421	0.5	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.008	0.008	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.05	0.05	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 5363843)									
ES2335216-010	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0002	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.017	0.017	0.0	0% - 50%
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.008	0.008	0.0	No Limit

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 (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5363843) - continued									
ES2335216-010	Anonymous	EG020A-T: Copper	7440-50-8	0.001	mg/L	0.114	0.115	0.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.077	0.081	4.6	0% - 20%
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.203	0.201	0.8	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.021	0.022	0.0	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.812	0.820	0.9	0% - 20%
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	9.10	9.01	1.1	0% - 20%
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	0.02	0.02	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	8.79	8.81	0.3	0% - 20%
ES2335385-008	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	1.05	1.05	0.2	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.041	0.040	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.03	0.03	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	26.8	27.0	0.5	0% - 20%
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5360553)									
ES2335481-001	SBT-GW-3006	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.03	0.03	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5360514)									
ES2334912-009	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2335428-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	6.15	6.18	0.5	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5360552)									
ES2335291-008	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	1.51	1.51	0.0	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5360570)									
ES2335481-001	SBT-GW-3006	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (1.0)*	mg/L	2.7	2.2	23.7	No Limit
ES2335223-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (1.0)*	mg/L	58.2	54.8	6.1	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5360569)									
ES2335481-001	SBT-GW-3006	EK067G: Total Phosphorus as P	----	0.01 (0.10)*	mg/L	0.55	0.47	16.7	No Limit
ES2335223-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01 (0.10)*	mg/L	14.3	14.8	3.7	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5360516)									
EW2304570-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	4.17	4.13	0.9	0% - 20%
ES2335383-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP005: Total Organic Carbon (TOC) (QC Lot: 5360791)									
ES2335448-002	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	6	6	0.0	No Limit

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 (%)*
EP005: Total Organic Carbon (TOC) (QC Lot: 5360791) - continued									
ME2301878-009	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	5	4	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 5360035)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 5360034)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	103	89.9	110
				<1	2100 µS/cm	99.9	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5363914)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	96.2	87.0	109
				<10	293 mg/L	103	75.2	126
				<10	2470 mg/L	98.8	83.0	124
ED037P: Alkalinity by PC Titrator (QCLot: 5360037)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	101	81.0	115
				----	50 mg/L	91.9	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5360512)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	97.5	82.0	122
				<1	500 mg/L	103	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5360513)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	101	80.9	127
				<1	1000 mg/L	111	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5363871)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	101	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	99.2	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.0	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	103	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5363870)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	103	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.0	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.8	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	93.8	85.0	111
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	95.2	82.0	112
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	92.7	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.9	83.0	111

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5363870) - continued								
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	92.8	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.4	82.0	112
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	94.7	83.0	109
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	95.8	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	95.6	82.0	112
EG020T: Total Metals by ICP-MS (QCLot: 5363843)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	101	82.0	120
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.1	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.5	86.0	116
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	96.6	84.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.2	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.3	85.0	115
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	94.7	85.0	113
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.8	84.0	116
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	98.5	85.0	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.1	79.0	117
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	98.7	85.0	117
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5360553)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	106	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5360514)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	103	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5360552)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	103	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5360570)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	85.5	69.0	101
				<0.1	1 mg/L	93.8	70.0	118
				<0.1	5 mg/L	86.4	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5360569)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	86.6	71.3	126
				<0.01	0.442 mg/L	97.3	71.3	126
				<0.01	1 mg/L	94.4	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5360516)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	101	85.0	117
EP005: Total Organic Carbon (TOC) (QCLot: 5360791)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP005: Total Organic Carbon (TOC) (QCLot: 5360791) - continued								
EP005: Total Organic Carbon	----	1	mg/L	<1	10 mg/L	103	72.0	120

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.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5360512)							
ES2334193-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5360513)							
ES2334193-002	Anonymous	ED045G: Chloride	16887-00-6	50 mg/L	# Not Determined	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5363870)							
ES2335175-012	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	98.3	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	97.3	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	93.7	70.0	130
		EG020A-F: Cobalt	7440-48-4	1 mg/L	99.3	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	91.2	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	91.0	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	92.2	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	97.5	70.0	130
		EG020A-F: Vanadium	7440-62-2	1 mg/L	95.7	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	96.3	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5363843)							
ES2335216-011	Anonymous	EG020A-T: Cadmium	7440-43-9	0.25 mg/L	102	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	98.7	70.0	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	104	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	104	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	103	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	98.7	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	103	70.0	130
		EG020A-T: Vanadium	7440-62-2	1 mg/L	101	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	103	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5360553)							
ES2335481-001	SBT-GW-3006	EK055G: Ammonia as N	7664-41-7	1 mg/L	103	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5360514)							
ES2334912-009	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	102	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5360552)							
ES2335291-008	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	112	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5360570)							
ES2335225-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	# Not Determined	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5360569)							
ES2335225-001	Anonymous	EK067G: Total Phosphorus as P	----	2 mg/L	93.0	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5360516)							
ES2335383-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	98.6	70.0	130
EP005: Total Organic Carbon (TOC) (QCLot: 5360791)							
ES2335448-003	Anonymous	EP005: Total Organic Carbon	----	100 mg/L	112	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2335481**	Page	: 1 of 7
Amendment	: **3**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: EMMA KLINE	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 13-Oct-2023
Site	:	Issue Date	: 21-Nov-2023
Sampler	: ----	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

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.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **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.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2334193--002	Anonymous	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED045G: Chloride by Discrete Analyser	ES2334193--002	Anonymous	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser	ES2335225--001	Anonymous	**Total Kjeldahl Nitrogen as N**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P) SBT-GW-3006	**13-Oct-2023**	**----**	----	**----**	**13-Oct-2023**	13-Oct-2023	✓
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P) SBT-GW-3006	**13-Oct-2023**	**----**	----	**----**	**13-Oct-2023**	10-Nov-2023	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H) SBT-GW-3006	**13-Oct-2023**	**----**	----	**----**	**17-Oct-2023**	20-Oct-2023	✓
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) SBT-GW-3006	**13-Oct-2023**	**----**	----	**----**	**13-Oct-2023**	27-Oct-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) SBT-GW-3006	**13-Oct-2023**	**----**	----	**----**	**14-Oct-2023**	10-Nov-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) SBT-GW-3006	**13-Oct-2023**	**----**	----	**----**	**14-Oct-2023**	10-Nov-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)							
SBT-GW-3006	**13-Oct-2023**	**----**	----	**----**	**17-Oct-2023**	10-Nov-2023	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
SBT-GW-3006	**13-Oct-2023**	**----**	----	**----**	**17-Oct-2023**	10-Apr-2024	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
SBT-GW-3006	**13-Oct-2023**	**17-Oct-2023**	10-Apr-2024	✓	**17-Oct-2023**	10-Apr-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Amber VOC Vial - Sulfuric Acid (EK055G)							
SBT-GW-3006	**13-Oct-2023**	**----**	----	**----**	**14-Oct-2023**	14-Oct-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G)							
SBT-GW-3006	**13-Oct-2023**	**----**	----	**----**	**14-Oct-2023**	15-Oct-2023	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Amber VOC Vial - Sulfuric Acid (EK059G)							
SBT-GW-3006	**13-Oct-2023**	**----**	----	**----**	**14-Oct-2023**	10-Nov-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
SBT-GW-3006	**13-Oct-2023**	**14-Oct-2023**	10-Nov-2023	✓	**14-Oct-2023**	10-Nov-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
SBT-GW-3006	**13-Oct-2023**	**14-Oct-2023**	10-Nov-2023	✓	**14-Oct-2023**	10-Nov-2023	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G)							
SBT-GW-3006	**13-Oct-2023**	**----**	----	**----**	**14-Oct-2023**	15-Oct-2023	✓
EP005: Total Organic Carbon (TOC)							
Amber VOC Vial - Sulfuric Acid (EP005)							
SBT-GW-3006	**13-Oct-2023**	**----**	----	**----**	**17-Oct-2023**	10-Nov-2023	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	1	**200.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	5	**40.00**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	6	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	40	**12.50**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	17	**17.65**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	16	**18.75**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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*	
Method Blanks (MB) - Continued							
Conductivity by Auto Titrator	EA010-P	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	16	**6.25**	**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
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Total Organic Carbon	EP005	WATER	In house: Referenced to APHA 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

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☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

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☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: CPBG	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: 14 Great Western HWY, Werrington 2747		X Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes No N/A
PROJECT: WSA SBT Project	**ALS QUOTE NO.:** ES23CPBGHE0004	**COC SEQUENCE NUMBER (Circle)**	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER:		COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Emma Kline	**CONTACT PH:**	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER:	**SAMPLER MOBILE:**	**RELINQUISHED BY:**	**RECEIVED BY:**
COC emailed to ALS? (YES / NO)	**EDD FORMAT (or default):**		
Email Reports to:		DATE/TIME:	DATE/TIME: 13/10/23 1845
Email Invoice to (will default to PM if no other addresses are listed): enviro.sbt@cpbg-sbt.com.au		**RELINQUISHED BY:** DATE/TIME:	**RECEIVED BY:** DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION													Additional Information
						Green (P)	Purple (G)	Purple (P)	Red (P)	Red (P)	Purple (G)	Purple (G)	Purple (G)	Orange (G)	Grey (P)		
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	EA005, EA010, EA015, EP005, NT-01, NT-02	EP005	NT-08a	EG020F	EG020T	W-9 (VOC only)	W-9 (TRH only)	W-9 (TRH/BTEXN)	EP075	EP231		
1	SBT-GW-3006		W		5	X	X	X	X	X							HT
																	TAT
TOTAL					0												

Environmental Division Sydney
Work Order Reference
ES2335481

Telephone : +61-2-8784 8555

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	: **ES2336263**	Page	: 1 of 6
Amendment	: **2**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: CHRISTOPHER BLYTH	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 20-Oct-2023 12:00
Order number	: ----	Date Analysis Commenced	: 21-Oct-2023
C-O-C number	: ----	Issue Date	: 15-Nov-2023 14:18
Sampler	: EMILY FUDA (EF)		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 1		
No. of samples analysed	: 1		

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
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EG020: It is recognised that total concentration is less than dissolved for some metal analytes. However, the difference is within experimental variation of the methods.
- Amendment (08/11/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020T and EG020F for all samples.
- Amendment (15/11/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method EG020F for all samples.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SMGW-BH-A401	----	----	----	----
				Sampling date / time	19-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2336263-001	--------	--------	--------	--------
					Result	----	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**5.76**	----	----	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**22500**	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		**18200**	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**15**	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**15**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**344**	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**8180**	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**47**	----	----	----	----
Magnesium	7439-95-4	1	mg/L		**744**	----	----	----	----
Sodium	7440-23-5	1	mg/L		**3870**	----	----	----	----
Potassium	7440-09-7	1	mg/L		**14**	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.22**	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L		**0.003**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		**0.0003**	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		**0.164**	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.006**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**0.467**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.092**	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.107**	----	----	----	----
Iron	7439-89-6	0.05	mg/L		**25.3**	----	----	----	----
EG020T: Total Metals by ICP-MS									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SMGW-BH-A401	----	----	----	----
				Sampling date / time	19-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2336263-001	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS - Continued									
Aluminium	7429-90-5	0.01	mg/L		**5.57**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		**0.0003**	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L		**0.161**	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**1.66**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		**0.064**	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**0.431**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.088**	----	----	----	----
Vanadium	7440-62-2	0.01	mg/L		**0.02**	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.266**	----	----	----	----
Iron	7439-89-6	0.05	mg/L		**23.6**	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.29**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		**0.01**	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**0.11**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**0.12**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**18.4**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**18.5**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**5.19**	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.01	----	----	----	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**238**	----	----	----	----
ø Total Cations	----	0.01	meq/L		**232**	----	----	----	----
ø Ionic Balance	----	0.01	%		**1.26**	----	----	----	----
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	----	1	mg/L		**16**	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids									

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SMGW-BH-A401	----	----	----	----
				Sampling date / time	19-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2336263-001	--------	--------	--------	--------
					Result	----	----	----	----
EP231A: Perfluoroalkyl Sulfonic Acids - Continued									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L		<0.01	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L		<0.01	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L		<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L		<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L		<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L		<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L		<0.01	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L		<0.05	----	----	----	----
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L		<0.05	----	----	----	----
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L		<0.05	----	----	----	----
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L		<0.05	----	----	----	----
EP231P: PFAS Sums									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L		<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L		<0.01	----	----	----	----
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.02	%		**113**	----	----	----	----
13C8-PFOA	----	0.02	%		**101**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

QUALITY CONTROL REPORT

Work Order	: **ES2336263**	Page	: 1 of 10
Amendment	: **2**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: CHRISTOPHER BLYTH	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 20-Oct-2023
Order number	: ----	Date Analysis Commenced	: 21-Oct-2023
C-O-C number	: ----	Issue Date	: 15-Nov-2023
Sampler	: EMILY FUDA (EF)		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 1		
No. of samples analysed	: 1		

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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

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 (%)*
EA005P: pH by PC Titrator (QC Lot: 5377360)									
ES2335741-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.24	8.20	0.5	0% - 20%
ES2335886-003	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.48	7.46	0.3	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5377361)									
ES2336463-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	774	776	0.2	0% - 20%
ES2336131-004	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	3490	3390	2.9	0% - 20%
ES2336268-003	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	228	235	3.0	0% - 20%
ES2336131-005	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	6580	6530	0.7	0% - 20%
ES2335741-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	18900	19400	2.6	0% - 20%
ES2335886-003	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1200	1200	0.1	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5381218)									
ES2335891-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	5520	5820	5.4	0% - 20%
ES2336185-003	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	523	549	4.9	0% - 20%
ES2336191-004	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	6350	6390	0.7	0% - 20%
ES2336223-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	376	400	6.2	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5377365)									
ES2336268-003	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	79	76	3.8	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	79	76	3.8	0% - 20%
ES2336131-005	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	1220	1220	0.2	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	1220	1220	0.2	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 (%)*
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5375594)									
ES2336263-001	SMGW-BH-A401	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	344	341	0.6	0% - 20%
EW2304669-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	17	18	0.0	0% - 50%
ED045G: Chloride by Discrete Analyser (QC Lot: 5375595)									
ES2336263-001	SMGW-BH-A401	ED045G: Chloride	16887-00-6	1	mg/L	8180	8080	1.3	0% - 20%
EW2304669-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	186	185	0.8	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5380979)									
ES2336513-002	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	12	12	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	7	8	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	14	14	0.0	0% - 50%
		ED093F: Potassium	7440-09-7	1	mg/L	2	2	0.0	No Limit
ES2335891-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	192	190	1.4	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	228	223	2.2	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	1460	1440	1.6	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	40	40	0.0	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5380981)									
ES2336263-001	SMGW-BH-A401	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0003	0.0003	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.164	0.164	0.0	0% - 20%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.006	0.008	18.6	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.467	0.469	0.3	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.092	0.093	1.2	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.107	0.108	0.0	0% - 20%
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.22	0.24	9.2	0% - 20%
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	25.3	25.2	0.5	0% - 20%
ES2335891-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Cobalt	7440-48-4	0.001	mg/L	0.008	0.008	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.504	0.496	1.7	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.005	0.006	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit

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 (%)*
EG020T: Total Metals by ICP-MS (QC Lot: 5381278)									
ES2336254-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.013	0.013	0.0	0% - 50%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.708	0.699	1.3	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.024	0.024	0.0	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.014	0.013	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.10	0.10	0.0	No Limit
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.15	0.14	0.0	No Limit
ES2336268-004	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	<0.001	77.6	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.111	0.106	4.7	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.15	0.12	22.1	0% - 50%
		EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	1.35	1.28	5.1	0% - 20%
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5380461)									
ES2335891-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.12	0.16	25.8	0% - 50%
ES2336198-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	15.9	16.0	0.5	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5375593)									
ES2336160-011	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.36	0.35	0.0	0% - 20%
EW2304669-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5380462)									
ES2335891-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2336198-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.10	0.06	46.3	0% - 50%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5380458)									
ES2335891-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.2	0.1	0.0	No Limit
ES2336198-004	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	10.4	11.3	8.5	0% - 50%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5380457)									
ES2335891-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.02	0.02	0.0	No Limit
ES2336198-004	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	12.6	12.1	4.2	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5375596)									
ES2336263-001	SMGW-BH-A401	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP005: Total Organic Carbon (TOC) (QC Lot: 5376646)									
ES2335442-001	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	73	70	3.9	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 (%)*
EP005: Total Organic Carbon (TOC) (QC Lot: 5376646) - continued									
ES2336245-001	Anonymous	EP005: Total Organic Carbon	----	1	mg/L	16	16	0.0	0% - 50%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5378437)									
ES2336297-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	9.36	9.65	3.1	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	5.33	5.72	7.0	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	0.25	0.26	4.3	0% - 50%
ES2336297-002	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.02	0.02	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.04	0.04	0.0	No Limit
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5378437)									
ES2336297-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	0.54	0.60	9.7	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.30	0.32	7.0	0% - 50%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	2.16	2.37	9.5	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.19	0.20	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
ES2336297-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	0.0	No Limit
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5378437)									
ES2336297-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
ES2336297-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 5377360)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	100	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 5377361)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	104	89.9	110
				<1	2100 µS/cm	100	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5381218)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	94.0	87.0	109
				<10	293 mg/L	103	75.2	126
				<10	2470 mg/L	101	83.0	124
ED037P: Alkalinity by PC Titrator (QCLot: 5377365)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	99.8	81.0	115
				----	50 mg/L	108	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5375594)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	100.0	82.0	122
				<1	500 mg/L	96.4	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5375595)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	124	80.9	127
				<1	1000 mg/L	102	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5380979)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	107	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	102	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	102	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	100	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5380981)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	93.4	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.6	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.1	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.0	85.0	111
EG020A-F: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	93.6	82.0	112
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.1	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.2	83.0	111

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5380981) - continued								
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	95.8	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	93.8	82.0	112
EG020A-F: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	98.0	83.0	109
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	90.8	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	94.1	82.0	112
EG020T: Total Metals by ICP-MS (QCLot: 5381278)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	99.1	82.0	120
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	103	84.0	112
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	99.6	84.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.7	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.3	85.0	115
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	99.0	85.0	113
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	84.0	116
EG020A-T: Vanadium	7440-62-2	0.01	mg/L	<0.01	0.1 mg/L	99.6	85.0	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	102	79.0	117
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	99.2	85.0	117
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5380461)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	103	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5375593)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	96.0	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5380462)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	102	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5380458)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	83.8	69.0	101
				<0.1	1 mg/L	87.0	70.0	118
				<0.1	5 mg/L	87.5	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5380457)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	86.6	71.3	126
				<0.01	0.442 mg/L	92.4	71.3	126
				<0.01	1 mg/L	95.8	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5375596)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	99.4	85.0	117
EP005: Total Organic Carbon (TOC) (QCLot: 5376646)								
EP005: Total Organic Carbon	----	1	mg/L	<1	10 mg/L	103	72.0	120

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5378437)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	83.4	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	93.6	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	92.7	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5378437)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	92.1	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	96.0	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	97.9	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	109	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5378437)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	91.0	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	105	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	117	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	97.0	71.4	144

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.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5375594)							
ES2336263-001	SMGW-BH-A401	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5375595)							
ES2336263-001	SMGW-BH-A401	ED045G: Chloride	16887-00-6	50 mg/L	# Not Determined	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5380981)							
ES2335891-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	97.2	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	98.5	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	95.1	70.0	130
		EG020A-F: Cobalt	7440-48-4	1 mg/L	96.5	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	96.3	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	97.4	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	97.0	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5380981) - continued							
ES2335891-002	Anonymous	EG020A-F: Nickel	7440-02-0	1 mg/L	95.8	70.0	130
		EG020A-F: Vanadium	7440-62-2	1 mg/L	96.4	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	97.7	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5381278)							
ES2336254-006	Anonymous	EG020A-T: Cadmium	7440-43-9	0.3125 mg/L	104	70.0	130
		EG020A-T: Cobalt	7440-48-4	1.25 mg/L	104	70.0	130
		EG020A-T: Copper	7440-50-8	1.25 mg/L	104	70.0	130
		EG020A-T: Lead	7439-92-1	1.25 mg/L	98.4	70.0	130
		EG020A-T: Manganese	7439-96-5	1.25 mg/L	99.0	70.0	130
		EG020A-T: Nickel	7440-02-0	1.25 mg/L	104	70.0	130
		EG020A-T: Vanadium	7440-62-2	1.25 mg/L	103	70.0	130
		EG020A-T: Zinc	7440-66-6	1.25 mg/L	104	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5380461)							
ES2335891-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	98.3	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5375593)							
ES2336160-011	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	97.2	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5380462)							
ES2335891-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	87.6	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5380458)							
ES2335891-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	87.8	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5380457)							
ES2335891-002	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	91.8	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5375596)							
ES2336263-001	SMGW-BH-A401	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	100	70.0	130
EP005: Total Organic Carbon (TOC) (QCLot: 5376646)							
ES2336056-001	Anonymous	EP005: Total Organic Carbon	----	100 mg/L	102	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5378437)							
ES2336297-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	86.0	72.0	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	93.0	68.0	131
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	95.8	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5378437)							
ES2336297-002	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	88.7	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	98.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	98.0	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	99.7	72.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5378437) - continued							
ES2336297-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	97.2	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5378437)							
ES2336297-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	85.4	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	119	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	117	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	99.9	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2336263**	Page	: 1 of 9
Amendment	: **2**		
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: CHRISTOPHER BLYTH	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 20-Oct-2023
Site	:	Issue Date	: 15-Nov-2023
Sampler	: EMILY FUDA (EF)	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

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.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2336263--001	SMGW-BH-A401	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED045G: Chloride by Discrete Analyser	ES2336263--001	SMGW-BH-A401	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural SMGW-BH-A401	----	----	----	23-Oct-2023	19-Oct-2023	**4**

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P) SMGW-BH-A401	**19-Oct-2023**	**----**	----	**----**	**23-Oct-2023**	19-Oct-2023	×
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P) SMGW-BH-A401	**19-Oct-2023**	**----**	----	**----**	**23-Oct-2023**	16-Nov-2023	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H) SMGW-BH-A401	**19-Oct-2023**	**----**	----	**----**	**25-Oct-2023**	26-Oct-2023	✓
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) SMGW-BH-A401	**19-Oct-2023**	**----**	----	**----**	**23-Oct-2023**	02-Nov-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
SMGW-BH-A401	**19-Oct-2023**	**----**	----	**----**	**21-Oct-2023**	16-Nov-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
SMGW-BH-A401	**19-Oct-2023**	**----**	----	**----**	**21-Oct-2023**	16-Nov-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)							
SMGW-BH-A401	**19-Oct-2023**	**----**	----	**----**	**24-Oct-2023**	16-Nov-2023	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
SMGW-BH-A401	**19-Oct-2023**	**----**	----	**----**	**24-Oct-2023**	16-Apr-2024	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
SMGW-BH-A401	**19-Oct-2023**	**25-Oct-2023**	16-Apr-2024	✓	**25-Oct-2023**	16-Apr-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
SMGW-BH-A401	**19-Oct-2023**	**----**	----	**----**	**24-Oct-2023**	16-Nov-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G)							
SMGW-BH-A401	**19-Oct-2023**	**----**	----	**----**	**21-Oct-2023**	21-Oct-2023	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
SMGW-BH-A401	**19-Oct-2023**	**----**	----	**----**	**24-Oct-2023**	16-Nov-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
SMGW-BH-A401	**19-Oct-2023**	**24-Oct-2023**	16-Nov-2023	✓	**24-Oct-2023**	16-Nov-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
SMGW-BH-A401	**19-Oct-2023**	**24-Oct-2023**	16-Nov-2023	✓	**24-Oct-2023**	16-Nov-2023	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G)							
SMGW-BH-A401	**19-Oct-2023**	**----**	----	**----**	**21-Oct-2023**	21-Oct-2023	✓
EP005: Total Organic Carbon (TOC)							
Amber TOC Vial - Sulfuric Acid (EP005)							
SMGW-BH-A401	**19-Oct-2023**	**----**	----	**----**	**24-Oct-2023**	16-Nov-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
SMGW-BH-A401	**19-Oct-2023**	**24-Oct-2023**	16-Apr-2024	✓	**26-Oct-2023**	16-Apr-2024	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
SMGW-BH-A401	**19-Oct-2023**	**24-Oct-2023**	16-Apr-2024	✓	**26-Oct-2023**	16-Apr-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
SMGW-BH-A401	**19-Oct-2023**	**24-Oct-2023**	16-Apr-2024	✓	**26-Oct-2023**	16-Apr-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
SMGW-BH-A401	**19-Oct-2023**	**24-Oct-2023**	16-Apr-2024	✓	**26-Oct-2023**	16-Apr-2024	✓

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)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	6	47	**12.77**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	9	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	10	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	47	**8.51**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	39	**12.82**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							

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*	
Method Blanks (MB) - Continued							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	47	**6.38**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	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
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Total Organic Carbon	EP005	WATER	In house: Referenced to APHA 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM Schedule B(3)
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

CERTIFICATE OF ANALYSIS

Work Order	: **ES2339563**	Page	: 1 of 8
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: Jack Brennan	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 15-Nov-2023 14:59
Order number	: ----	Date Analysis Commenced	: 15-Nov-2023
C-O-C number	: ----	Issue Date	: 17-Nov-2023 17:33
Sampler	: Alan Hillany, Jack Brennan		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 2		
No. of samples analysed	: 2		

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
- Surrogate Control Limits

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*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

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.

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1031	SMGW-BH-A401	----	----	----
				Sampling date / time	14-Nov-2023 00:00	14-Nov-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2339563-001	ES2339563-002	--------	--------	--------
					Result	Result	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		**7.65**	----	----	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		**5230**	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		**3150**	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**103**	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**103**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**86**	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**1510**	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**202**	----	----	----	----
Magnesium	7439-95-4	1	mg/L		**69**	----	----	----	----
Sodium	7440-23-5	1	mg/L		**708**	----	----	----	----
Potassium	7440-09-7	1	mg/L		**8**	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.03**	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.003**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.001**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.116**	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**0.002**	----	----	----	----
Iron	7439-89-6	0.05	mg/L		<0.05	----	----	----	----
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**0.38**	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SBT-GW-1031	SMGW-BH-A401	----	----	----
			Sampling date / time	14-Nov-2023 00:00	14-Nov-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2339563-001	ES2339563-002	--------	--------	--------
				Result	Result	----	----	----
EG020T: Total Metals by ICP-MS - Continued								
Cobalt	7440-48-4	0.001	mg/L	**0.001**	----	----	----	----
Manganese	7439-96-5	0.001	mg/L	**0.090**	----	----	----	----
Iron	7439-89-6	0.05	mg/L	**0.55**	----	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	**1.14**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**1.14**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**0.4**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**1.5**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.18**	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	**0.14**	----	----	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**46.4**	----	----	----	----
ø Total Cations	----	0.01	meq/L	**46.8**	----	----	----	----
ø Ionic Balance	----	0.01	%	**0.34**	----	----	----	----
EP005: Total Organic Carbon (TOC)								
Total Organic Carbon	----	1	mg/L	**5**	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	----	<5	----	----	----
Isopropylbenzene	98-82-8	5	µg/L	----	<5	----	----	----
n-Propylbenzene	103-65-1	5	µg/L	----	<5	----	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L	----	<5	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L	----	<5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SBT-GW-1031	SMGW-BH-A401	----	----	----
			Sampling date / time	14-Nov-2023 00:00	14-Nov-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2339563-001	ES2339563-002	--------	--------	--------
				Result	Result	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
1.2.4-Trimethylbenzene	95-63-6	5	µg/L	----	<5	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L	----	<5	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L	----	<5	----	----	----
n-Butylbenzene	104-51-8	5	µg/L	----	<5	----	----	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	----	<50	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L	----	<50	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	----	<50	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L	----	<50	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	----	<5	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	5	µg/L	----	<5	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L	----	<5	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	----	<5	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	----	<5	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	----	<5	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	50	µg/L	----	<50	----	----	----
Chloromethane	74-87-3	50	µg/L	----	<50	----	----	----
Vinyl chloride	75-01-4	50	µg/L	----	<50	----	----	----
Bromomethane	74-83-9	50	µg/L	----	<50	----	----	----
Chloroethane	75-00-3	50	µg/L	----	<50	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L	----	<50	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L	----	<5	----	----	----
Iodomethane	74-88-4	5	µg/L	----	<5	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L	----	<5	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L	----	<5	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L	----	<5	----	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L	----	<5	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L	----	<5	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L	----	<5	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L	----	<5	----	----	----
Trichloroethene	79-01-6	5	µg/L	----	<5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SBT-GW-1031	SMGW-BH-A401	----	----	----
			Sampling date / time	14-Nov-2023 00:00	14-Nov-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2339563-001	ES2339563-002	--------	--------	--------
				Result	Result	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued								
Dibromomethane	74-95-3	5	µg/L	----	<5	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L	----	<5	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L	----	<5	----	----	----
Tetrachloroethene	127-18-4	5	µg/L	----	<5	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	----	<5	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	----	<5	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	----	<5	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	----	<5	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L	----	<5	----	----	----
Pentachloroethane	76-01-7	5	µg/L	----	<5	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	----	<5	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L	----	<5	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	----	<5	----	----	----
Bromobenzene	108-86-1	5	µg/L	----	<5	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L	----	<5	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L	----	<5	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L	----	<5	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L	----	<5	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L	----	<5	----	----	----
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	----	<5	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	----	<5	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	5	µg/L	----	<5	----	----	----
Bromodichloromethane	75-27-4	5	µg/L	----	<5	----	----	----
Dibromochloromethane	124-48-1	5	µg/L	----	<5	----	----	----
Bromoform	75-25-2	5	µg/L	----	<5	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	----	<20	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	----	<20	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	----	<20	----	----	----
EP080: BTEXN								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SBT-GW-1031	SMGW-BH-A401	----	----	----
				Sampling date / time	14-Nov-2023 00:00	14-Nov-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES2339563-001	ES2339563-002	--------	--------	--------
					Result	Result	----	----	----
EP080: BTEXN - Continued									
Benzene	71-43-2	1	µg/L		----	<1	----	----	----
Toluene	108-88-3	2	µg/L		----	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		----	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		----	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		----	<2	----	----	----
^ **Total Xylenes**	----	2	µg/L		----	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		----	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		----	<5	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		----	**128**	----	----	----
Toluene-D8	2037-26-5	5	%		----	**116**	----	----	----
4-Bromofluorobenzene	460-00-4	5	%		----	**120**	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		----	**119**	----	----	----
Toluene-D8	2037-26-5	2	%		----	**110**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		----	**112**	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72	143
Toluene-D8	2037-26-5	75	131
4-Bromofluorobenzene	460-00-4	73	137

QUALITY CONTROL REPORT

Work Order	: **ES2339563**	Page	: 1 of 12
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: Jack Brennan	Contact	: Customer Services ES
Address	: 14 GREAT WESTERN HWY WERRINGTON 2747	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 15-Nov-2023
Order number	: ----	Date Analysis Commenced	: 15-Nov-2023
C-O-C number	: ----	Issue Date	: 17-Nov-2023
Sampler	: Alan Hillany, Jack Brennan		
Site	:		
Quote number	: Contract ES23CPBGHE0004		
No. of samples received	: 2		
No. of samples analysed	: 2		

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*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW

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 (%)*
EA005P: pH by PC Titrator (QC Lot: 5426982)									
ES2339594-007	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.89	7.89	0.0	0% - 20%
ES2339594-003	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	11.6	11.6	0.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5426983)									
ES2339594-007	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	386	386	0.0	0% - 20%
ES2339594-003	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1680	1680	0.0	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5426587)									
ES2339479-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	2700	2700	0.0	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5426984)									
ES2339594-007	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	167	167	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	167	167	0.0	0% - 20%
ES2339594-003	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	258	250	3.2	0% - 20%
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	59	58	0.0	0% - 20%
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	317	308	2.8	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5427439)									
ES2339563-001	SBT-GW-1031	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	86	86	0.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5427440)									
ES2339563-001	SBT-GW-1031	ED045G: Chloride	16887-00-6	1	mg/L	1510	1500	0.8	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5427510)									
ES2339563-001	SBT-GW-1031	ED093F: Calcium	7440-70-2	1	mg/L	202	205	1.3	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	69	70	1.6	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 (%)*
ED093F: Dissolved Major Cations (QC Lot: 5427510) - continued									
ES2339563-001	SBT-GW-1031	ED093F: Sodium	7440-23-5	1	mg/L	708	719	1.5	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	8	8	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5427509)									
ES2339563-001	SBT-GW-1031	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.116	0.118	1.5	0% - 20%
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.03	0.03	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 5427499)									
ES2339563-001	SBT-GW-1031	EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.090	0.093	3.4	0% - 20%
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.38	0.36	3.8	0% - 20%
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.55	0.56	2.8	0% - 50%
WN2313647-003	Anonymous	EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.10	<0.10	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.10	<0.10	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5427511)									
WN2313647-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5427312)									
ES2339563-001	SBT-GW-1031	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5427441)									
ES2339563-001	SBT-GW-1031	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5427311)									
ES2339563-001	SBT-GW-1031	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	1.14	1.11	2.5	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5427309)									
ES2339351-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	50.0	50.9	1.8	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5427310)									
ES2339351-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	18.8	18.4	1.7	0% - 20%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5427438)									
ES2339563-001	SBT-GW-1031	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.14	0.14	0.0	0% - 50%

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 (%)*
EP005: Total Organic Carbon (TOC) (QC Lot: 5427928)									
ES2339563-001	SBT-GW-1031	EP005: Total Organic Carbon	----	1	mg/L	5	5	0.0	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 5426927)									
ES2339563-002	SMGW-BH-A401	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
EP074B: Oxygenated Compounds (QC Lot: 5426927)									
ES2339563-002	SMGW-BH-A401	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.0	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.0	No Limit
EP074C: Sulfonated Compounds (QC Lot: 5426927)									
ES2339563-002	SMGW-BH-A401	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 5426927)									
ES2339563-002	SMGW-BH-A401	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5426927)									
ES2339563-002	SMGW-BH-A401	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.0	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.0	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.0	No Limit

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 (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5426927) - continued									
ES2339563-002	SMGW-BH-A401	EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.0	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.0	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.0	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.0	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.0	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 5426927)									
ES2339563-002	SMGW-BH-A401	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.0	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.0	No Limit
EP074G: Trihalomethanes (QC Lot: 5426927)									
ES2339563-002	SMGW-BH-A401	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.0	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.0	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5426926)									
ES2339563-002	SMGW-BH-A401	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5426926)									
ES2339563-002	SMGW-BH-A401	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5426926)									
ES2339563-002	SMGW-BH-A401	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit

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 (%)*
EP080: BTEXN (QC Lot: 5426926) - continued									
ES2339563-002	SMGW-BH-A401	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 5426982)								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.8	101
				----	7 pH Unit	99.7	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 5426983)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	96.3	89.9	110
				<1	2100 µS/cm	98.4	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5426587)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	104	87.0	109
				<10	293 mg/L	105	75.2	126
				<10	2470 mg/L	96.5	83.0	124
ED037P: Alkalinity by PC Titrator (QCLot: 5426984)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	96.4	81.0	115
				----	50 mg/L	103	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5427439)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	93.3	82.0	122
				<1	500 mg/L	96.7	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5427440)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	109	80.9	127
				<1	1000 mg/L	109	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5427510)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	106	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	108	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	105	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	105	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5427509)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	94.9	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.3	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.4	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	93.2	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	95.6	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.7	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	97.0	82.0	110

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5427509) - continued								
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	90.8	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.5	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	94.0	82.0	112
EG020T: Total Metals by ICP-MS (QCLot: 5427499)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	94.3	82.0	120
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.2	86.0	116
EG020A-T: Cobalt	7440-48-4	0.001	mg/L	<0.001	0.1 mg/L	93.2	84.0	116
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	98.4	85.0	113
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	103	85.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 5427511)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	90.5	83.0	105
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5427312)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	106	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5427441)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	91.2	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5427311)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	99.8	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5427309)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	80.9	69.0	101
				<0.1	1 mg/L	100	70.0	118
				<0.1	5 mg/L	91.5	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5427310)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	91.3	71.3	126
				<0.01	0.442 mg/L	83.7	71.3	126
				<0.01	1 mg/L	87.1	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5427438)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	94.0	85.0	117
EP005: Total Organic Carbon (TOC) (QCLot: 5427928)								
EP005: Total Organic Carbon	----	1	mg/L	<1	10 mg/L	105	72.0	120
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5426927)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	93.6	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	98.5	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	98.7	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	99.6	74.0	116

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5426927) - continued								
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	101	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	99.6	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	99.9	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	99.2	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	95.0	65.0	123
EP074B: Oxygenated Compounds (QCLot: 5426927)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	97.8	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	102	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	93.7	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	94.7	65.0	137
EP074C: Sulfonated Compounds (QCLot: 5426927)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	86.4	72.8	127
EP074D: Fumigants (QCLot: 5426927)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	92.4	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	97.8	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	91.1	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	91.4	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	99.1	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5426927)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	82.0	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	92.3	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	93.7	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	97.2	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	95.0	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	96.4	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	95.5	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	79.9	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	99.1	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	98.8	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	101	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	97.3	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	94.8	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	95.6	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	101	73.0	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5426927) - continued								
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	98.9	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	98.6	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	101	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	102	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	102	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	101	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	86.4	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	96.0	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	103	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	104	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	95.6	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	99.9	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	110	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5426927)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	101	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	101	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	103	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	101	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	104	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	104	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	103	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	108	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	112	67.0	123
EP074G: Trihalomethanes (QCLot: 5426927)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	102	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	93.6	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	97.1	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	92.4	73.5	126
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5426926)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	89.7	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5426926)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	89.2	75.0	127
EP080: BTEXN (QCLot: 5426926)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	110	68.3	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 5426926) - continued								
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.8	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	105	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	105	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	107	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	93.3	75.5	124

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.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5427439)							
ES2339563-001	SBT-GW-1031	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5427440)							
ES2339563-001	SBT-GW-1031	ED045G: Chloride	16887-00-6	50 mg/L	# Not Determined	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5427509)							
ES2339436-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	95.1	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	94.4	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	90.1	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	92.6	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	93.0	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	91.3	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	91.6	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	94.2	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5427499)							
ES2339639-001	Anonymous	EG020A-T: Chromium	7440-47-3	1 mg/L	109	70.0	130
		EG020A-T: Cobalt	7440-48-4	1 mg/L	107	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	111	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5427511)							
WN2313647-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	82.9	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5427312)							
ES2339563-001	SBT-GW-1031	EK055G: Ammonia as N	7664-41-7	1 mg/L	104	70.0	130

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5427441)							
ES2339563-001	SBT-GW-1031	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	106	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5427311)							
ES2339563-001	SBT-GW-1031	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	93.0	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5427309)							
ES2339351-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	50 mg/L	93.5	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5427310)							
ES2339351-002	Anonymous	EK067G: Total Phosphorus as P	----	10 mg/L	97.7	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5427438)							
ES2339563-001	SBT-GW-1031	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	101	70.0	130
EP005: Total Organic Carbon (TOC) (QCLot: 5427928)							
ES2339639-001	Anonymous	EP005: Total Organic Carbon	----	100 mg/L	99.2	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5426927)							
ES2339563-002	SMGW-BH-A401	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	79.2	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	104	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5426927)							
ES2339563-002	SMGW-BH-A401	EP074: Chlorobenzene	108-90-7	25 µg/L	105	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5426926)							
ES2339527-013	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	85.7	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5426926)							
ES2339527-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	86.0	70.0	130
EP080: BTEXN (QCLot: 5426926)							
ES2339527-013	Anonymous	EP080: Benzene	71-43-2	25 µg/L	104	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	97.4	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	106	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	105	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	106	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	103	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2339563**	Page	: 1 of 9
Client	: **CPB Contractors Pty Ltd & Ghella Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: Jack Brennan	Telephone	: +61-2-8784 8555
Project	: WSA SBT Project	Date Samples Received	: 15-Nov-2023
Site	:	Issue Date	: 17-Nov-2023
Sampler	: Alan Hillany, Jack Brennan	No. of samples received	: 2
Order number	: ----	No. of samples analysed	: 2

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.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2339563--001	SBT-GW-1031	**Sulfate as SO4 - Turbidimetric**	14808-79-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
ED045G: Chloride by Discrete Analyser	ES2339563--001	SBT-GW-1031	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural SBT-GW-1031	----	----	----	15-Nov-2023	14-Nov-2023	**1**
EP005: Total Organic Carbon (TOC)						
Clear Plastic Bottle - Natural SBT-GW-1031	----	----	----	16-Nov-2023	15-Nov-2023	**1**

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P) SBT-GW-1031	**14-Nov-2023**	**----**	----	----	**15-Nov-2023**	14-Nov-2023	×
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P) SBT-GW-1031	**14-Nov-2023**	**----**	----	----	**15-Nov-2023**	12-Dec-2023	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H) SBT-GW-1031	**14-Nov-2023**	**----**	----	----	**15-Nov-2023**	21-Nov-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
SBT-GW-1031	**14-Nov-2023**	**----**	----	----	**15-Nov-2023**	28-Nov-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
SBT-GW-1031	**14-Nov-2023**	**----**	----	----	**16-Nov-2023**	12-Dec-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
SBT-GW-1031	**14-Nov-2023**	**----**	----	----	**16-Nov-2023**	12-Dec-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)							
SBT-GW-1031	**14-Nov-2023**	**----**	----	----	**16-Nov-2023**	12-Dec-2023	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
SBT-GW-1031	**14-Nov-2023**	**----**	----	----	**16-Nov-2023**	12-May-2024	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
SBT-GW-1031	**14-Nov-2023**	**16-Nov-2023**	12-May-2024	✓	**16-Nov-2023**	12-May-2024	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
SBT-GW-1031	**14-Nov-2023**	**----**	----	----	**16-Nov-2023**	12-Dec-2023	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
SBT-GW-1031	**14-Nov-2023**	**----**	----	----	**15-Nov-2023**	12-Dec-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G)							
SBT-GW-1031	**14-Nov-2023**	**----**	----	----	**16-Nov-2023**	16-Nov-2023	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
SBT-GW-1031	**14-Nov-2023**	**----**	----	----	**15-Nov-2023**	12-Dec-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
SBT-GW-1031	**14-Nov-2023**	**15-Nov-2023**	12-Dec-2023	✓	**15-Nov-2023**	12-Dec-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
SBT-GW-1031	**14-Nov-2023**	**15-Nov-2023**	12-Dec-2023	✓	**15-Nov-2023**	12-Dec-2023	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G)							
SBT-GW-1031	**14-Nov-2023**	**----**	----	----	**16-Nov-2023**	16-Nov-2023	✓

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP005: Total Organic Carbon (TOC)							
Clear Plastic Bottle - Natural (EP005) SBT-GW-1031	**14-Nov-2023**	**----**	----	**----**	**16-Nov-2023**	15-Nov-2023	×
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) SMGW-BH-A401	**14-Nov-2023**	**15-Nov-2023**	28-Nov-2023	✓	**16-Nov-2023**	28-Nov-2023	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) SMGW-BH-A401	**14-Nov-2023**	**15-Nov-2023**	28-Nov-2023	✓	**16-Nov-2023**	28-Nov-2023	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) SMGW-BH-A401	**14-Nov-2023**	**15-Nov-2023**	28-Nov-2023	✓	**16-Nov-2023**	28-Nov-2023	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074) SMGW-BH-A401	**14-Nov-2023**	**15-Nov-2023**	28-Nov-2023	✓	**16-Nov-2023**	28-Nov-2023	✓
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) SMGW-BH-A401	**14-Nov-2023**	**15-Nov-2023**	28-Nov-2023	✓	**16-Nov-2023**	28-Nov-2023	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) SMGW-BH-A401	**14-Nov-2023**	**15-Nov-2023**	28-Nov-2023	✓	**16-Nov-2023**	28-Nov-2023	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) SMGW-BH-A401	**14-Nov-2023**	**15-Nov-2023**	28-Nov-2023	✓	**16-Nov-2023**	28-Nov-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP080) SMGW-BH-A401	**14-Nov-2023**	**15-Nov-2023**	28-Nov-2023	✓	**16-Nov-2023**	28-Nov-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber VOC Vial - Sulfuric Acid (EP080) SMGW-BH-A401	**14-Nov-2023**	**15-Nov-2023**	28-Nov-2023	✓	**16-Nov-2023**	28-Nov-2023	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) SMGW-BH-A401	**14-Nov-2023**	**15-Nov-2023**	28-Nov-2023	✓	**16-Nov-2023**	28-Nov-2023	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	11	**18.18**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	2	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	15	**13.33**	**8.33**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	2	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	3	2	**150.00**	**12.50**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	3	**100.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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 Control Samples (LCS) - Continued							
Total Phosphorus as P By Discrete Analyser	EK067G	3	3	**100.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP005	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	1	**100.00**	**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
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Total Dissolved Solids (High Level)	EA015H	WATER	In house: Referenced to APHA 2540C. A gravimetric procedure that determines the amount of `filterable` residue in an aqueous sample. A well-mixed sample is filtered through a glass fibre filter (1.2um). The filtrate is evaporated to dryness and dried to constant weight at 180+/-5C. This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030F. This method is compliant with NEPM Schedule B(3)
Total Organic Carbon	EP005	WATER	In house: Referenced to APHA 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
☐NEWCASTLE 5/585 Maitland Rd Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com
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☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: CPBG	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: 14 Great Western HWY, Werrington 2747		X Non Standard or urgent TAT (List due date): 03/11/23	Custody Seal Intact? Yes No N/A
PROJECT: WSA SBT Project	ALS QUOTE NO.: ES23CPBGHE0004	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER:		OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Emma Kline	CONTACT PH:		Other comment:
SAMPLER: Jack Brennan/Alan Hillany	SAMPLER MOBILE: 04 78707139	RELINQUISHED BY: CPBG	RECEIVED BY: ZRW
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	DATE/TIME: 14/11/23	DATE/TIME: 15/11/23 1459
Email Reports to: Jack.brennan@cpbg-sbt.com.au / enviro.sbt@cpbg-sbt.com.au		RELINQUISHED BY:	RECEIVED BY:
Email Invoice to (will default to PM if no other addresses are listed): enviro.sbt@cpbg-sbt.com.au		DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	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 CONTAINERS	EA005 - pH, EA010 - EC, EA015 - TDS, EP005 - TOC	NT-01 & NT-02 - Ca, Mg, Na, K, Cl, SO4, Alkalinity	NT-08a - TN, NO2, NO3, NH3, TP, Reactive P	Dissolved Metals - Al, As, Cd, Cr, Cu, Fe, Pb, Mn, Ni, Zn, and Hg	Total Metals - Al, Co, Fe, Mn, Cr	Dissolved Hexavalent / Trivalent Chromium	[illegible]	W-9 - TRH (C6-C40/VOC including BTEXN					
1	SBT-GW-103	14/11/2023	W		#4	X	X	X	X	X	X							1 day turnaround
2	SMGW-BH-A401	14/11/2023	W		3								X					1 day turnaround
TOTAL					9													

Environmental Division Sydney
Work Order Reference
ES2339563

Telephone : +61-2-8784 8555

HT

TAT

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.

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5/585 Maitland Rd Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: CPBG	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: 14 Great Western HWY, Werrington 2747		X Non Standard or urgent TAT **(List due date):** 03/11/23	Custody Seal Intact? Yes No N/A
PROJECT: WSA SBT Project	**ALS QUOTE NO.:** ES23CPBGHE0004	**COC SEQUENCE NUMBER (Circle)**	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER:		COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Emma Kline	**CONTACT PH:**	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Jack Brennan/Alan Hillany	**SAMPLER MOBILE:** 04 78707139	**RELINQUISHED BY:**	**RECEIVED BY:**
COC emailed to ALS? (YES / NO)	**EDD FORMAT (or default):**	*CPBG*	ZRW
Email Reports to: Jack.brennan@cpbg-sbt.com.au / enviro.sbt@cpbg-sbt.com.au		DATE/TIME: 14/11/23	DATE/TIME: 15/11/23 1459
Email Invoice to (will default to PM if no other addresses are listed): enviro.sbt@cpbg-sbt.com.au		**RELINQUISHED BY:**	**RECEIVED BY:**
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:		DATE/TIME:	DATE/TIME:

ALS USE	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 CONTAINERS	EA005 - pH, EA010 - EC, EA015 - TDS, EP005 - TOC	NT-01 & NT-02 - Ca, Mg, Na, K, Cl, SO4, Alkalinity	NT-08a - TN, NO2, NO3, NH3, TP, Reactive P	Dissolved Metals - Al, As, Cd, Cr, Cu, Fe, Pb, Mn, Ni, Zn, and Hg	Total Metals - Al, Co, Fe, Mn, Cr	~~Dissolved Hexavalent / Trivalent Chromium~~	~~Metals Suite~~	W-9 - TRH (C6-C40/VOC including BTEXN					Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	SBT-GW-103	14/11/2023	W		#4	x	x	x	x	x								1 day turnaround
2	SMGW-BH-A401	14/11/2023	W		3								x					1 day turnaround
TOTAL					9													

Environmental Division Sydney
Work Order Reference
ES2339563

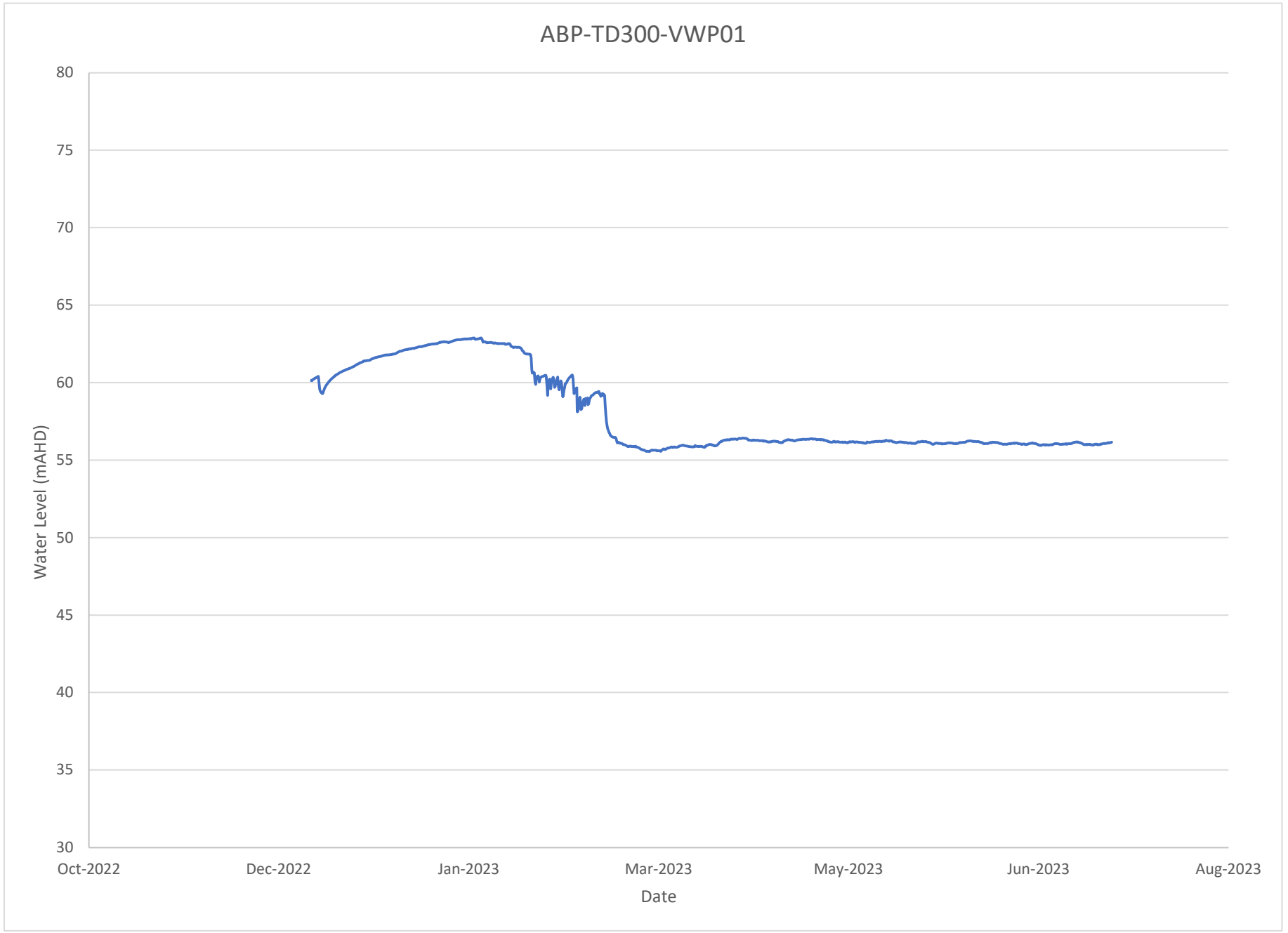
Telephone : +61-2-8784 8555

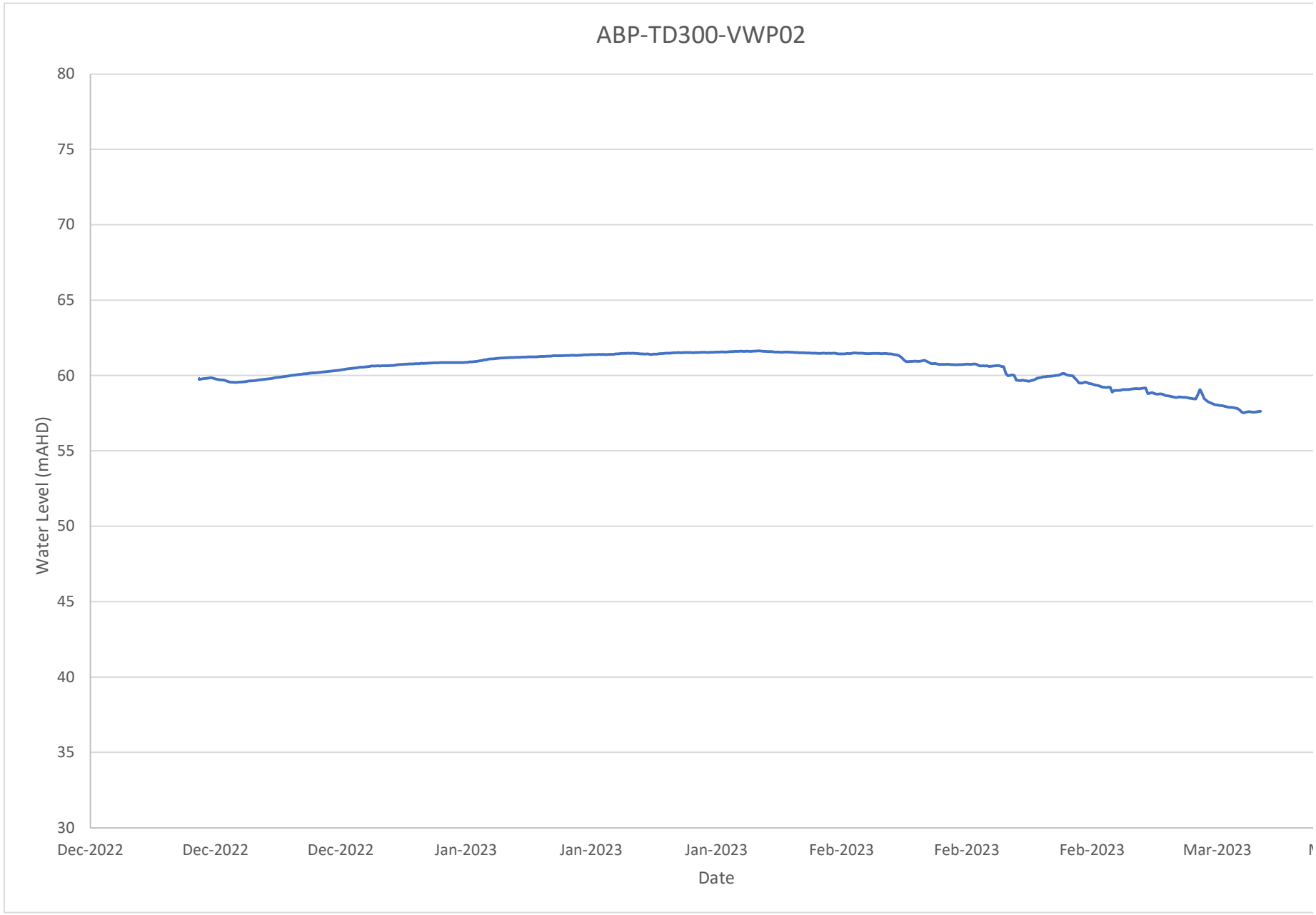
HT

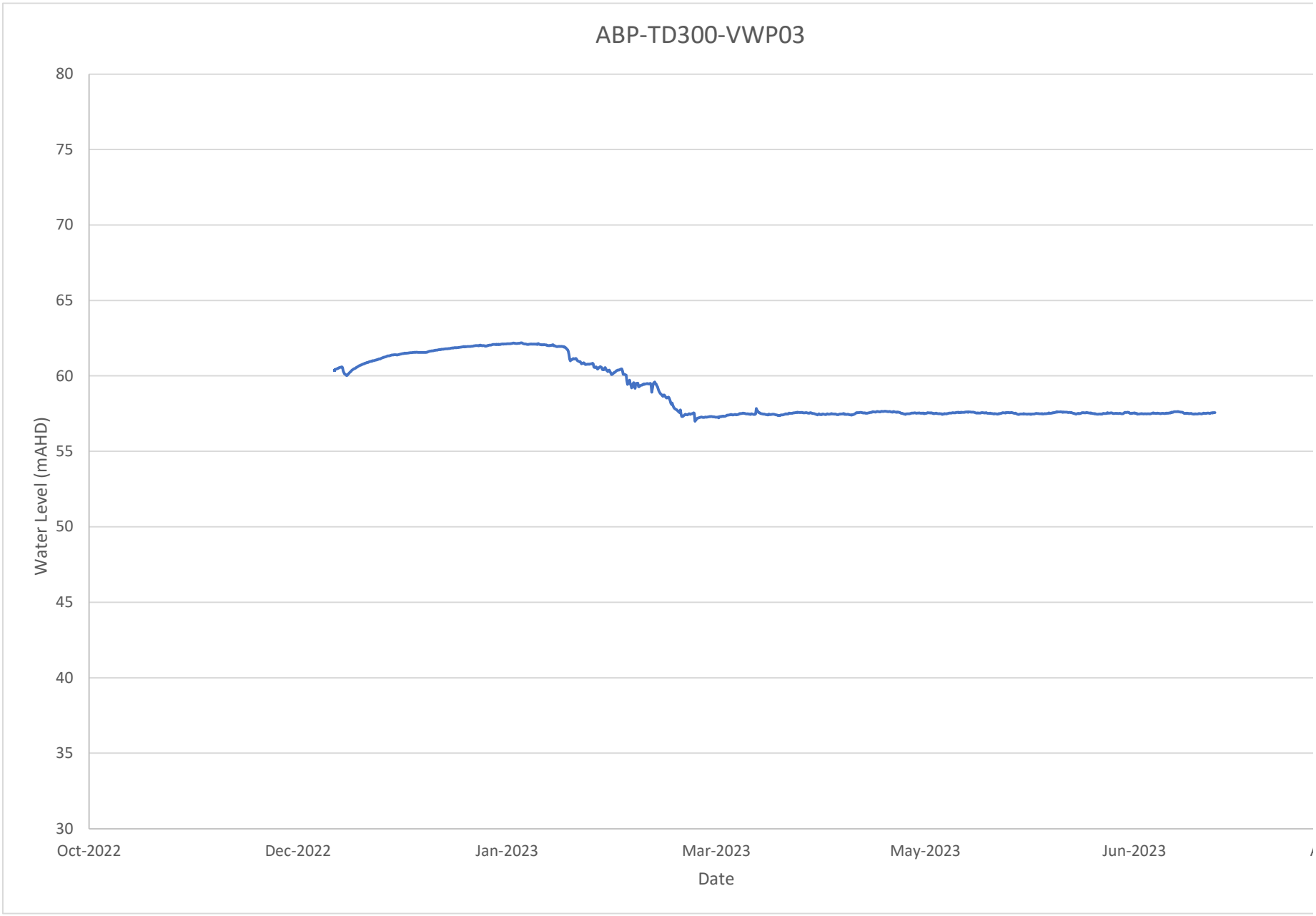
TAT

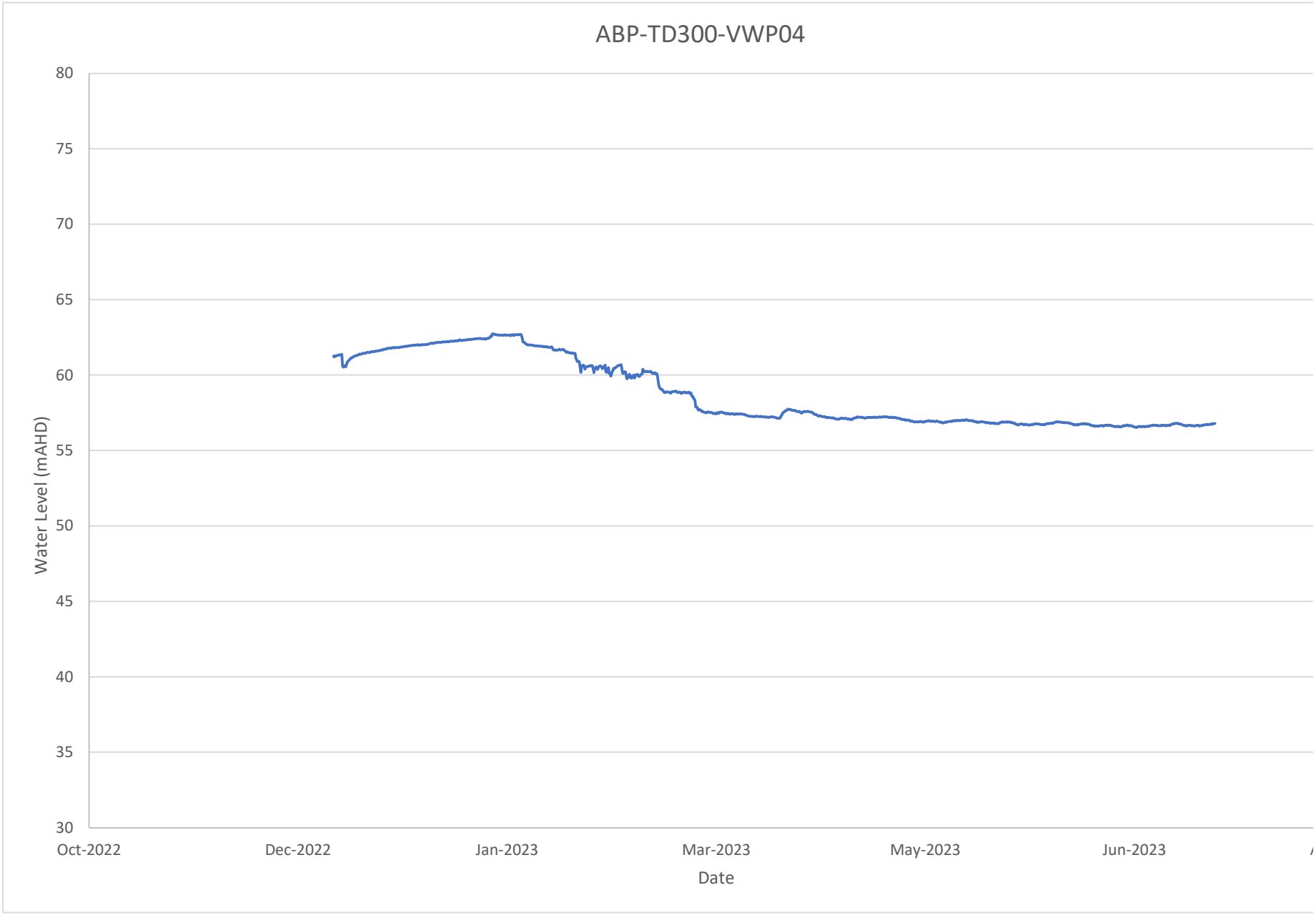
Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate 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.

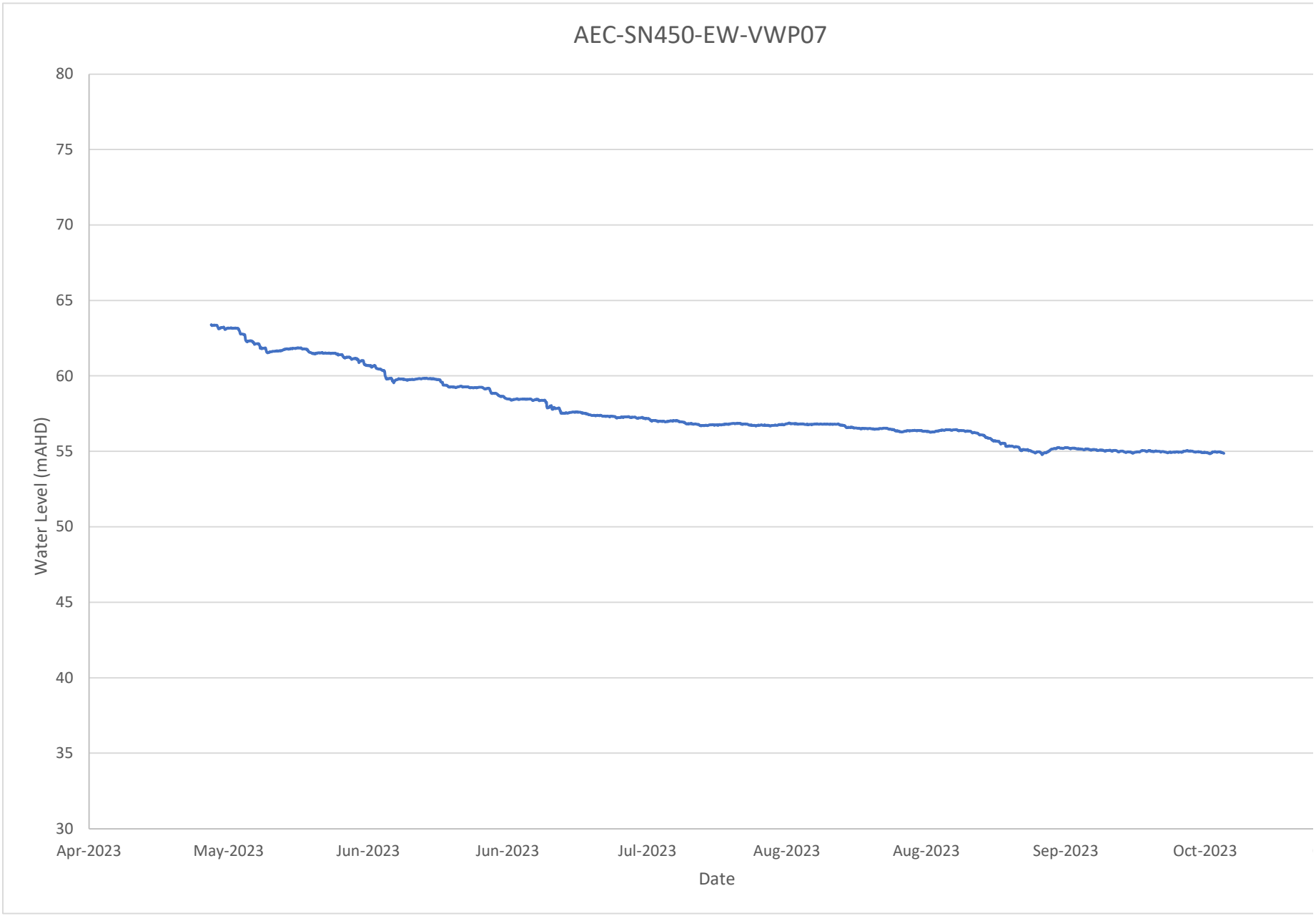
Annexure C VWP hydrographs to November 2023

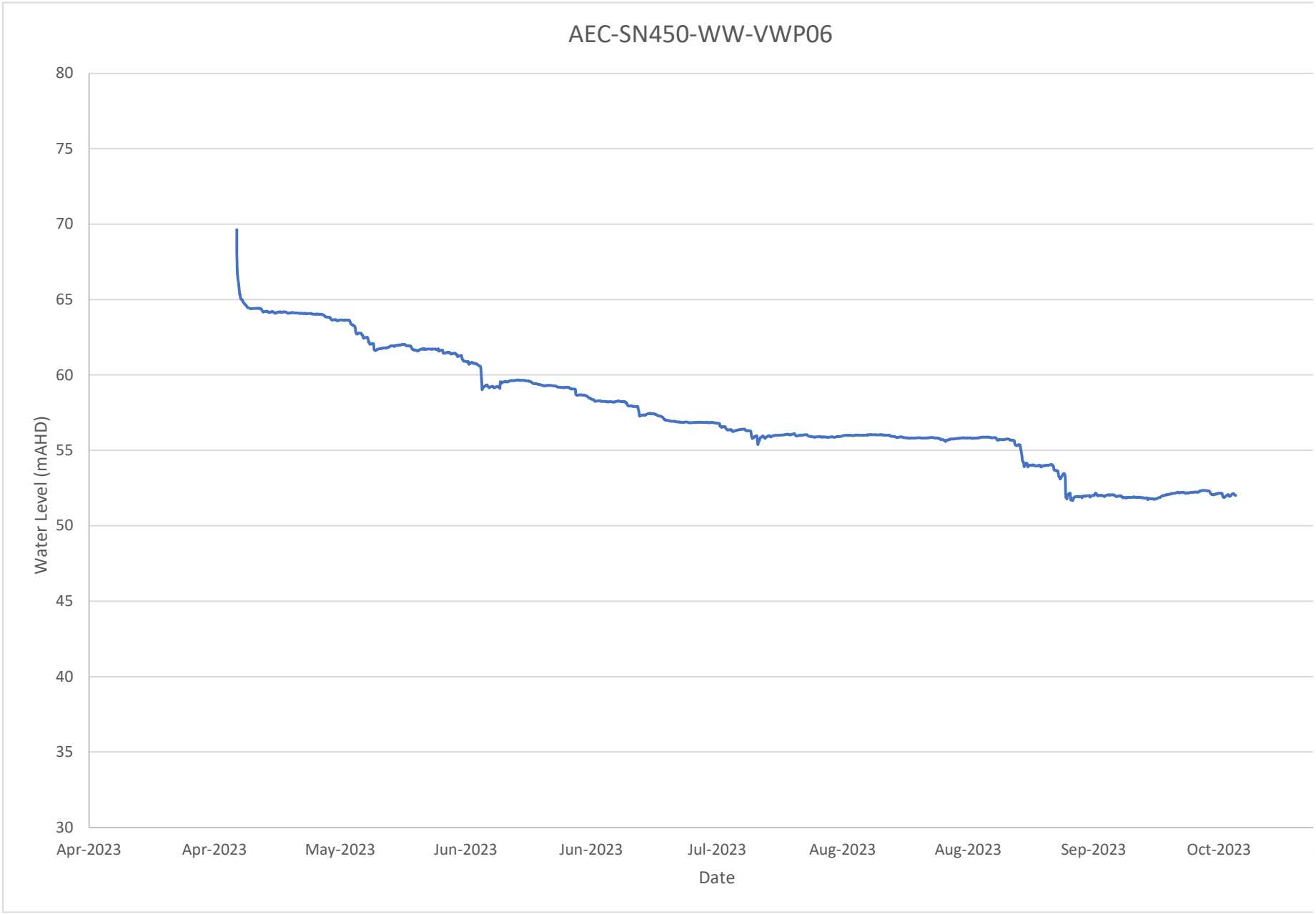

ABP-TD300-VWP01
80
75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Date

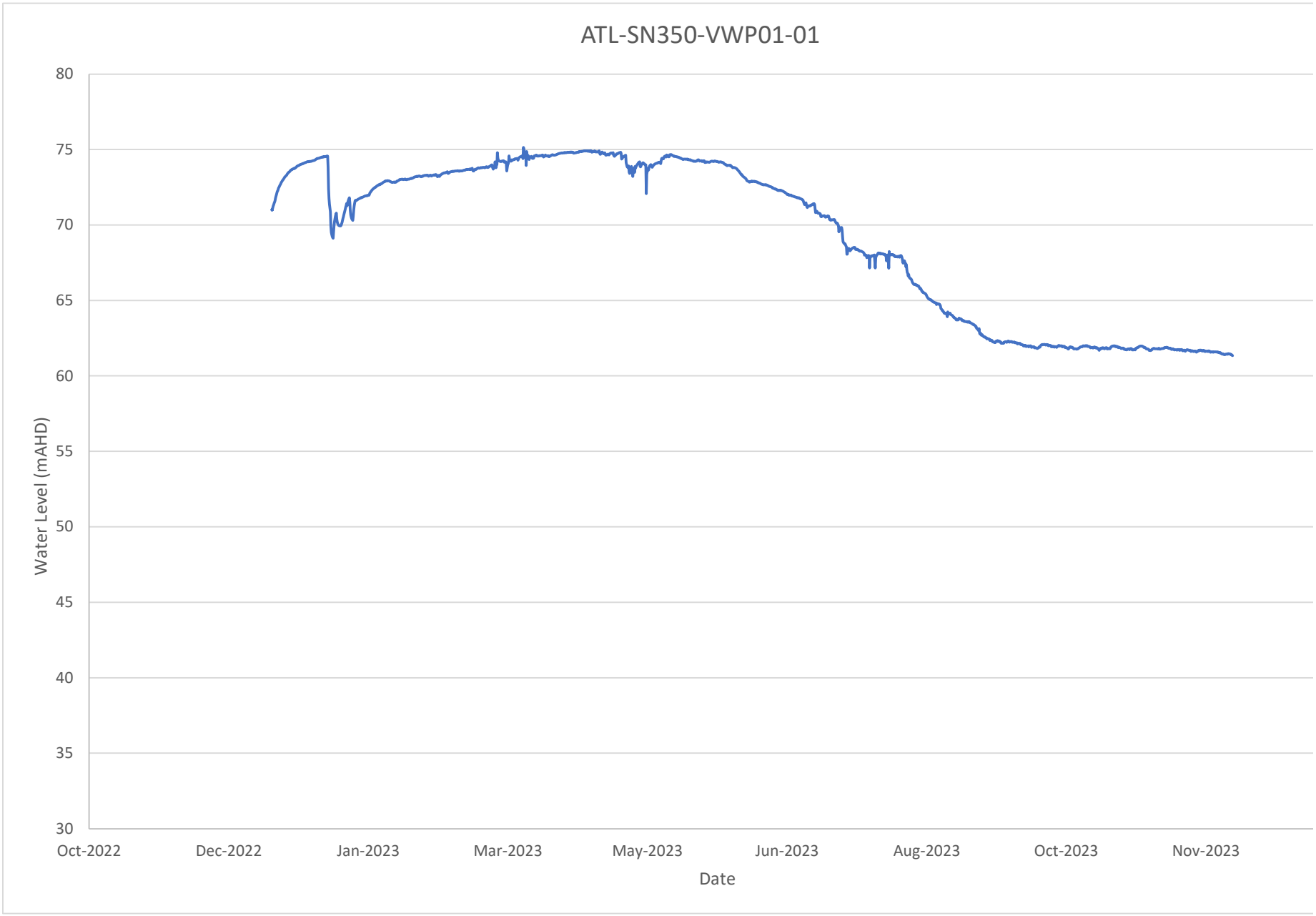

ABP-TD300-VWP02
80
75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Dec-2022
Dec-2022
Dec-2022
Jan-2023
Jan-2023
Jan-2023
Feb-2023
Feb-2023
Feb-2023
Mar-2023
Date

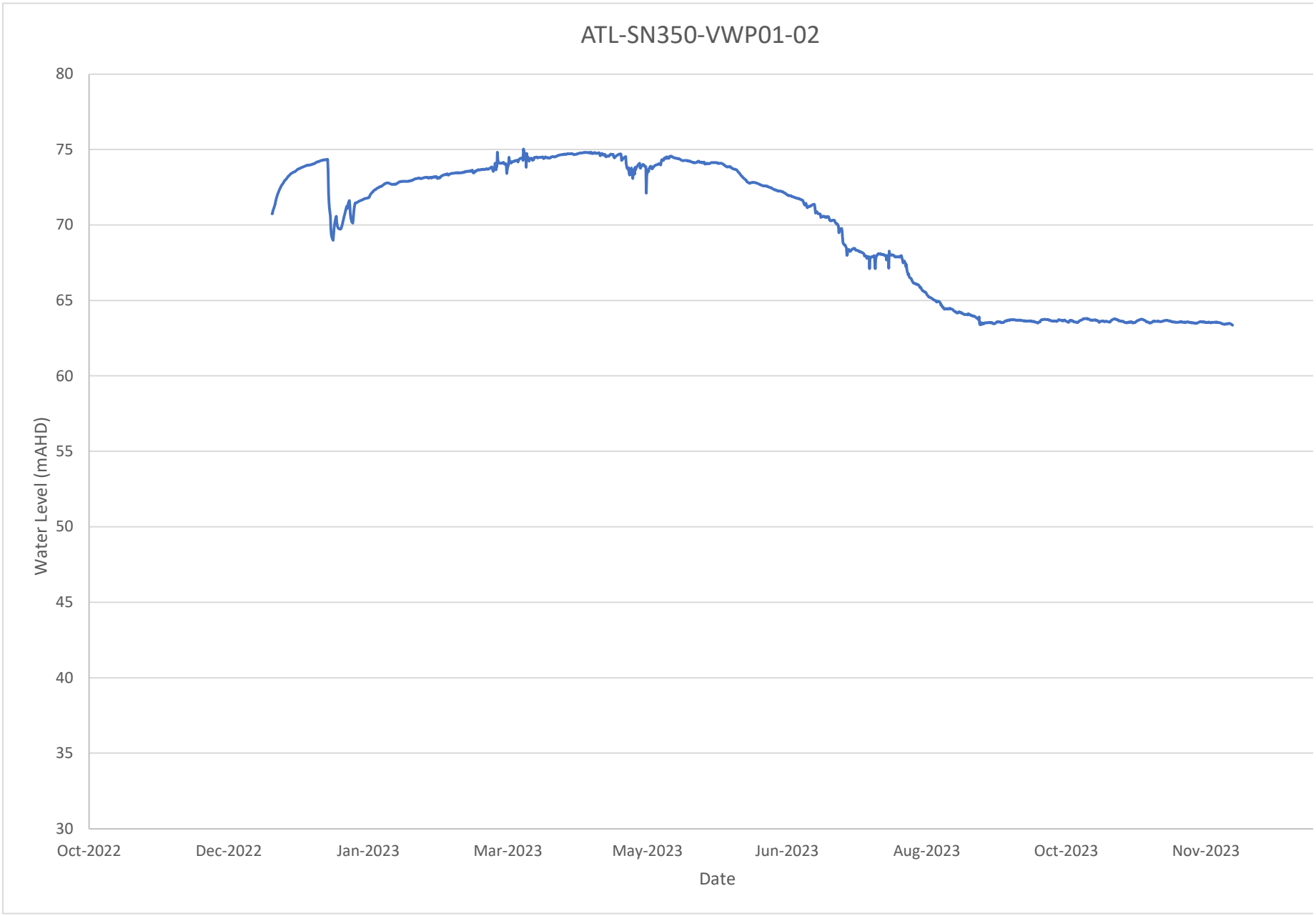

ABP-TD300-VWP03
80
75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Date

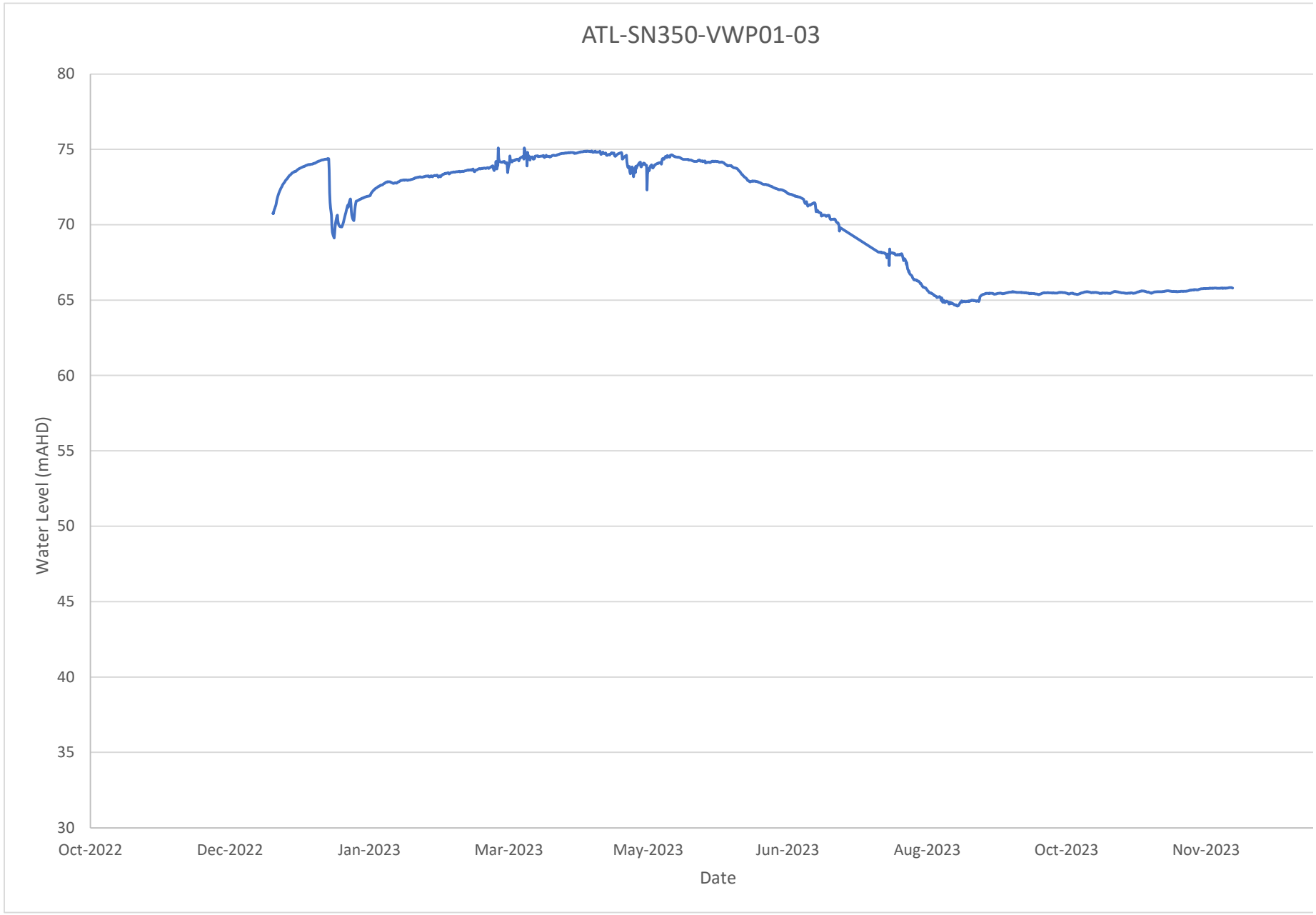

ABP-TD300-VWP04
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75
70
65
60
55
50
45
40
35
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Water Level (mAHD)
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Date

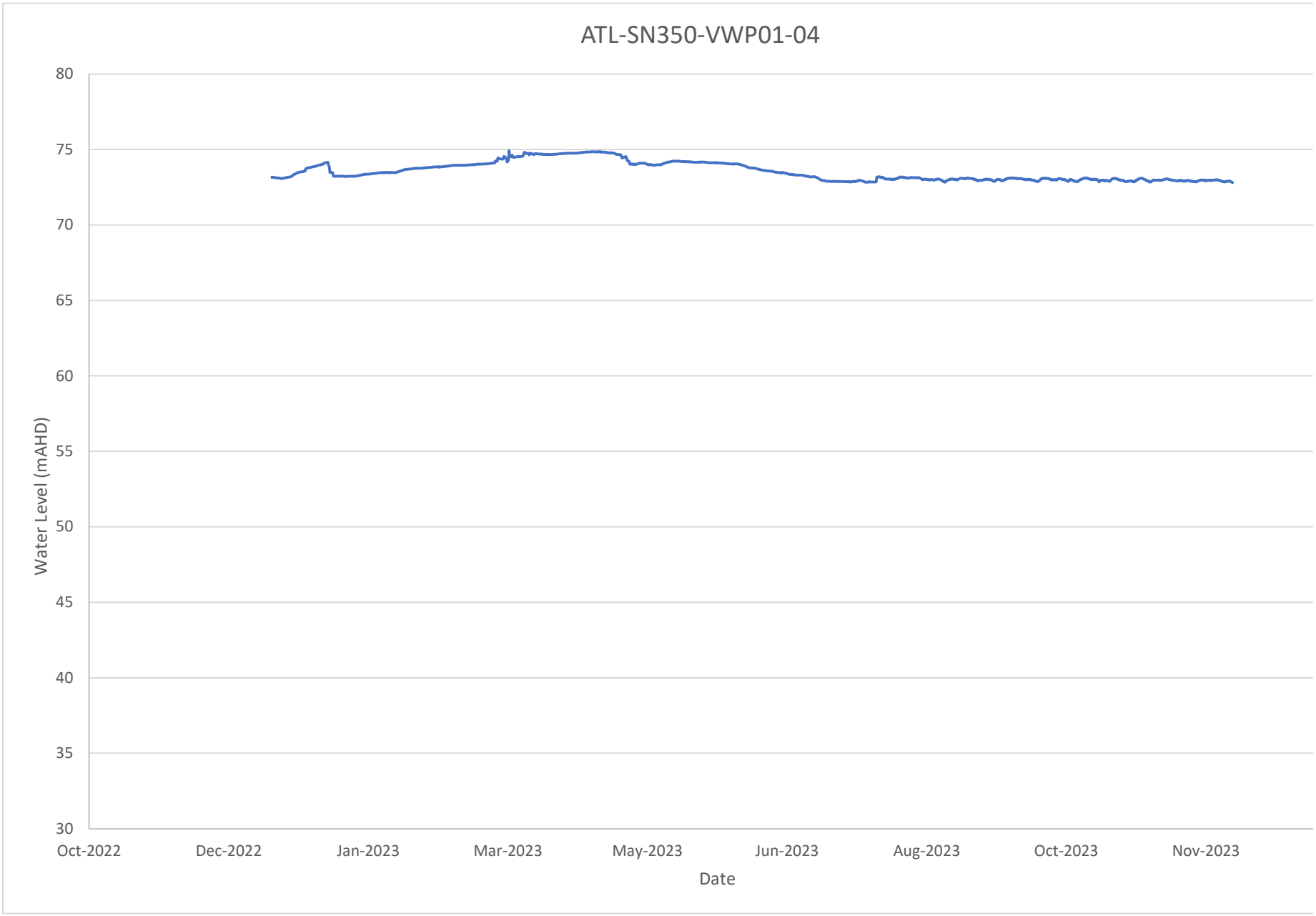

AEC-SN450-EW-VWP07
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75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Apr-2023
May-2023
Jun-2023
Jun-2023
Jul-2023
Aug-2023
Aug-2023
Sep-2023
Oct-2023
Date

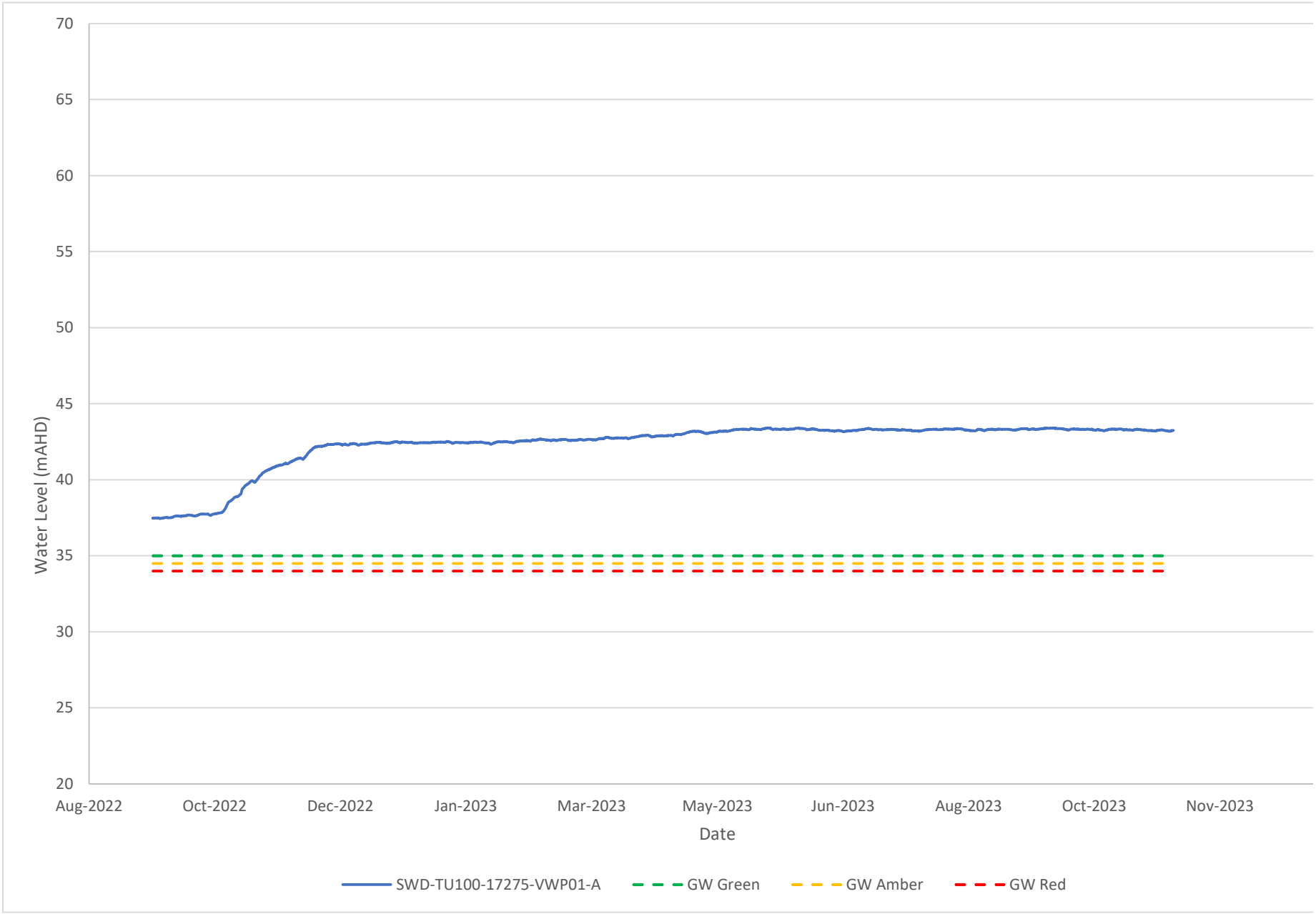

AEC-SN450-WW-VWP06
80
75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Apr-2023
Apr-2023
May-2023
Jun-2023
Jun-2023
Jul-2023
Aug-2023
Aug-2023
Sep-2023
Oct-2023
Date


ATL-SN350-VWP01-01
80
75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Date

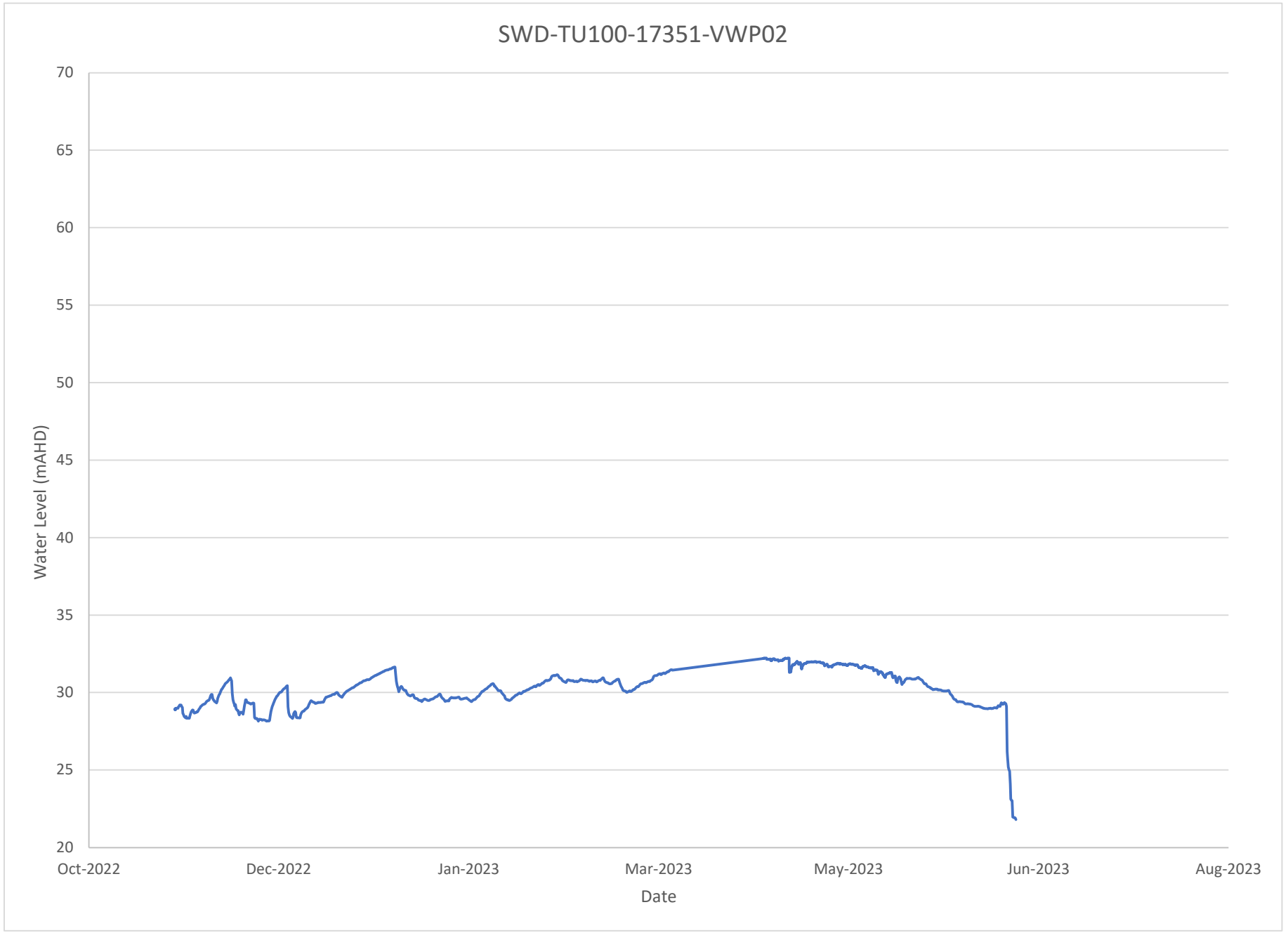

ATL-SN350-VWP01-02
80
75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Date


ATL-SN350-VWP01-03
80
75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Date


ATL-SN350-VWP01-04
80
75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Date

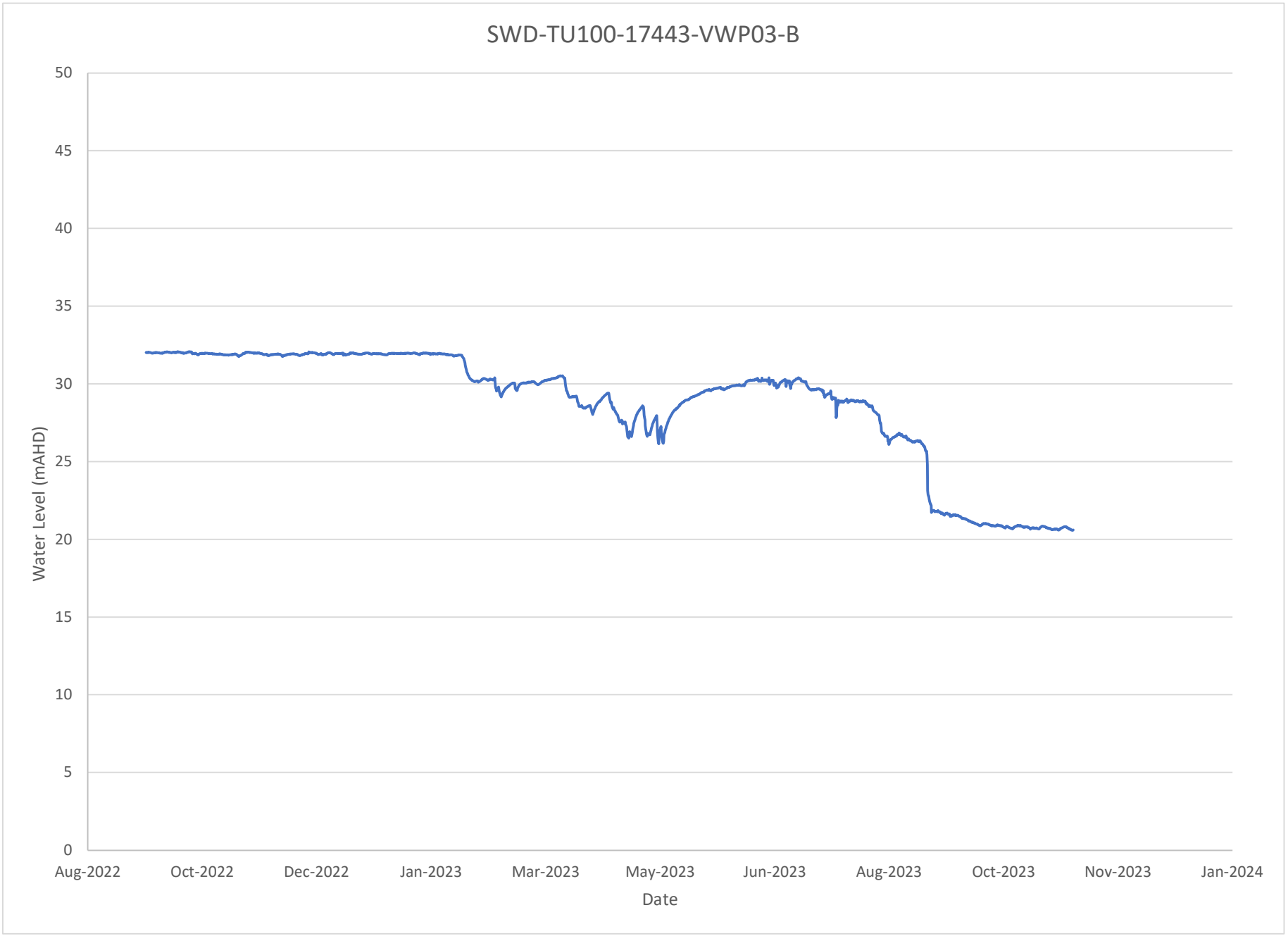

70
65
60
55
50
45
40
35
30
25
20
Water Level (mAHD)
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Date
SWD-TU100-17275-VWP01-A
GW Green
GW Amber
GW Red

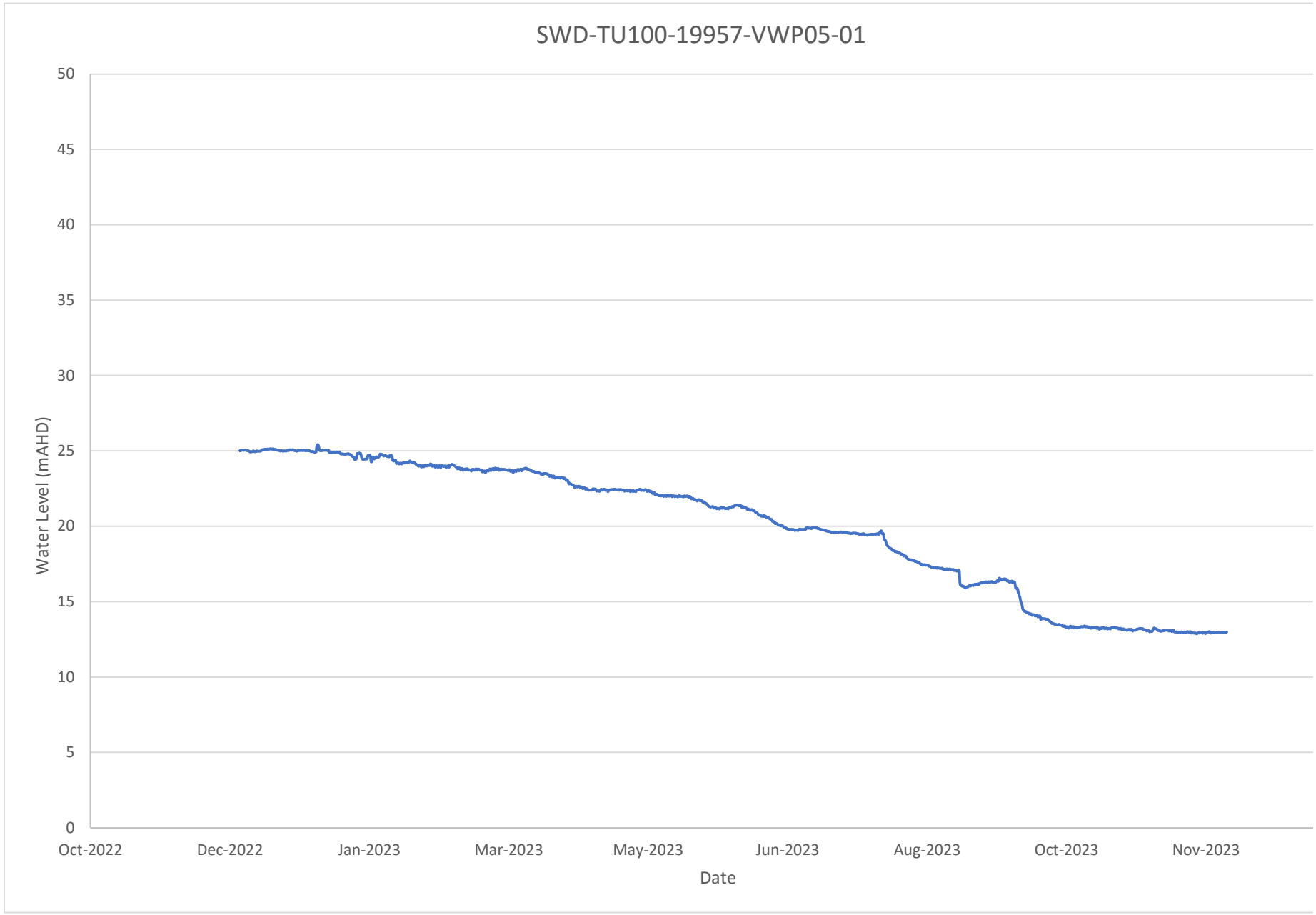

70
65
60
55
50
45
40
35
30
25
20
Water Level (mAHD)
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Jan-2024
Date
SWD-TU100-17275-VWP01-B
GW Green
GW Amber
GW Red


SWD-TU100-17351-VWP02
70
65
60
55
50
45
40
35
30
25
20
Water Level (mAHD)
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Date


50
45
40
35
30
25
20
15
10
5
0
Water Level (mAHD)
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Jan-2024
Date
SWD-TU100-17443-VWP03-A
GW Green
GW Amber
GW Red


50
45
40
35
30
25
20
15
10
5
0
Water Level (mAHD)
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Jan-2024
Date
SWD-TU100-17443-VWP03-B
GW Green
GW Amber
GW Red


SWD-TU100-17443-VWP03-B
Water Level (mAHD)
50
45
40
35
30
25
20
15
10
5
0
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Jan-2024
Date


SWD-TU100-19957-VWP05-01
Water Level (mAHD)
50
45
40
35
30
25
20
15
10
5
0
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Date


SWD-TU100-19957-VWP05-02
Water Level (mAHD)
50
45
40
35
30
25
20
15
10
5
0
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Date


SWD-TU100-19957-VWP05-03
Water Level (mAHD)
50
45
40
35
30
25
20
15
10
5
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Aug-2023
Oct-2023
Nov-2023
Date

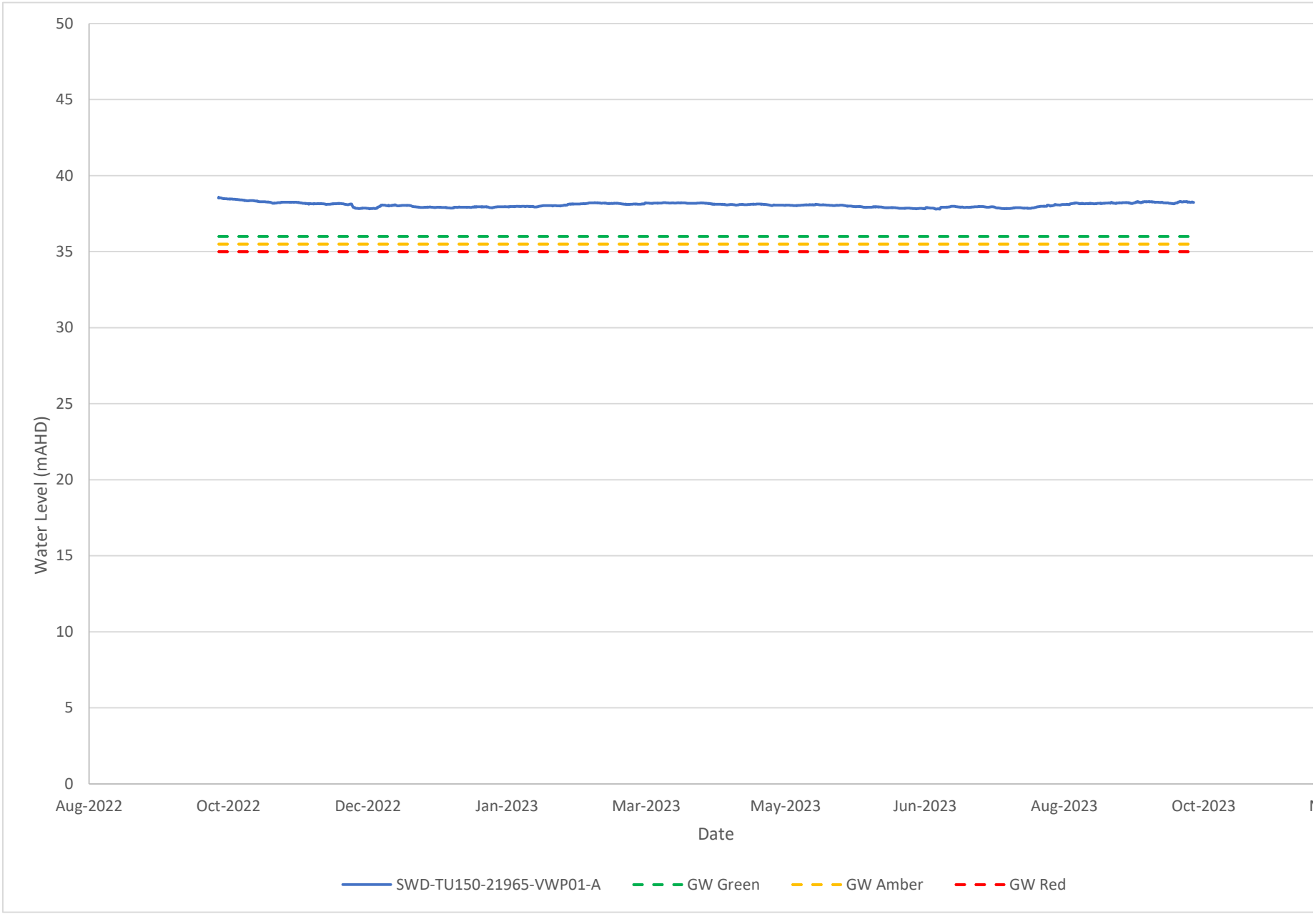

SWD-TU100-19992-VWP06-01
Water Level (mAHD)
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45
40
35
30
25
20
15
10
5
0
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Oct-2023
Nov-2023
Date

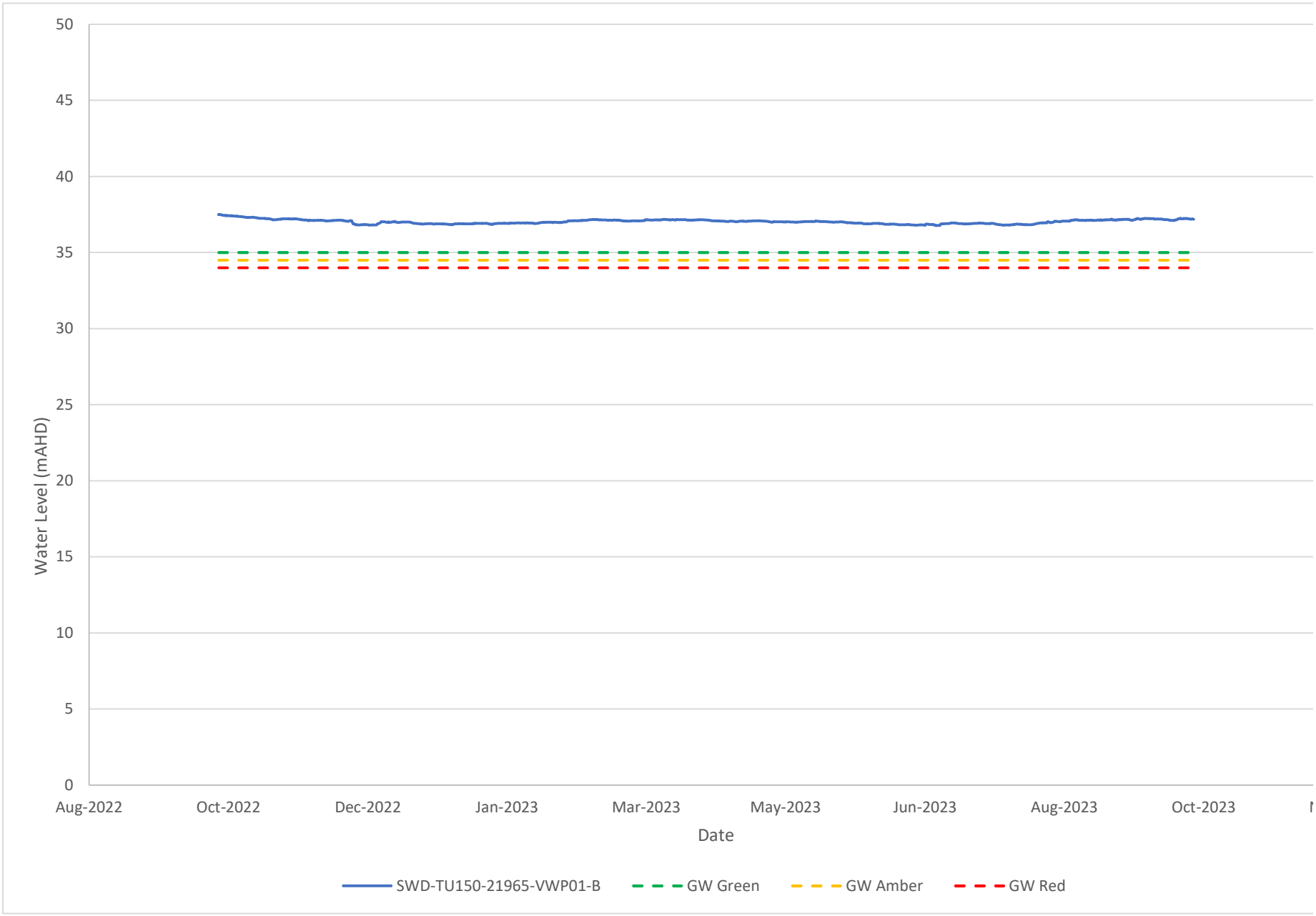

SWD-TU100-19992-VWP06-02
Water Level (mAHD)
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45
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35
30
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15
10
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0
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Date


SWD-TU100-19992-VWP06-03
Water Level (mAHD)
50
45
40
35
30
25
20
15
10
5
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Oct-2022
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Oct-2023
Nov-2023
Date

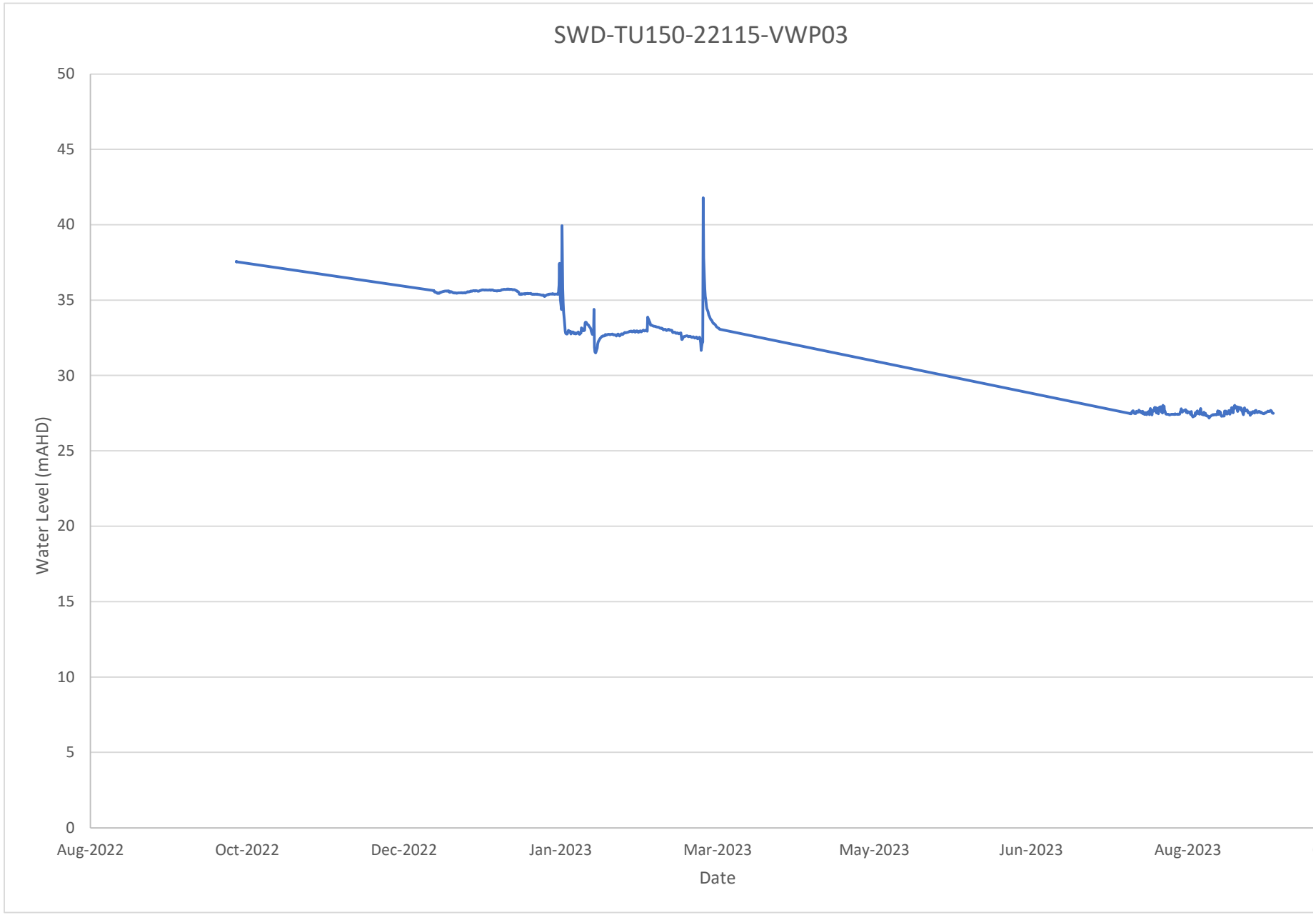

50
45
40
35
30
25
20
15
10
5
0
Water Level (mAHD)
Sep-2022
Sep-2022
Sep-2022
Sep-2022
Sep-2022
Sep-2022
Sep-2022
Sep-2022
Sep-2022
Sep-2022
Sep-2022
Date
SWD-TU100-20071-VWP07-A
GW Green
GW Amber
GW Red

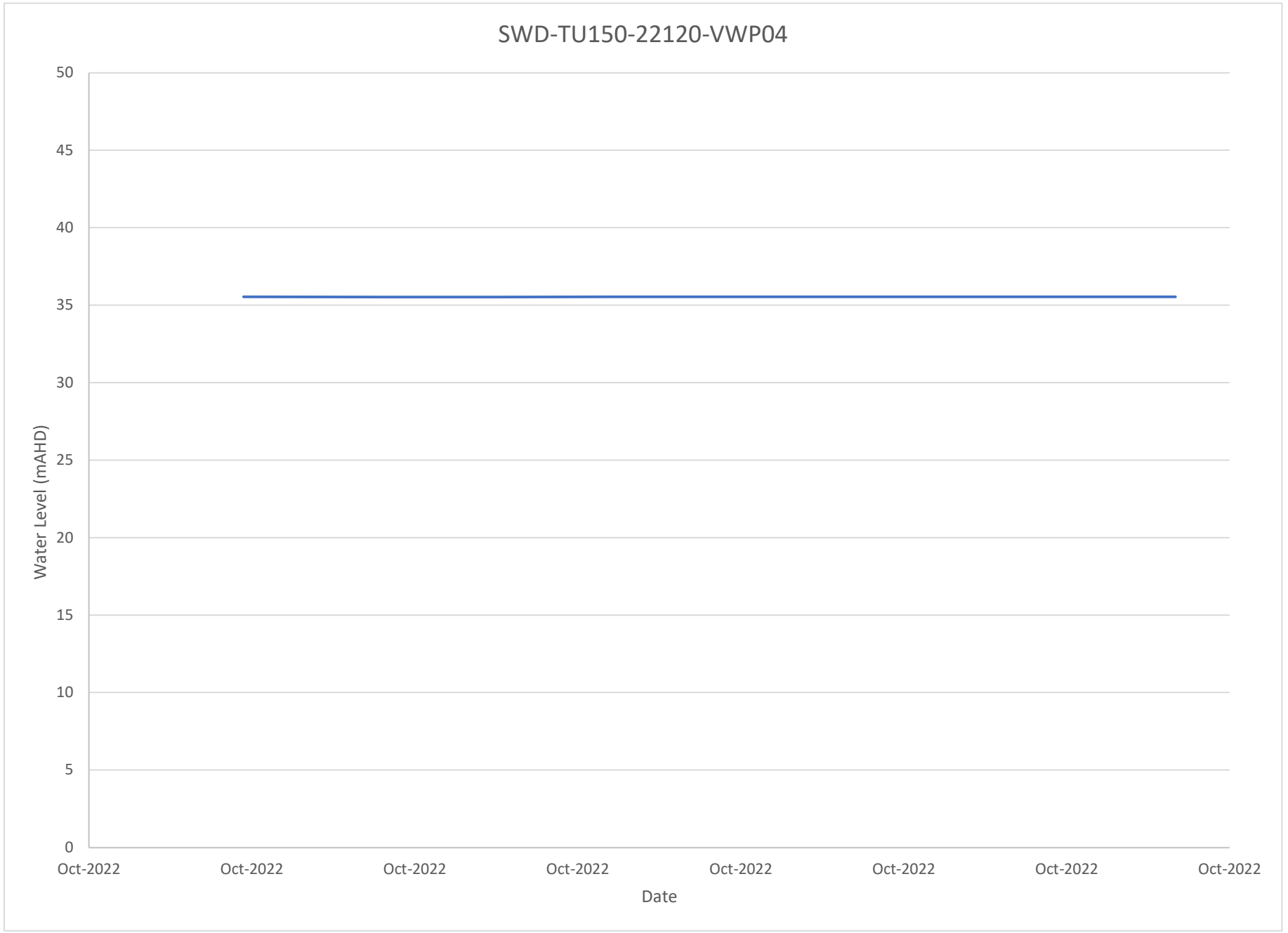

50
45
40
35
30
25
20
15
10
5
0
Water Level (mAHD)
Sep-2022
Sep-2022
Sep-2022
Sep-2022
Sep-2022
Sep-2022
Sep-2022
Sep-2022
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Sep-2022
Sep-2022
Date
SWD-TU100-20071-VWP07-B
GW Green
GW Amber
GW Red

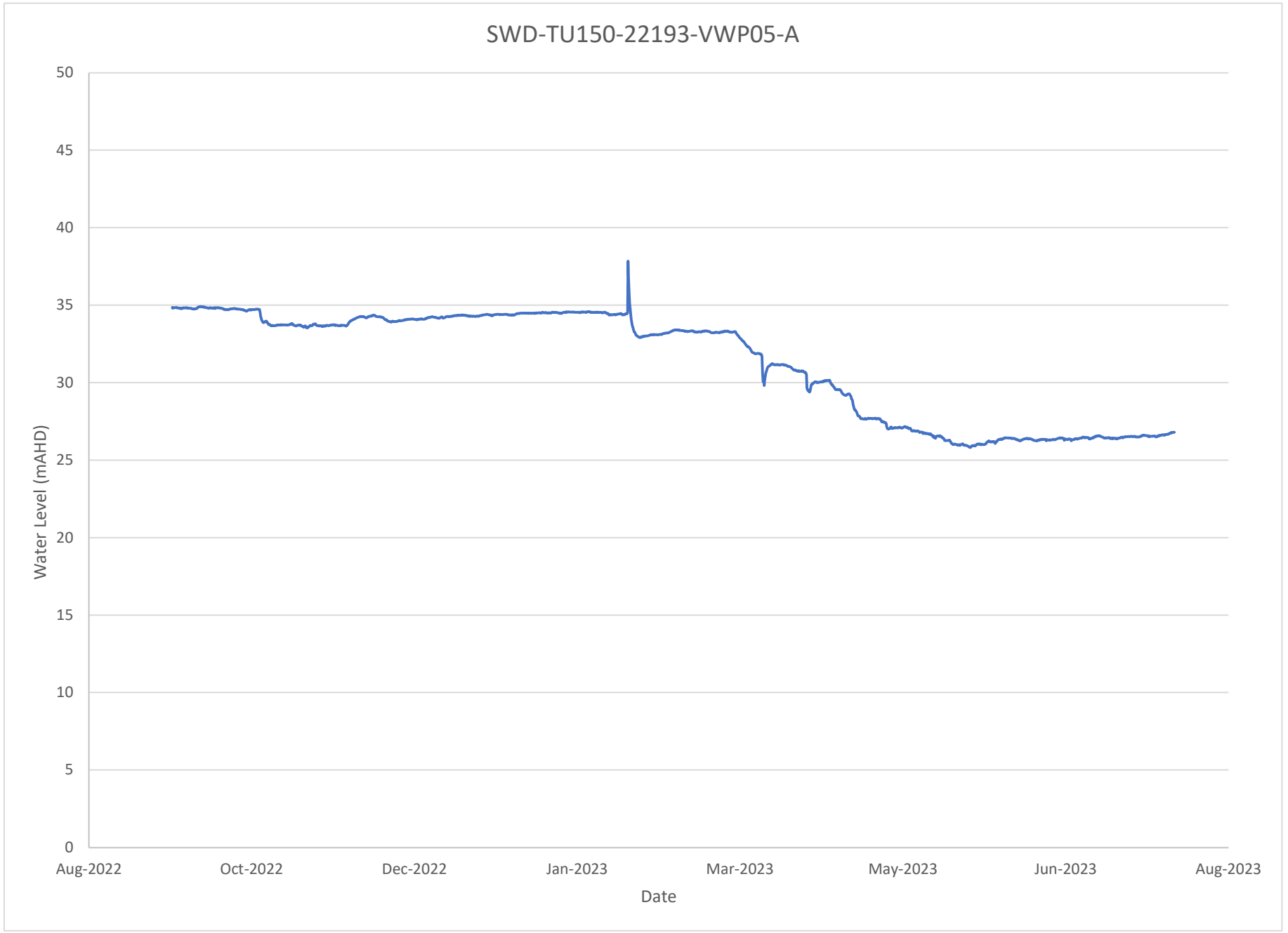

50
45
40
35
30
25
20
15
10
5
0
Water Level (mAHD)
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Date
SWD-TU150-21965-VWP01-A
GW Green
GW Amber
GW Red

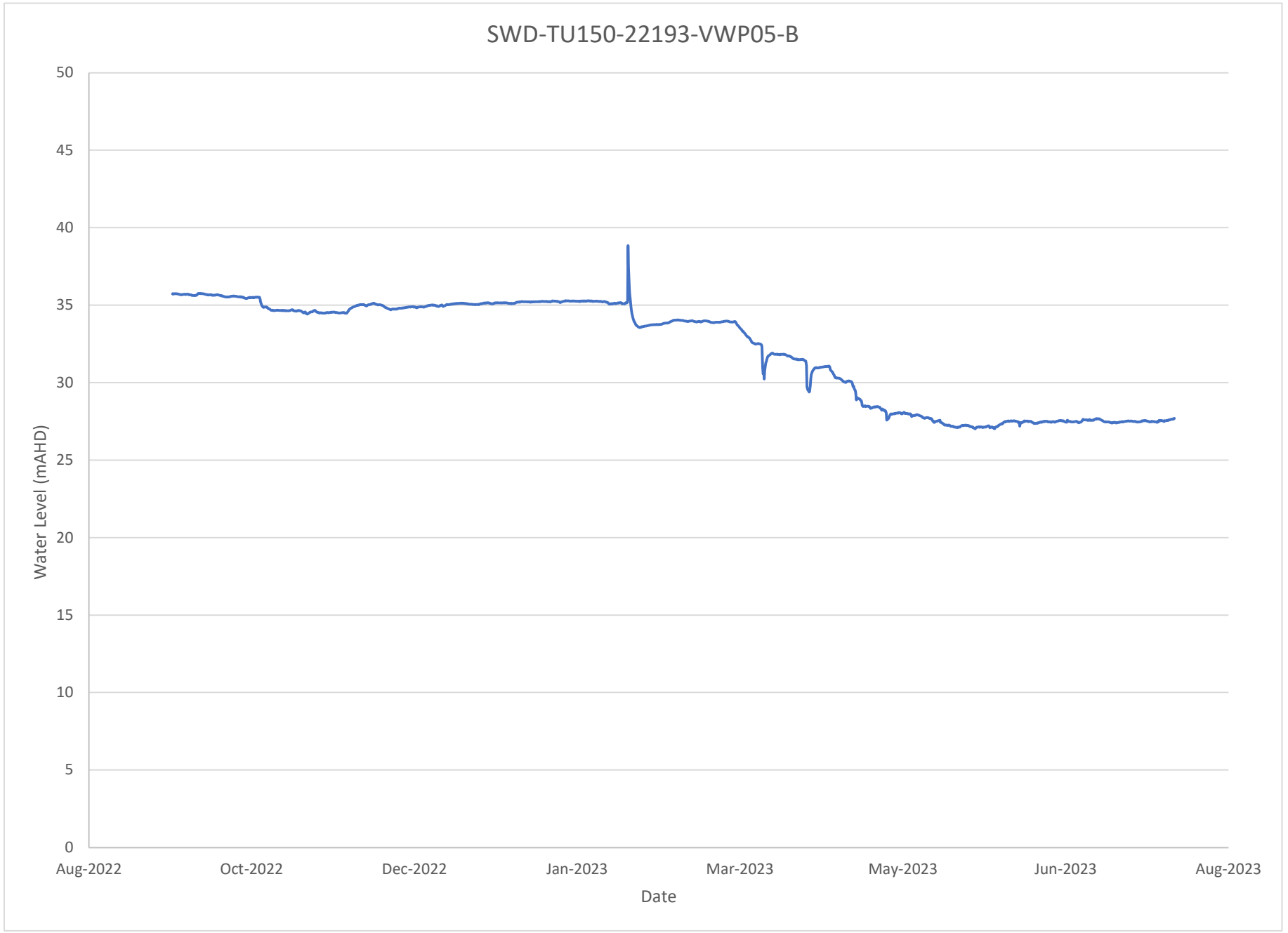

50
45
40
35
30
25
20
15
10
5
0
Water Level (mAHD)
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Date
SWD-TU150-21965-VWP01-B
GW Green
GW Amber
GW Red

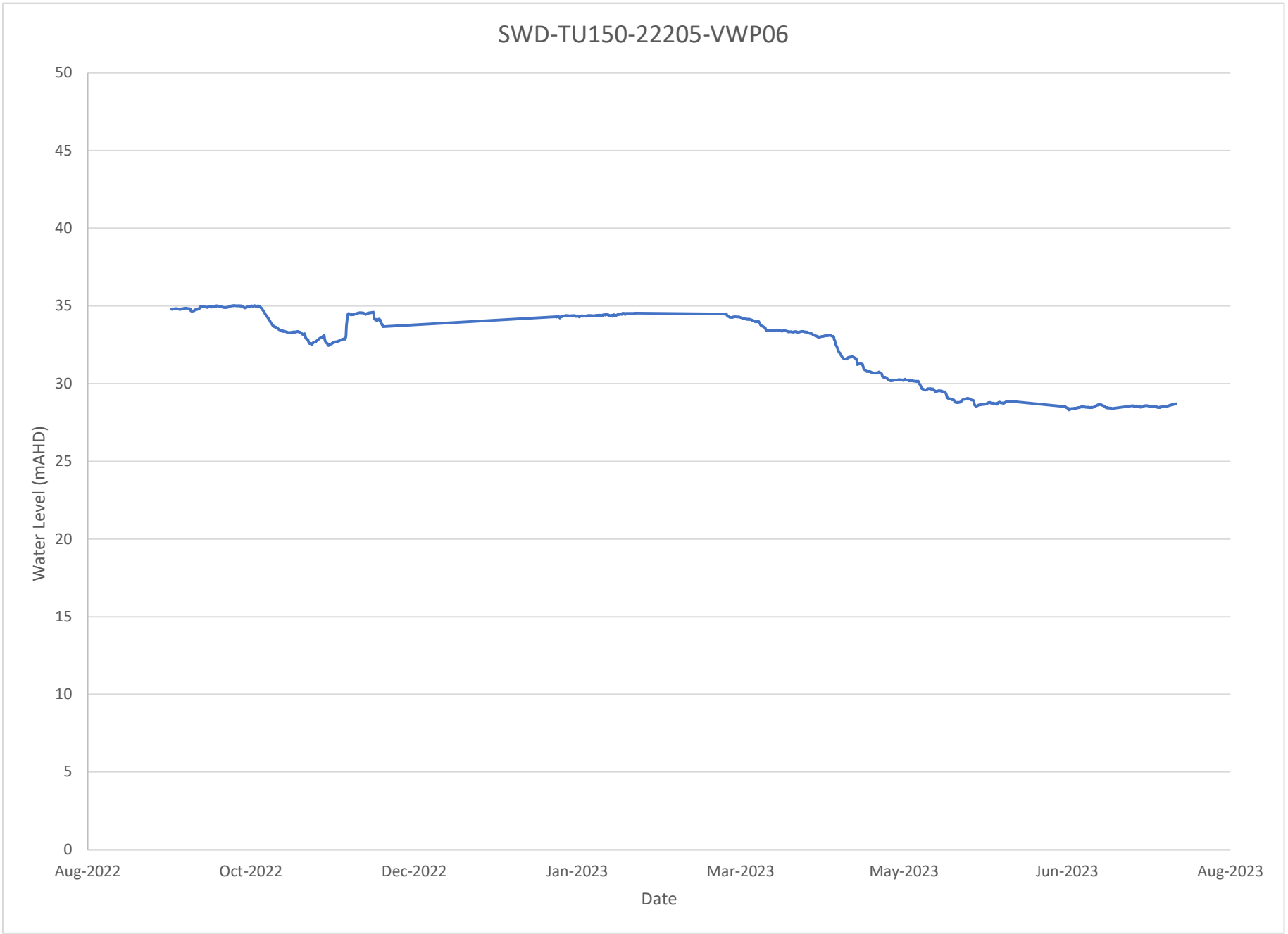

50
45
40
35
30
25
20
15
10
5
0
Water Level (mAHD)
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Jan-2024
Date
SWD-TU150-22010-VWP02
GW Green
GW Amber
GW Red


SWD-TU150-22115-VWP03
Water Level (mAHD)
50
45
40
35
30
25
20
15
10
5
0
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Date

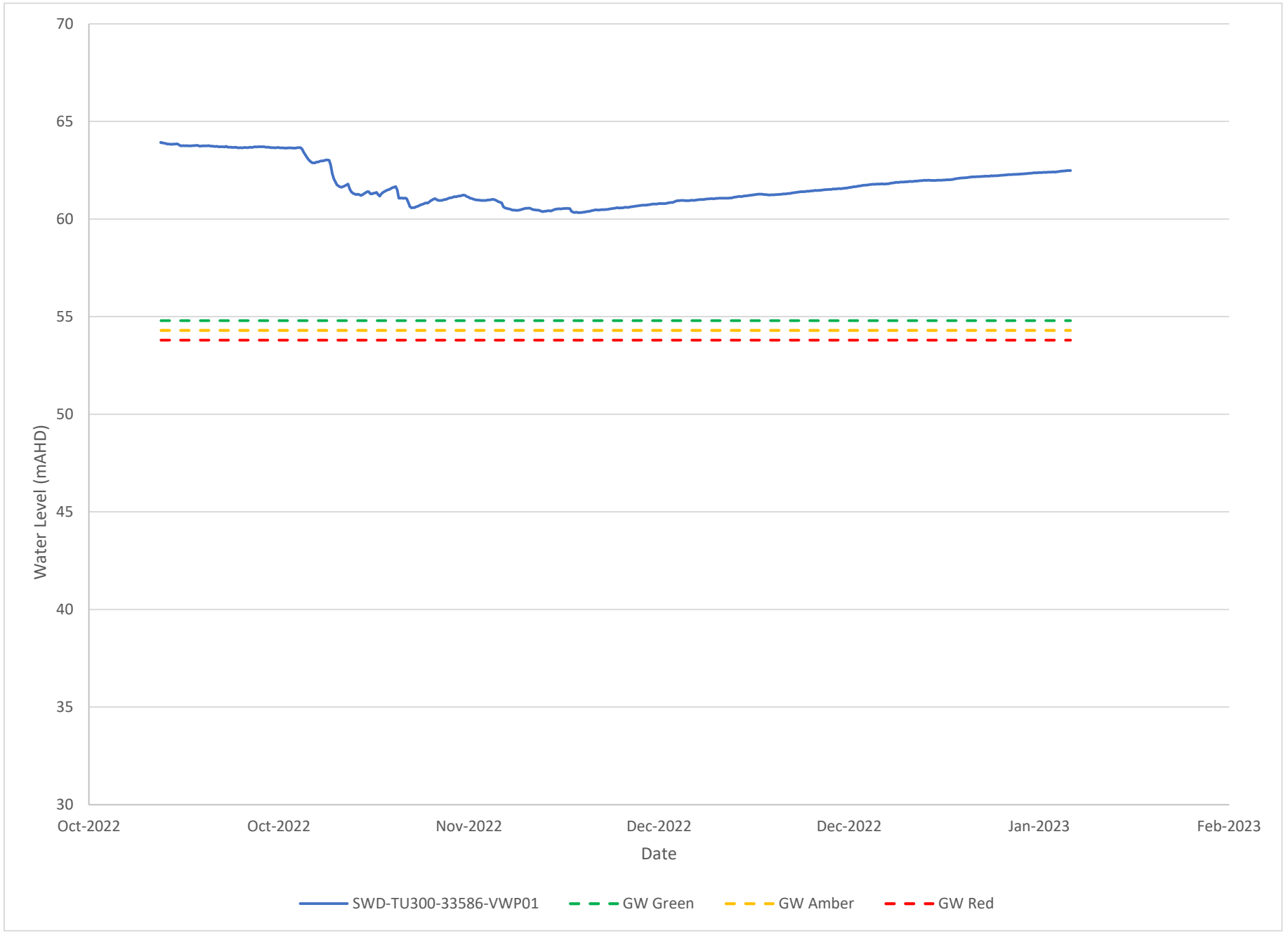

SWD-TU150-22120-VWP04
50
45
40
35
30
25
20
15
10
5
0
Water Level (mAHD)
Oct-2022
Oct-2022
Oct-2022
Oct-2022
Oct-2022
Oct-2022
Oct-2022
Oct-2022
Date

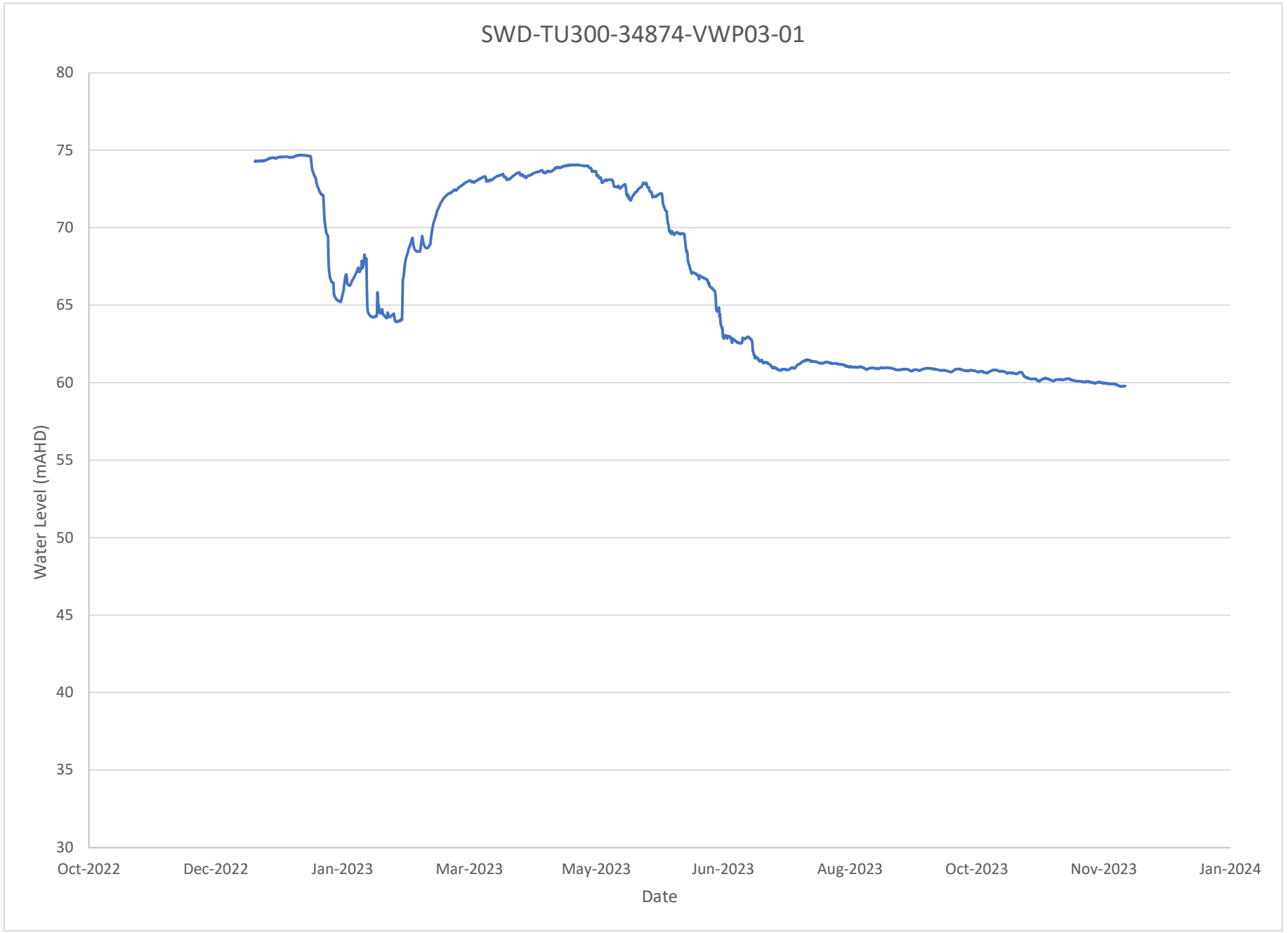

SWD-TU150-22193-VWP05-A
Water Level (mAHD)
50
45
40
35
30
25
20
15
10
5
0
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Date

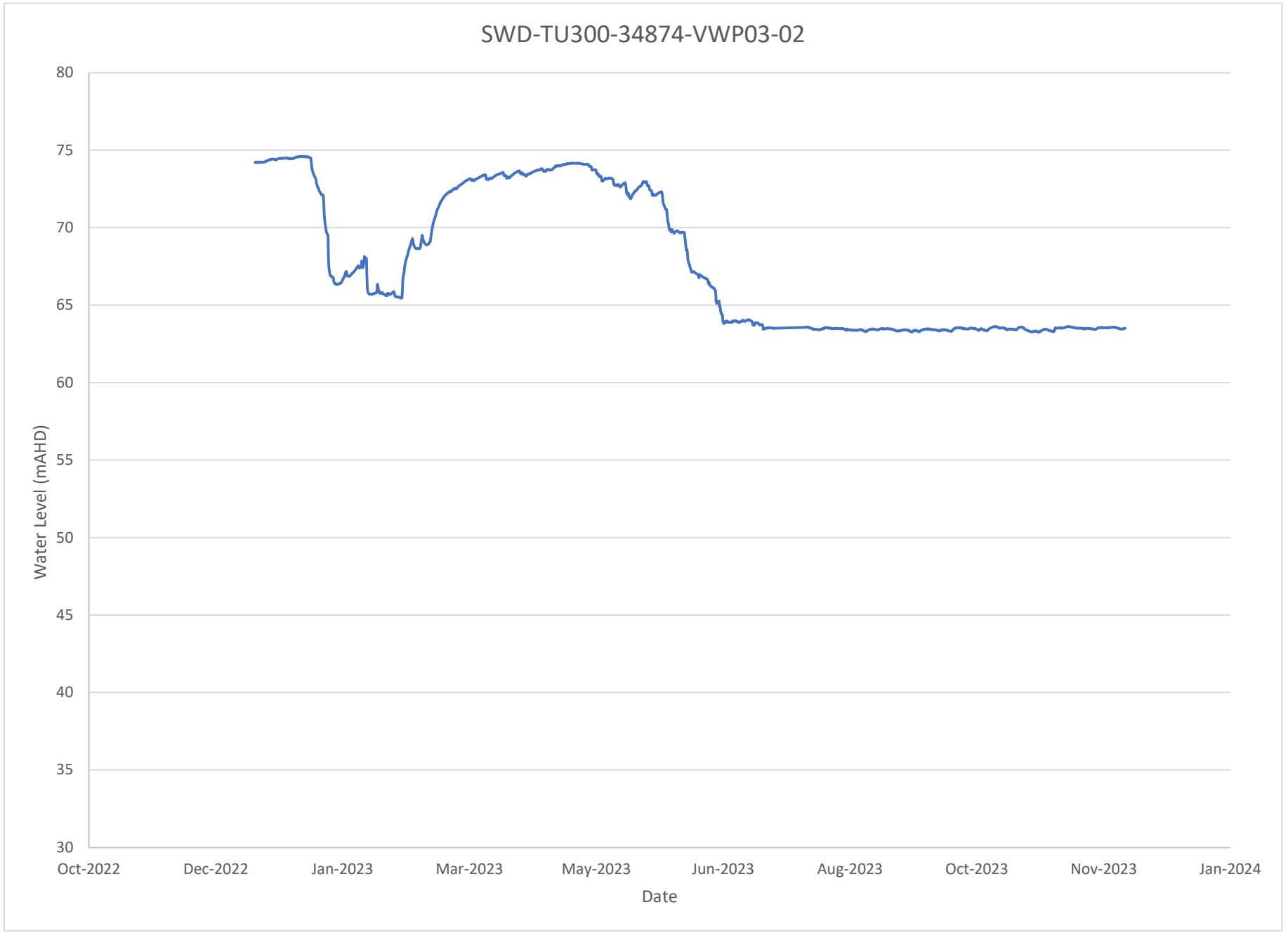

SWD-TU150-22193-VWP05-B
50
45
40
35
30
25
20
15
10
5
0
Water Level (mAHD)
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Date

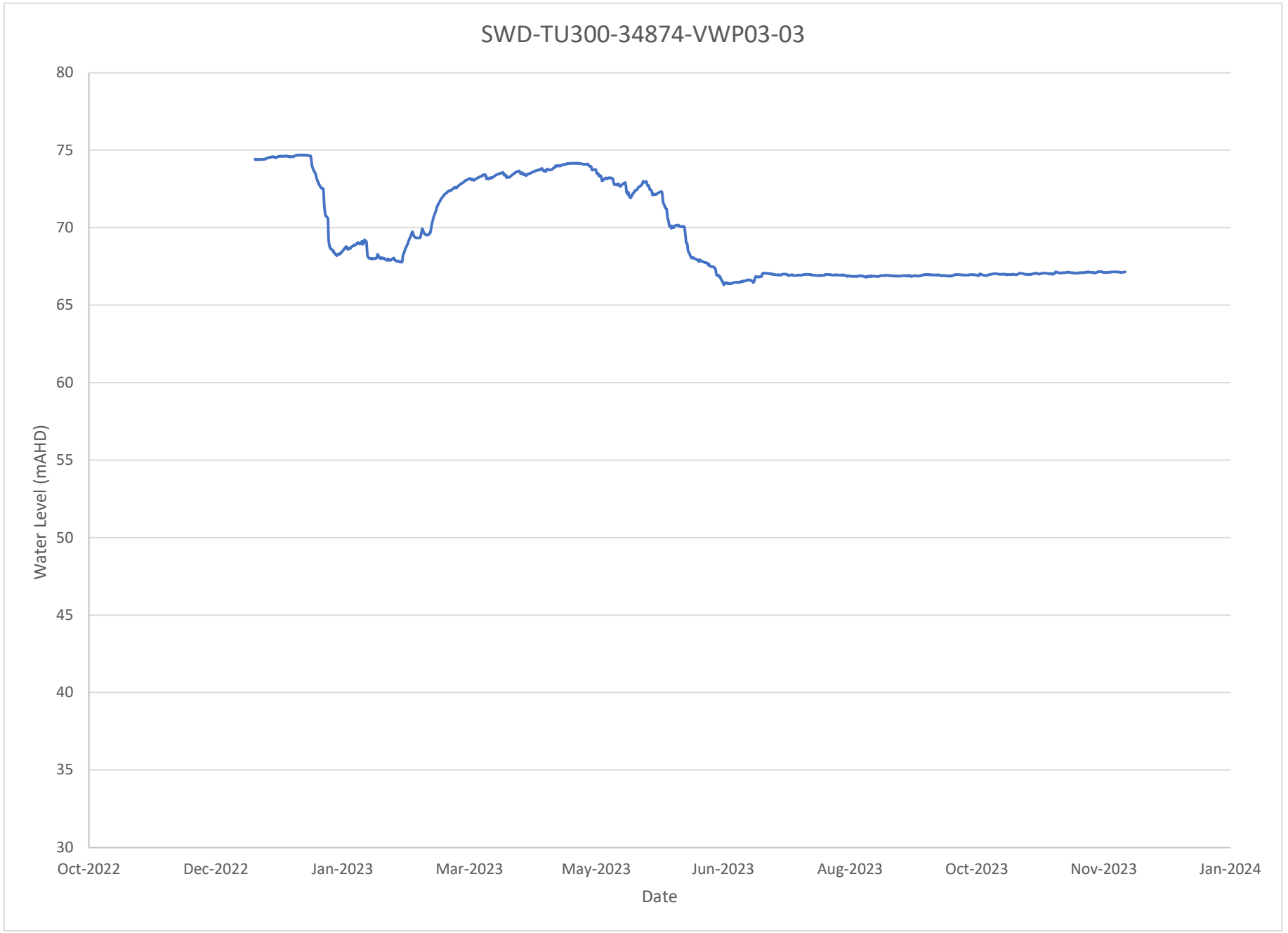

SWD-TU150-22205-VWP06
50
45
40
35
30
25
20
15
10
5
0
Water Level (mAHD)
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Date

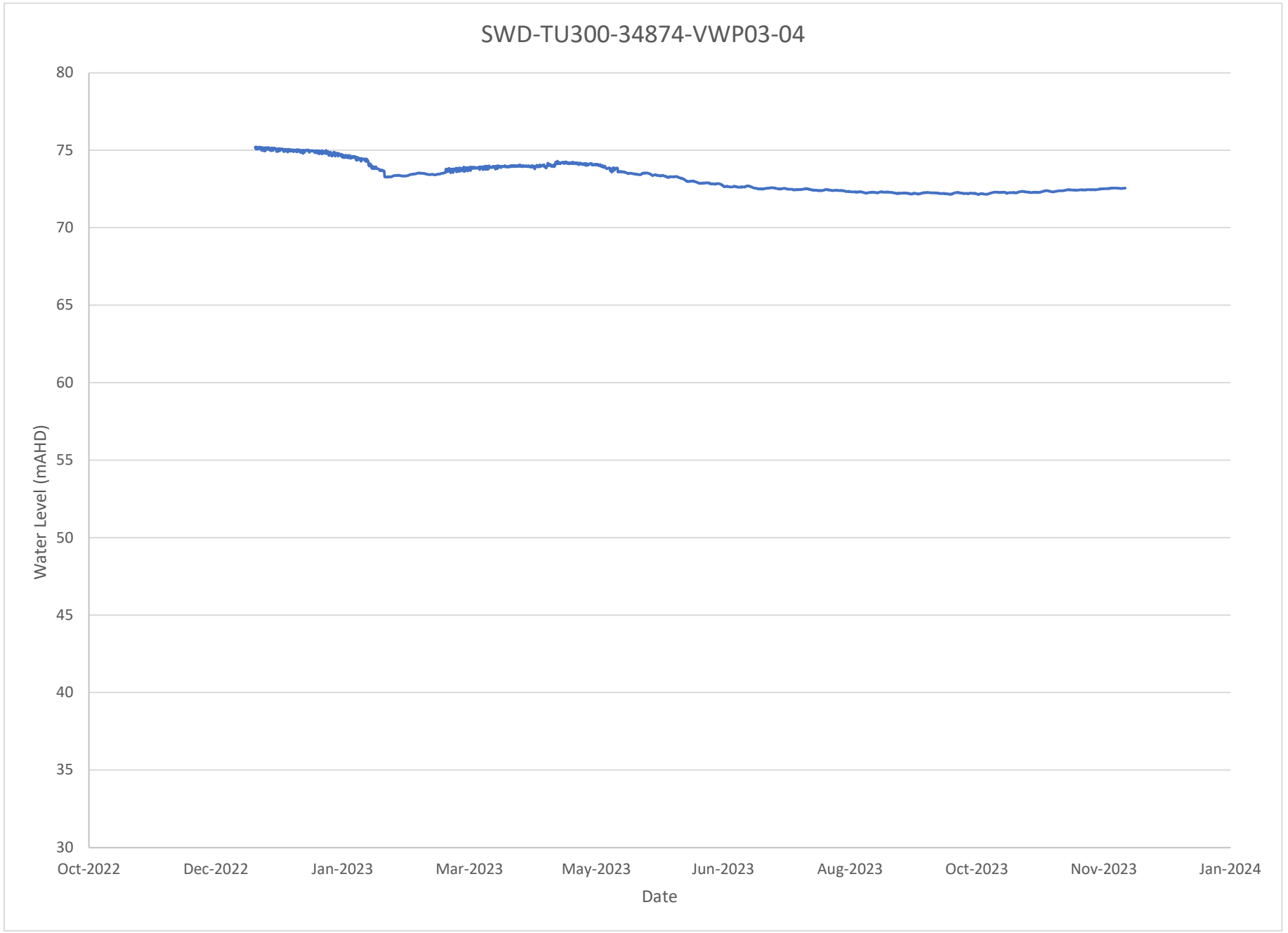

70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Oct-2022
Oct-2022
Nov-2022
Dec-2022
Dec-2022
Jan-2023
Feb-2023
Feb-2023
Mar-2023
Date
SWD-TU300-33565-VWP02
GW Green
GW Amber
GW Red


70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Oct-2022
Oct-2022
Nov-2022
Dec-2022
Dec-2022
Jan-2023
Feb-2023
Date
SWD-TU300-33586-VWP01
GW Green
GW Amber
GW Red


SWD-TU300-34874-VWP03-01
80
75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Jan-2024
Date


SWD-TU300-34874-VWP03-02
80
75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Jan-2024
Date

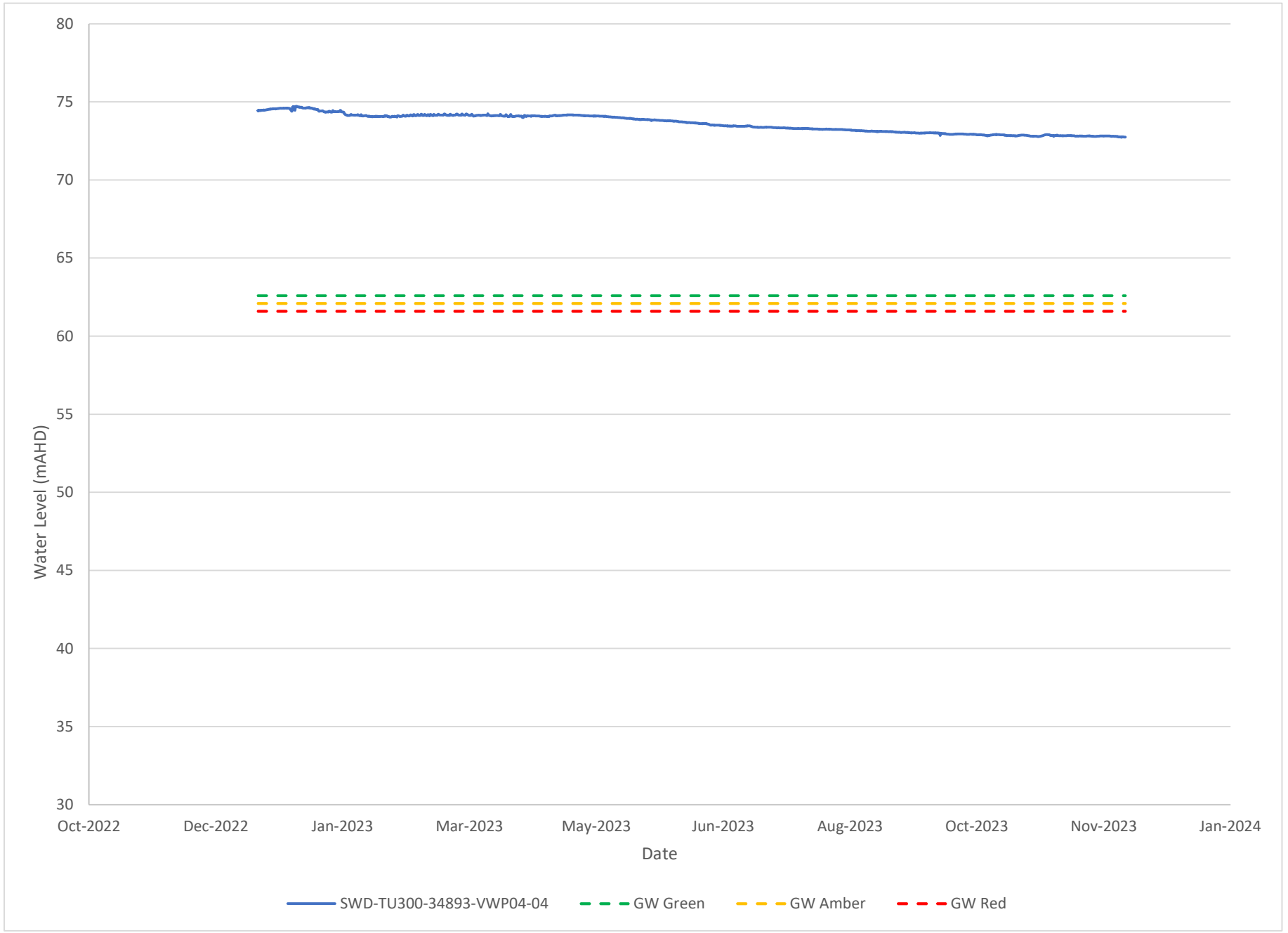

SWD-TU300-34874-VWP03-03
80
75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Jan-2024
Date

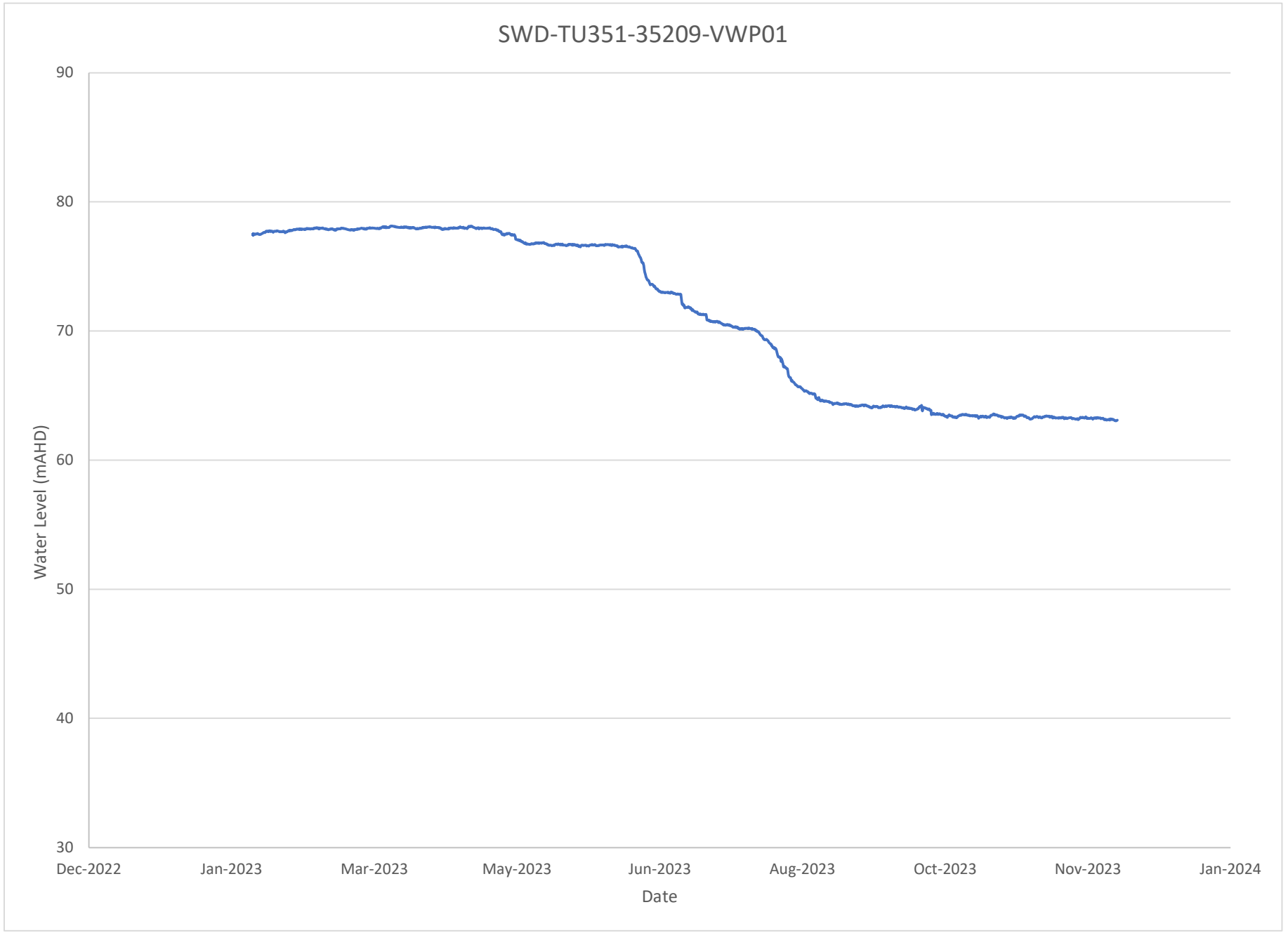

SWD-TU300-34874-VWP03-04
80
75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Jan-2024
Date

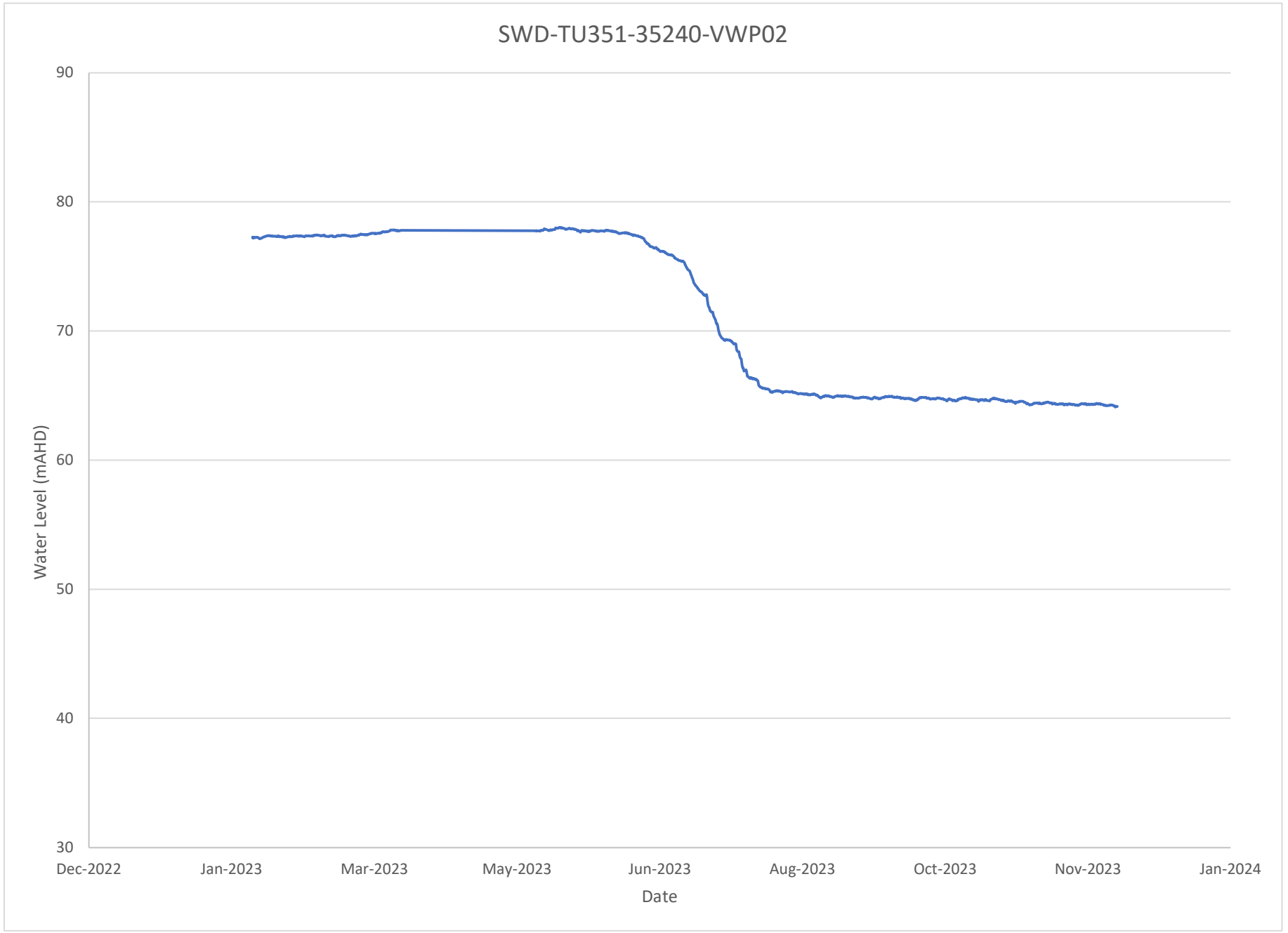

80
75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Jan-2024
Date
SWD-TU300-34893-VWP04-01
GW Green
GW Amber
GW Red


80
75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Jan-2024
Date
SWD-TU300-34893-VWP04-02
GW Green
GW Amber
GW Red


80
75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Jan-2024
Date
SWD-TU300-34893-VWP04-03
GW Green
GW Amber
GW Red


80
75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Jan-2024
Date
SWD-TU300-34893-VWP04-04
GW Green
GW Amber
GW Red


SWD-TU351-35209-VWP01
90
80
70
60
50
40
30
Water Level (mAHD)
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Jan-2024
Date


SWD-TU351-35240-VWP02
90
80
70
60
50
40
30
Water Level (mAHD)
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Jan-2024
Date


70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Jan-2024
Date
SWD-TU351-37371-VWP04
GW Green
GW Amber
GW Red


70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Jan-2024
Date
SWD-TU351-37377-VWP05
GW Green
GW Amber
GW Red


70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Jan-2024
Date
SWD-TU351-37471-VWP06
GW Green
GW Amber
GW Red

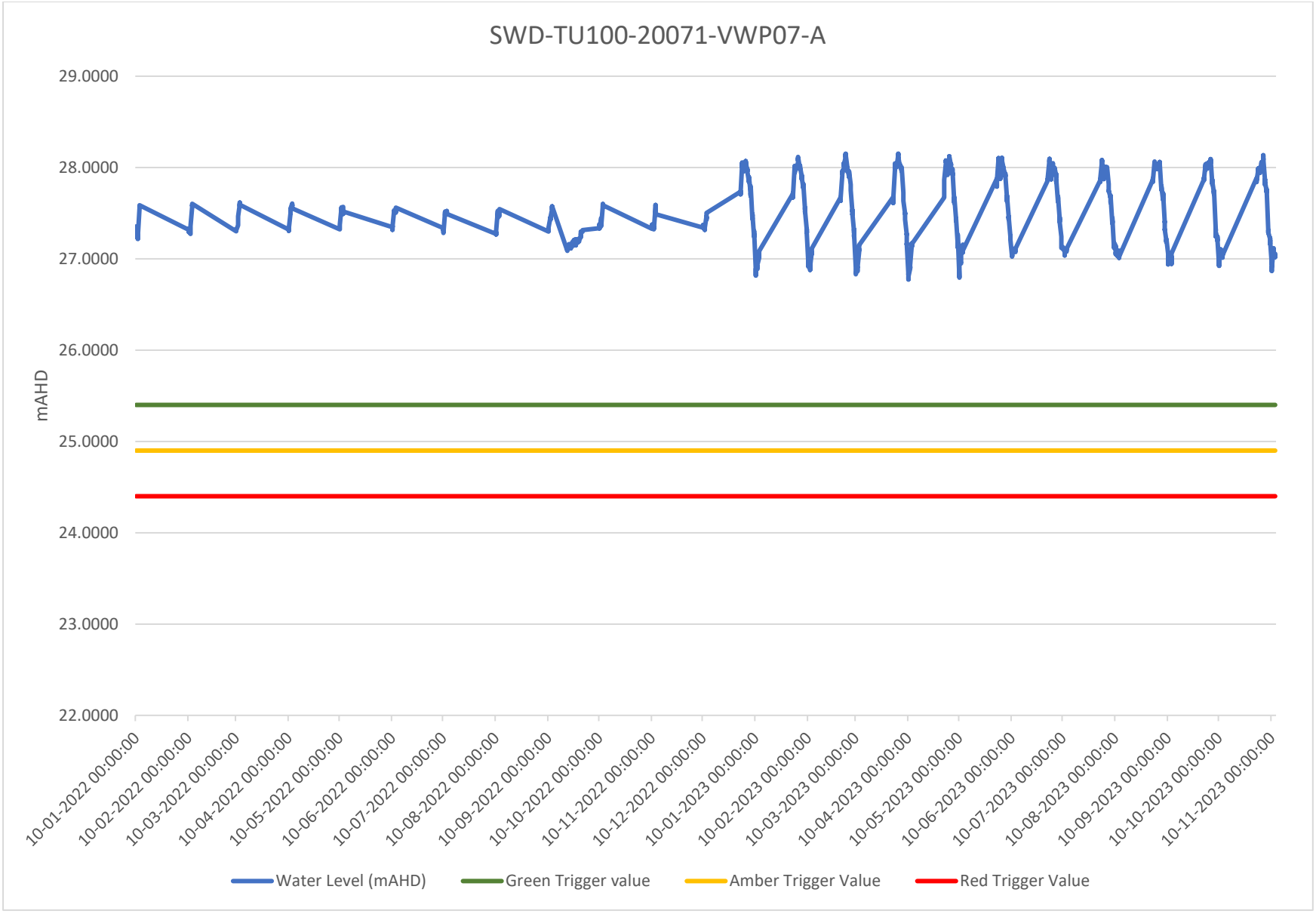

70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Date
SWD-TU400-39287-VWP01
GW Green
GW Amber
GW Red

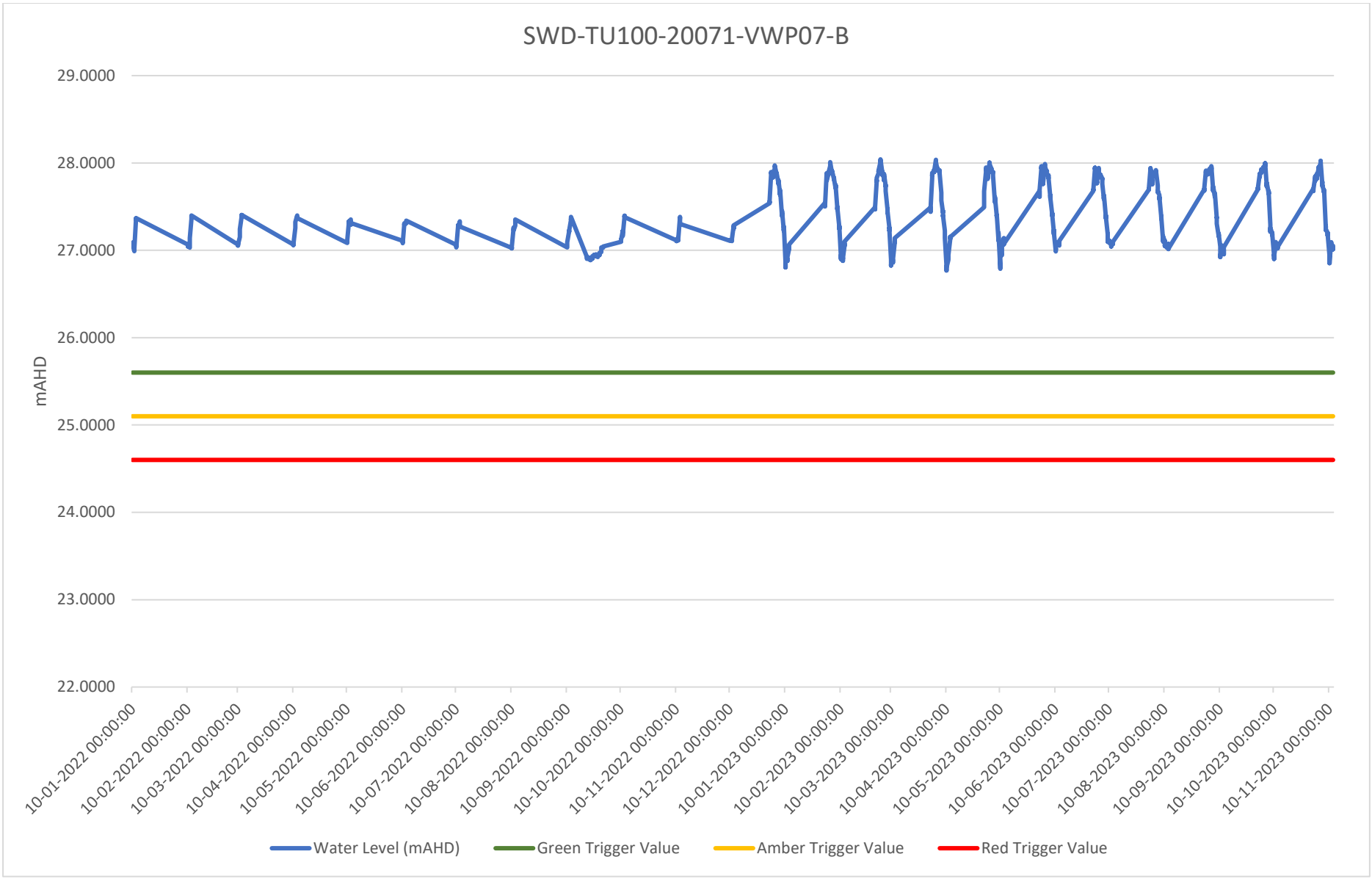

70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Date
SWD-TU400-39340-VWP02
GW Green
GW Amber
GW Red


75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Date
SWD-TU400-39532-VWP03
GW Green
GW Amber
GW Red

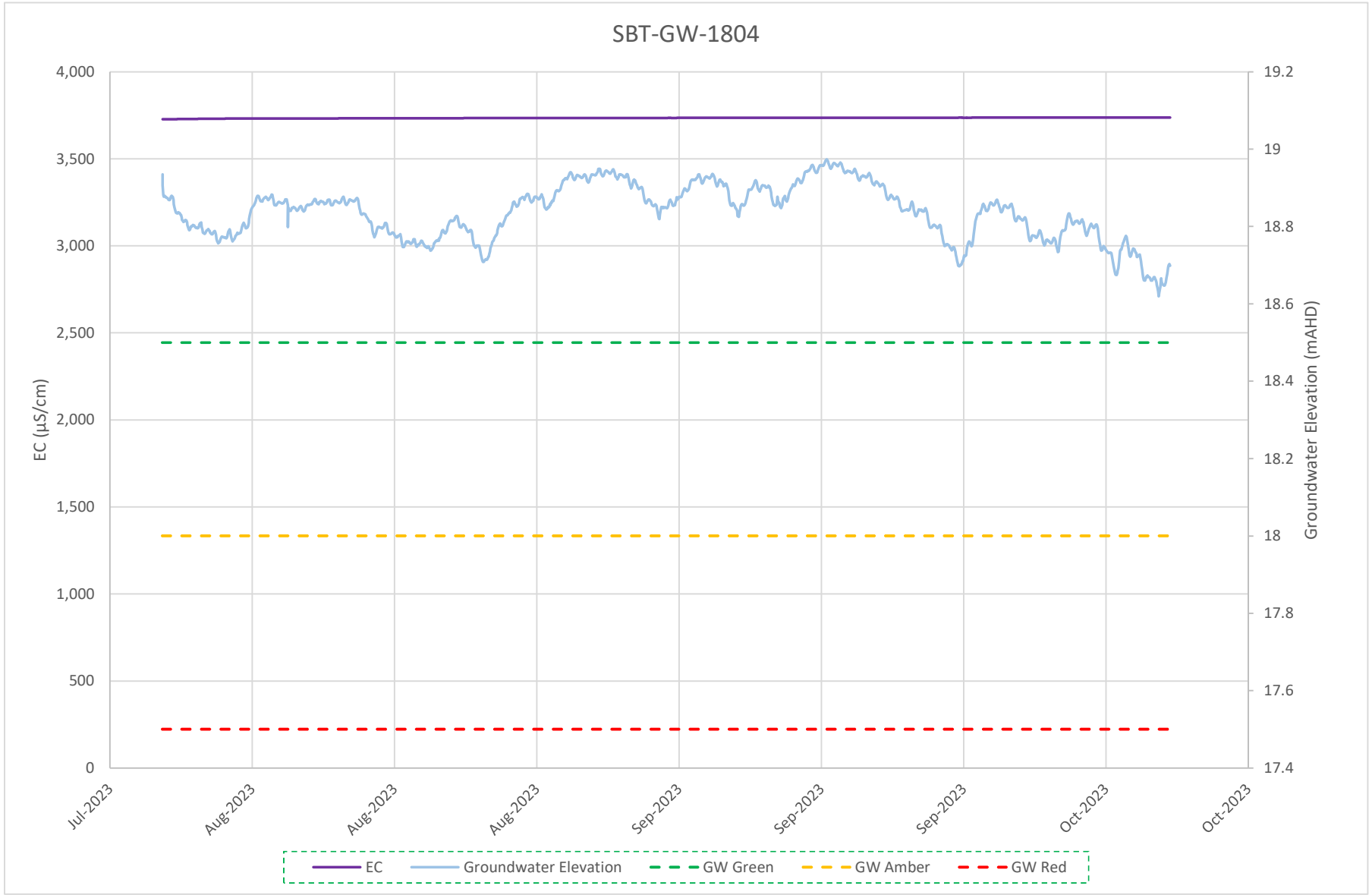

70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Date
SWD-TU400-39565-VWP04-A
GW Green
GW Amber
GW Red

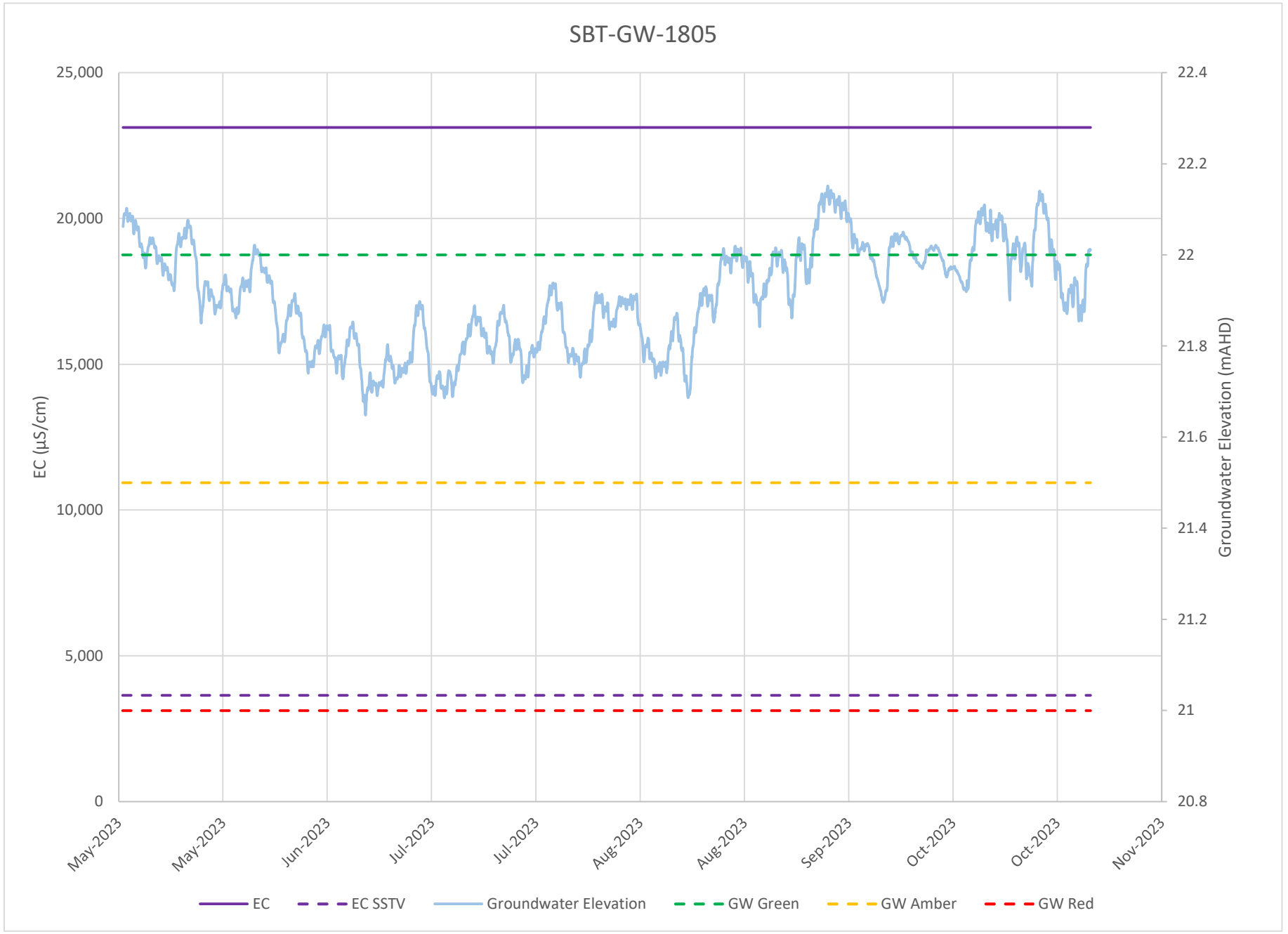

75
70
65
60
55
50
45
40
35
30
Water Level (mAHD)
Aug-2022
Oct-2022
Dec-2022
Jan-2023
Mar-2023
May-2023
Jun-2023
Aug-2023
Oct-2023
Nov-2023
Date
SWD-TU400-39565-VWP04-B
GW Green
GW Amber
GW Red

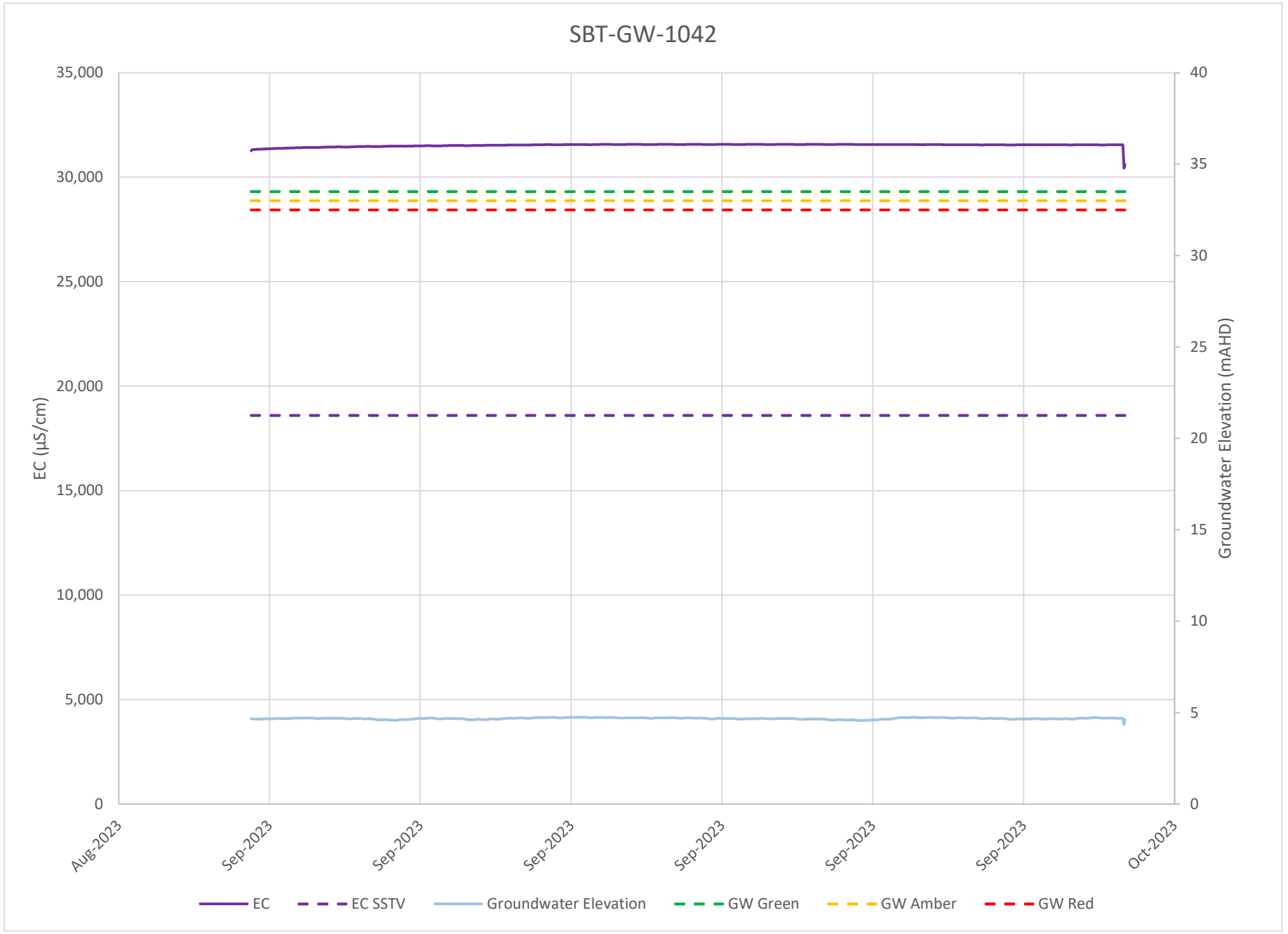

SWD-TU100-20071-VWP07-A
29.0000
28.0000
27.0000
26.0000
25.0000
24.0000
23.0000
22.0000
mAHD
10-01-2022 00:00:00
10-02-2022 00:00:00
10-03-2022 00:00:00
10-04-2022 00:00:00
10-05-2022 00:00:00
10-06-2022 00:00:00
10-07-2022 00:00:00
10-08-2022 00:00:00
10-09-2022 00:00:00
10-10-2022 00:00:00
10-11-2022 00:00:00
10-12-2022 00:00:00
10-01-2023 00:00:00
10-02-2023 00:00:00
10-03-2023 00:00:00
10-04-2023 00:00:00
10-05-2023 00:00:00
10-06-2023 00:00:00
10-07-2023 00:00:00
10-08-2023 00:00:00
10-09-2023 00:00:00
10-10-2023 00:00:00
10-11-2023 00:00:00
Water Level (mAHD)
Green Trigger value
Amber Trigger Value
Red Trigger Value

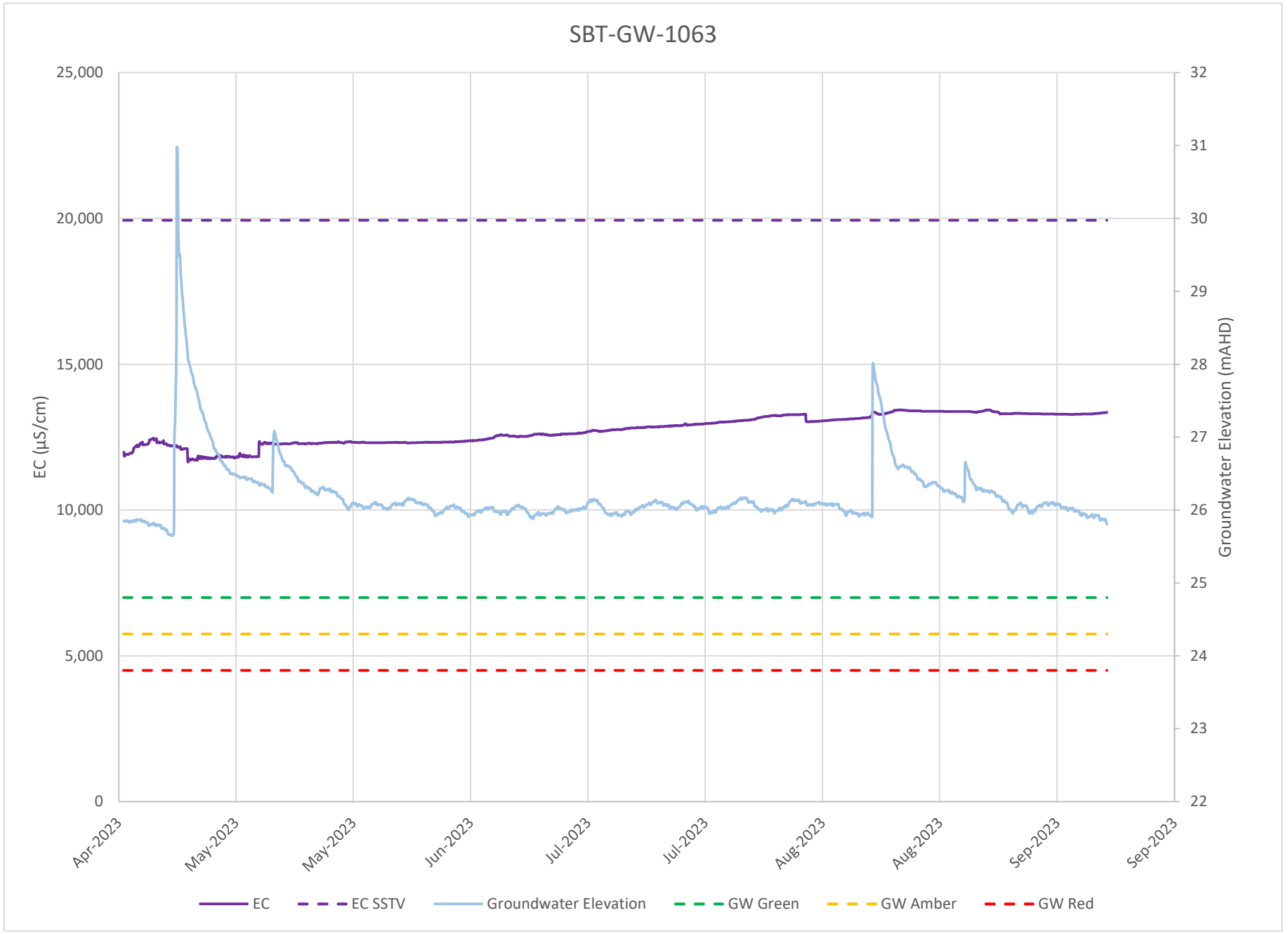

SWD-TU100-20071-VWP07-B
29.0000
28.0000
27.0000
26.0000
25.0000
24.0000
23.0000
22.0000
mAHD
10-01-2022 00:00:00
10-02-2022 00:00:00
10-03-2022 00:00:00
10-04-2022 00:00:00
10-05-2022 00:00:00
10-06-2022 00:00:00
10-07-2022 00:00:00
10-08-2022 00:00:00
10-09-2022 00:00:00
10-10-2022 00:00:00
10-11-2022 00:00:00
10-12-2022 00:00:00
10-01-2023 00:00:00
10-02-2023 00:00:00
10-03-2023 00:00:00
10-04-2023 00:00:00
10-05-2023 00:00:00
10-06-2023 00:00:00
10-07-2023 00:00:00
10-08-2023 00:00:00
10-09-2023 00:00:00
10-10-2023 00:00:00
10-11-2023 00:00:00
Water Level (mAHD)
Green Trigger Value
Amber Trigger Value
Red Trigger Value

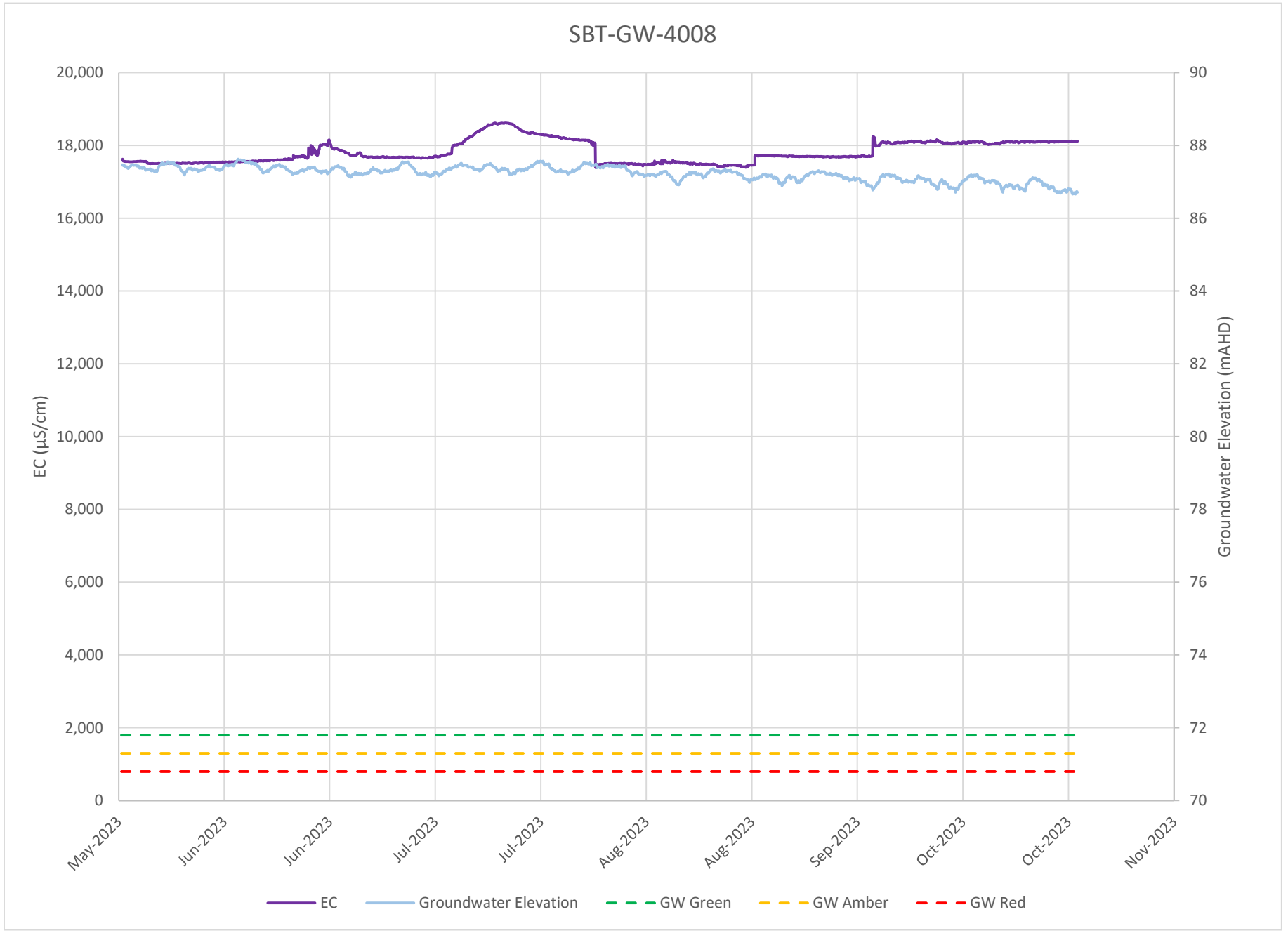
Annexure D GDE groundwater and EC data

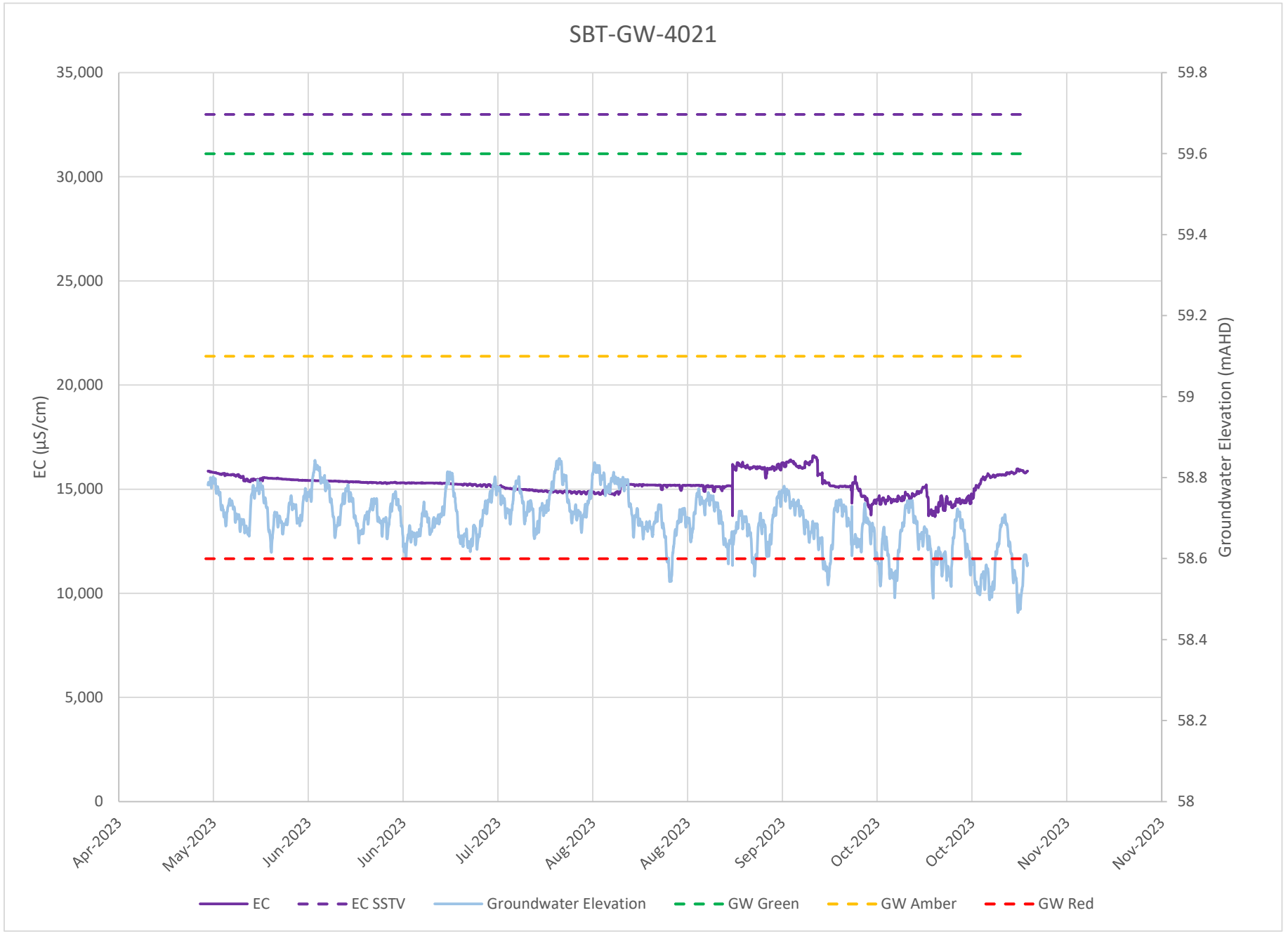

SBT-GW-1804
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
EC (µS/cm)
19.2
19
18.8
18.6
18.4
18.2
18
17.8
17.6
17.4
Groundwater Elevation (mAHD)
Jul-2023
Aug-2023
Aug-2023
Aug-2023
Sep-2023
Sep-2023
Sep-2023
Oct-2023
Oct-2023
EC
Groundwater Elevation
GW Green
GW Amber
GW Red

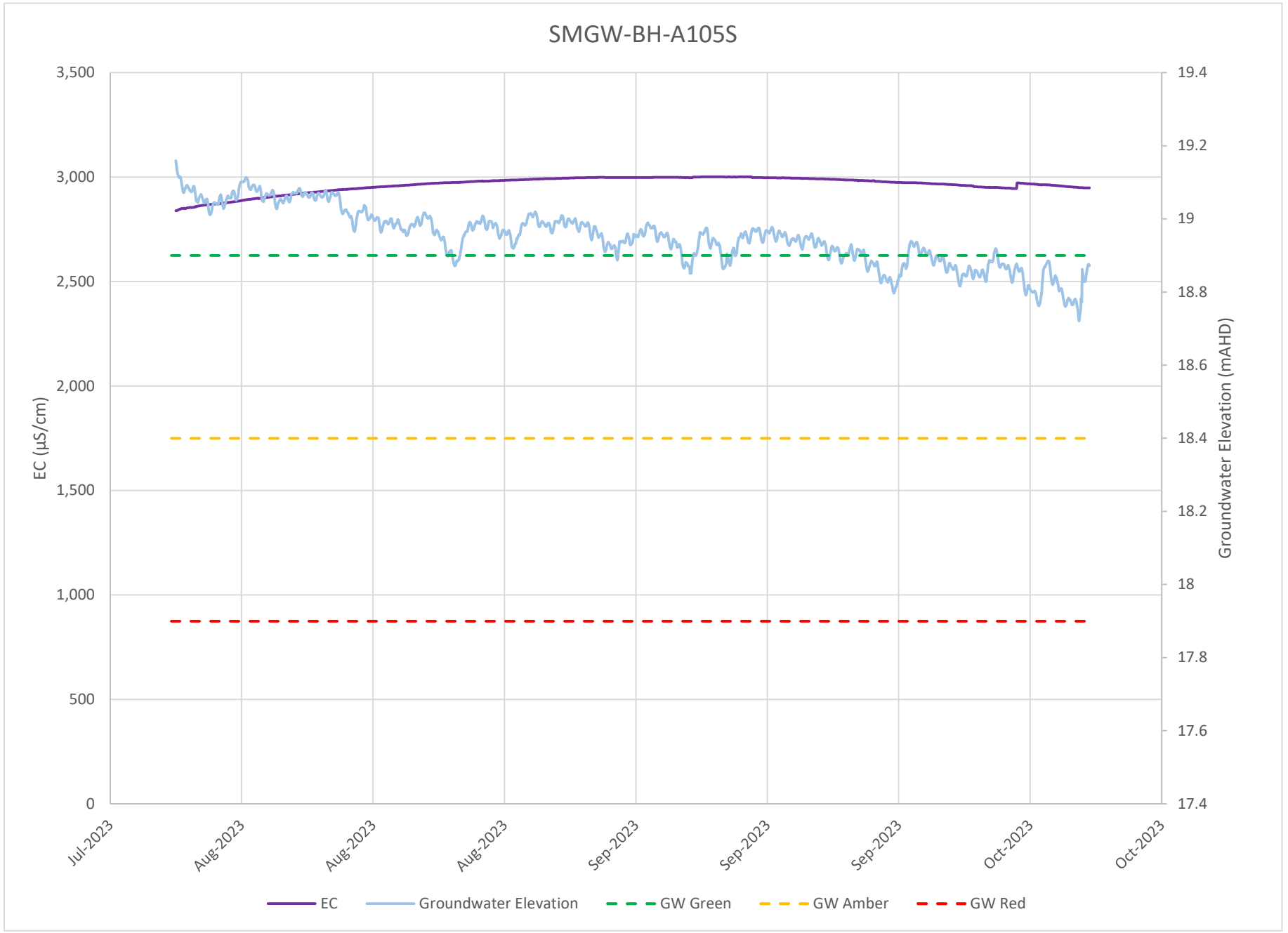

SBT-GW-1805
25,000
20,000
15,000
10,000
5,000
0
EC (µS/cm)
22.4
22.2
22
21.8
21.6
21.4
21.2
21
20.8
Groundwater Elevation (mAHD)
May-2023
May-2023
Jun-2023
Jul-2023
Jul-2023
Aug-2023
Aug-2023
Sep-2023
Oct-2023
Oct-2023
Nov-2023
EC
EC SSTV
Groundwater Elevation
GW Green
GW Amber
GW Red

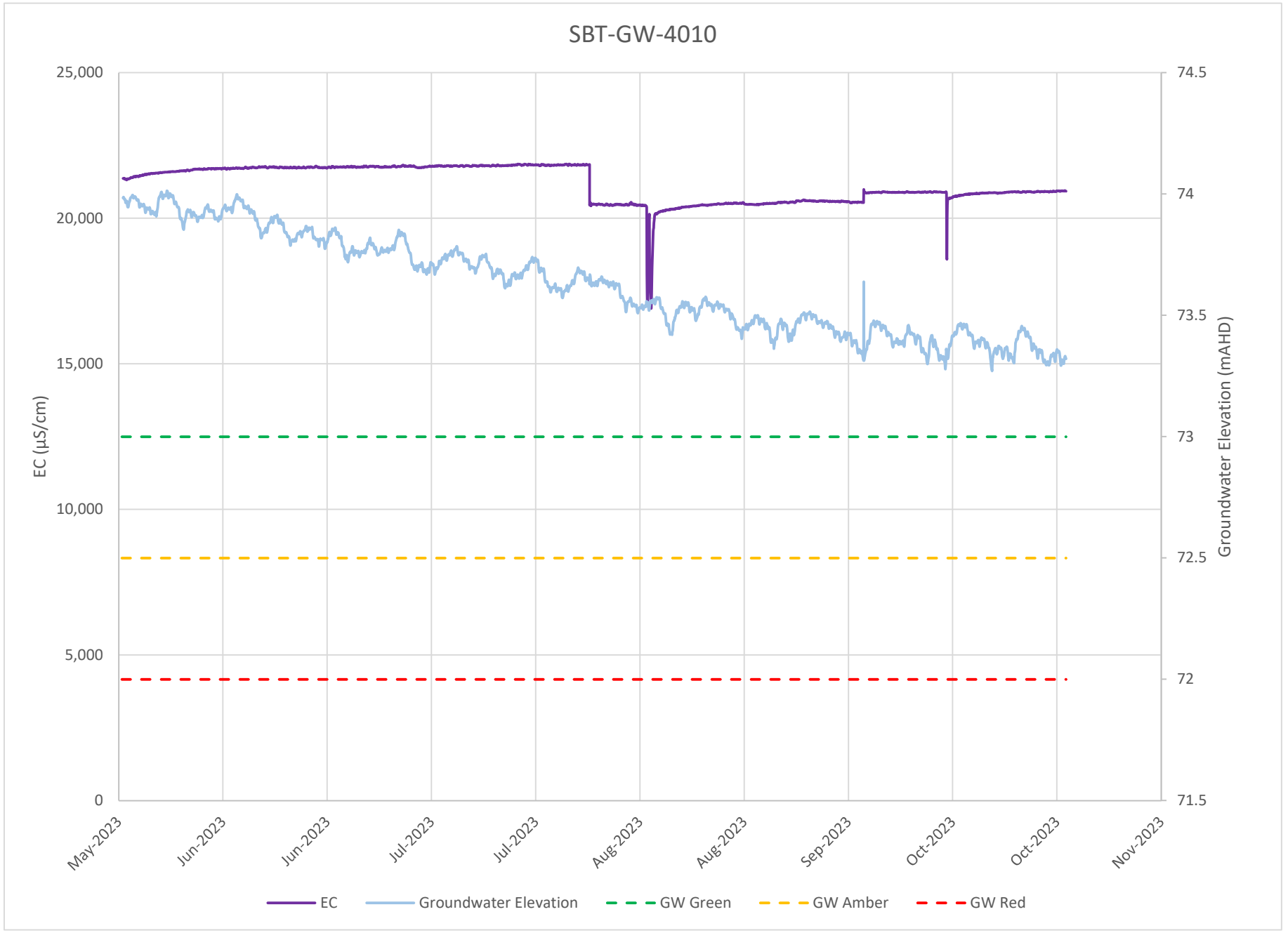

SBT-GW-1042
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
EC (µS/cm)
40
35
30
25
20
15
10
5
0
Groundwater Elevation (mAHD)
Aug-2023
Sep-2023
Sep-2023
Sep-2023
Sep-2023
Sep-2023
Sep-2023
Oct-2023
EC
EC SSTV
Groundwater Elevation
GW Green
GW Amber
GW Red

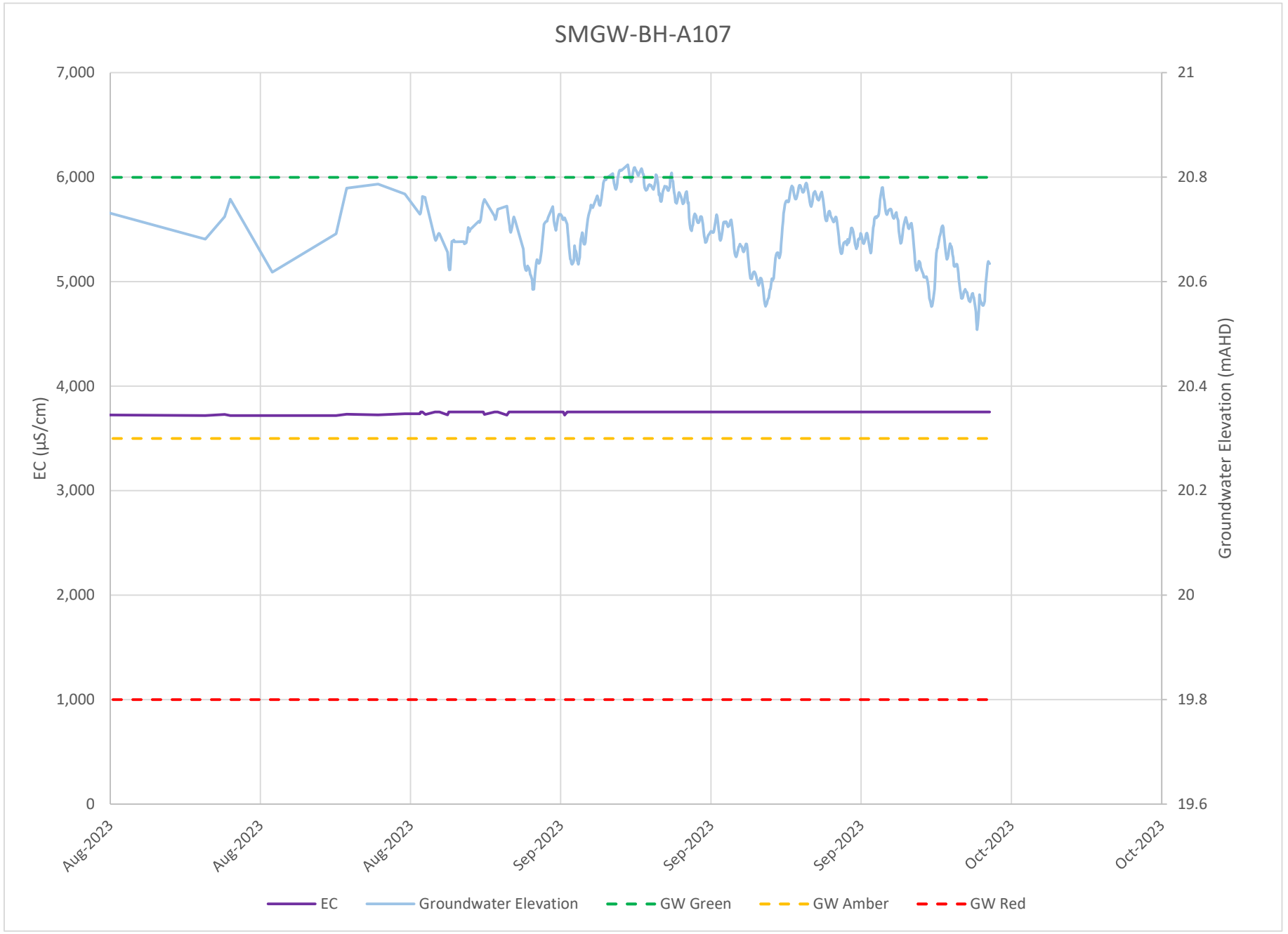

SBT-GW-1063
25,000
20,000
15,000
10,000
5,000
0
EC (µS/cm)
32
31
30
29
28
27
26
25
24
23
22
Groundwater Elevation (mAHD)
Apr-2023
May-2023
May-2023
Jun-2023
Jul-2023
Jul-2023
Aug-2023
Aug-2023
Sep-2023
Sep-2023
EC
EC SSTV
Groundwater Elevation
GW Green
GW Amber
GW Red

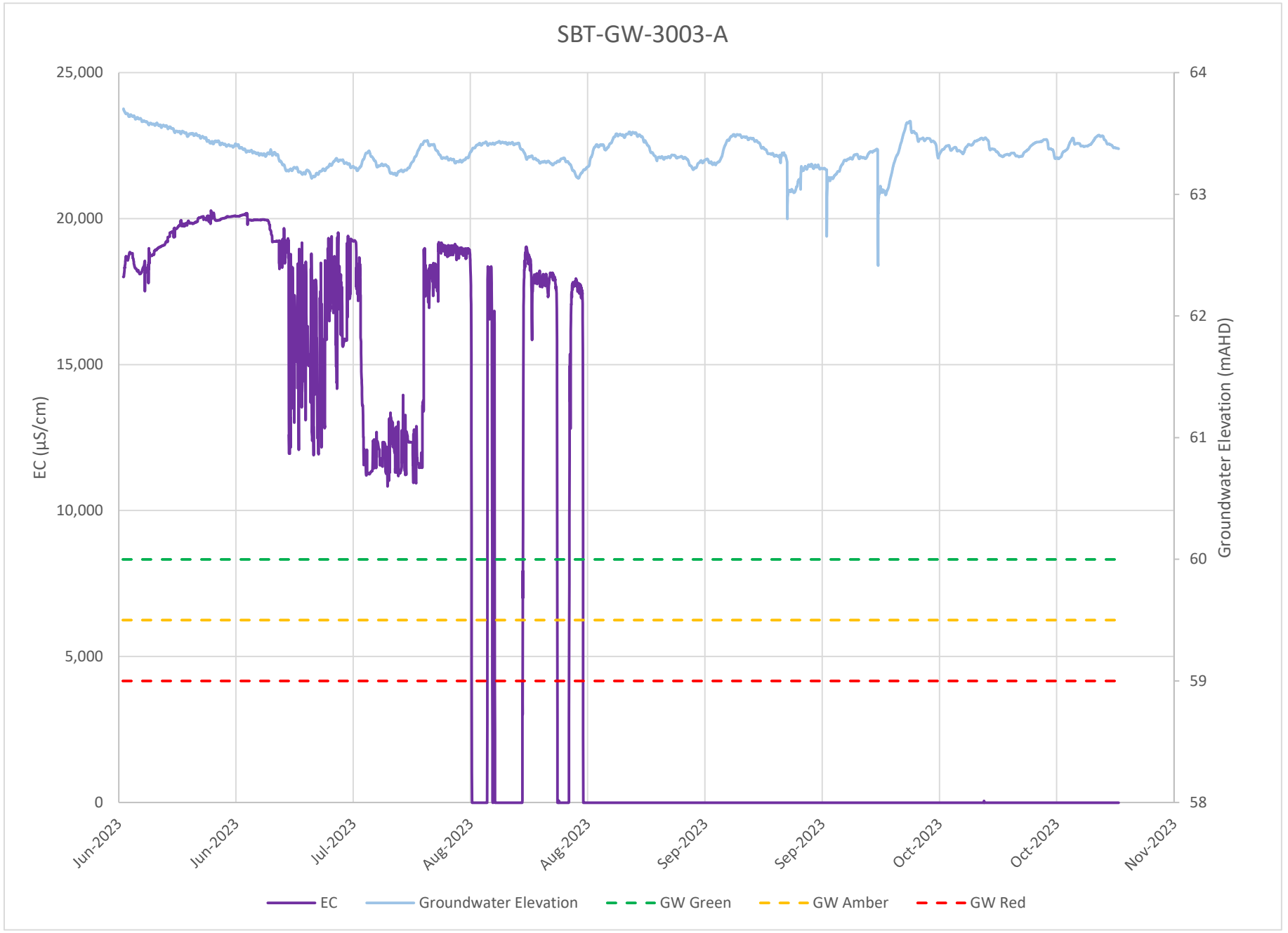

SBT-GW-4008
EC (µS/cm)
Groundwater Elevation (mAHD)
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
90
88
86
84
82
80
78
76
74
72
70
May-2023
Jun-2023
Jun-2023
Jul-2023
Jul-2023
Aug-2023
Aug-2023
Sep-2023
Oct-2023
Oct-2023
Nov-2023
EC
Groundwater Elevation
GW Green
GW Amber
GW Red

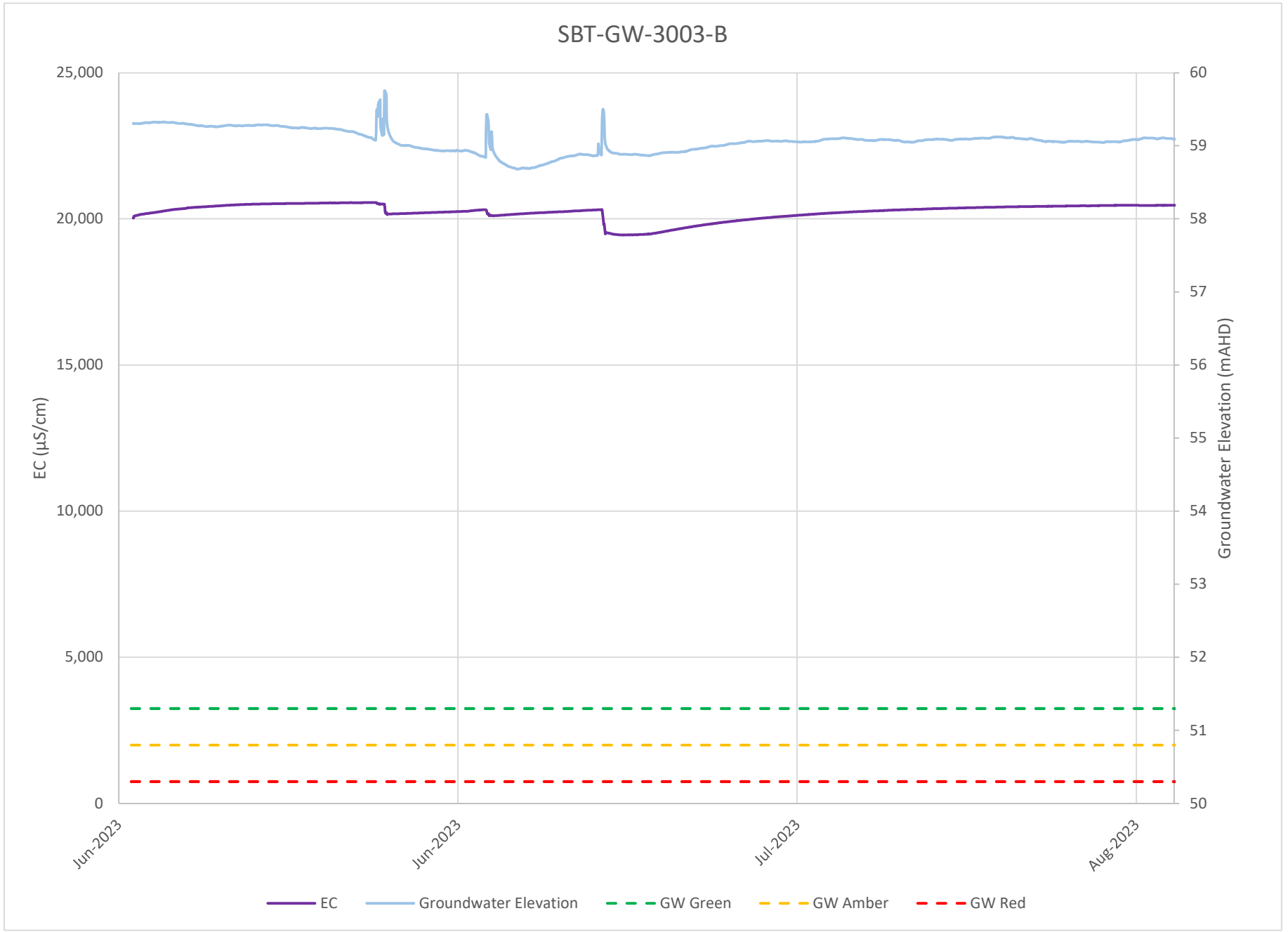

SBT-GW-4021
EC (µS/cm)
Groundwater Elevation (mAHD)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
59.8
59.6
59.4
59.2
59
58.8
58.6
58.4
58.2
58
Apr-2023
May-2023
Jun-2023
Jun-2023
Jul-2023
Aug-2023
Aug-2023
Sep-2023
Oct-2023
Oct-2023
Nov-2023
Nov-2023
EC
EC SSTV
Groundwater Elevation
GW Green
GW Amber
GW Red

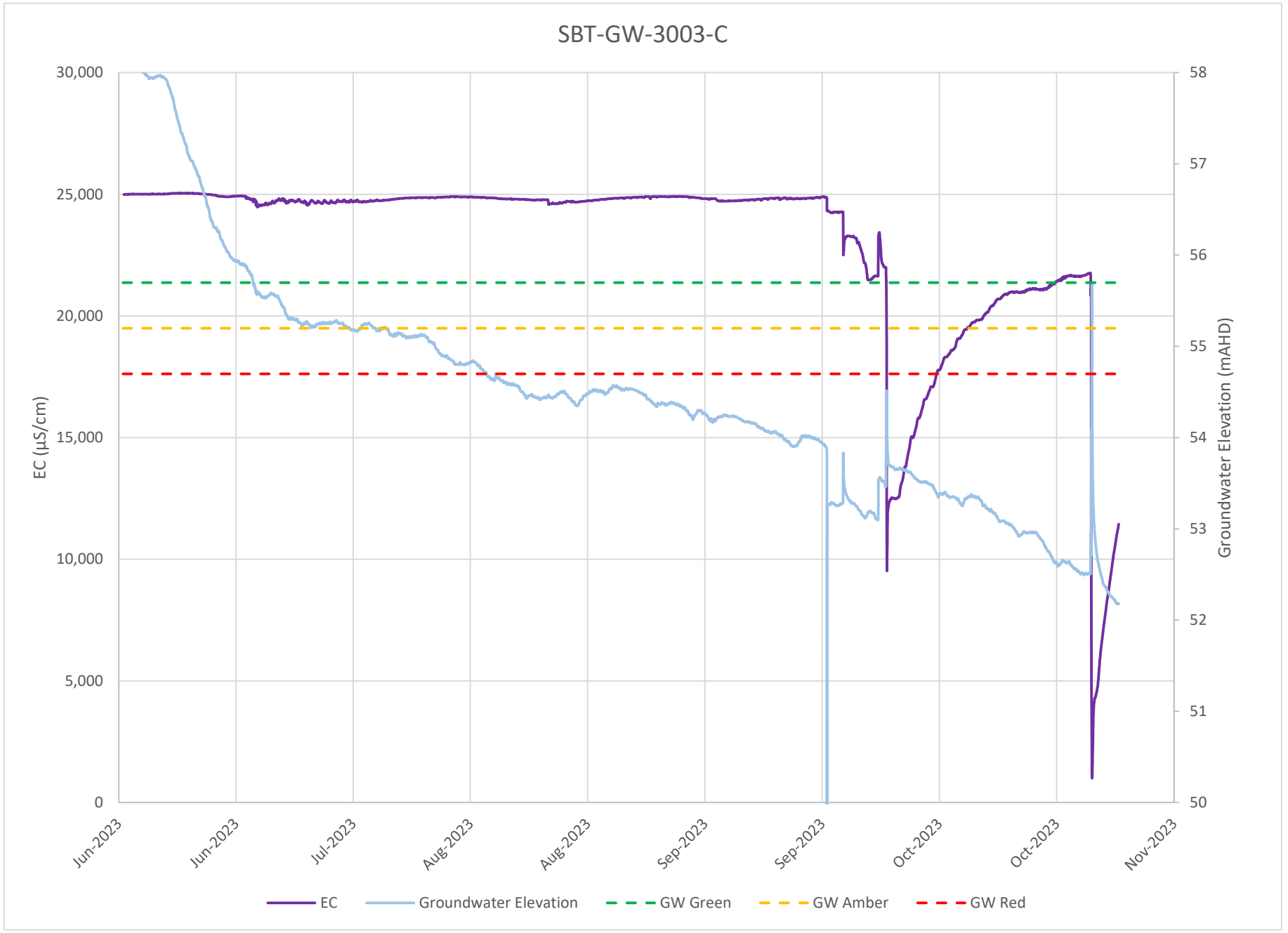

SMGW-BH-A105S
3,500
3,000
2,500
2,000
1,500
1,000
500
0
EC (µS/cm)
19.4
19.2
19
18.8
18.6
18.4
18.2
18
17.8
17.6
17.4
Groundwater Elevation (mAHD)
Jul-2023
Aug-2023
Aug-2023
Aug-2023
Sep-2023
Sep-2023
Sep-2023
Oct-2023
Oct-2023
EC
Groundwater Elevation
GW Green
GW Amber
GW Red

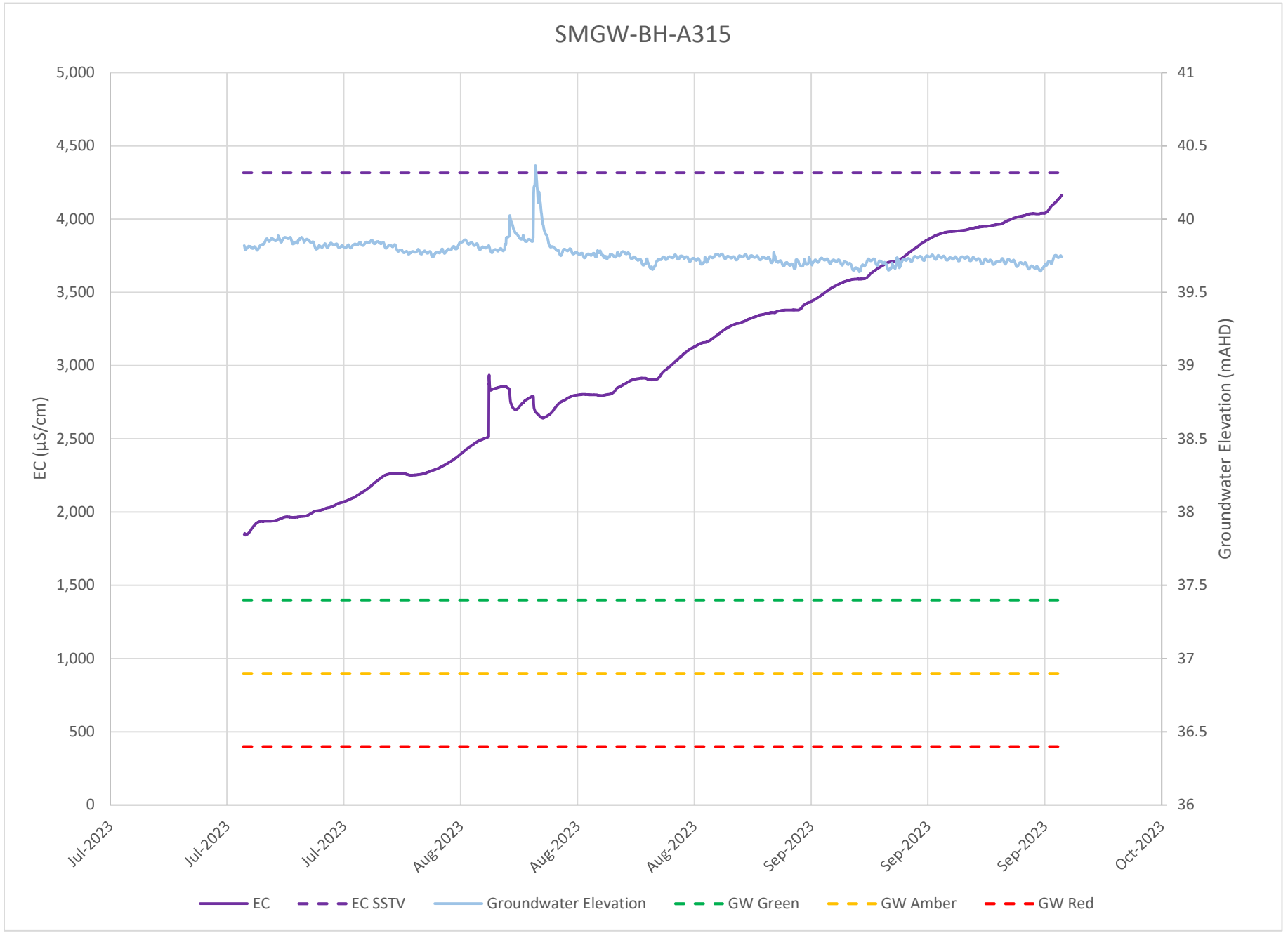

SBT-GW-4010
25,000
20,000
15,000
10,000
5,000
0
EC (µS/cm)
74.5
74
73.5
73
72.5
72
71.5
Groundwater Elevation (mAHD)
May-2023
Jun-2023
Jun-2023
Jul-2023
Jul-2023
Aug-2023
Aug-2023
Sep-2023
Oct-2023
Oct-2023
Nov-2023
EC
Groundwater Elevation
GW Green
GW Amber
GW Red

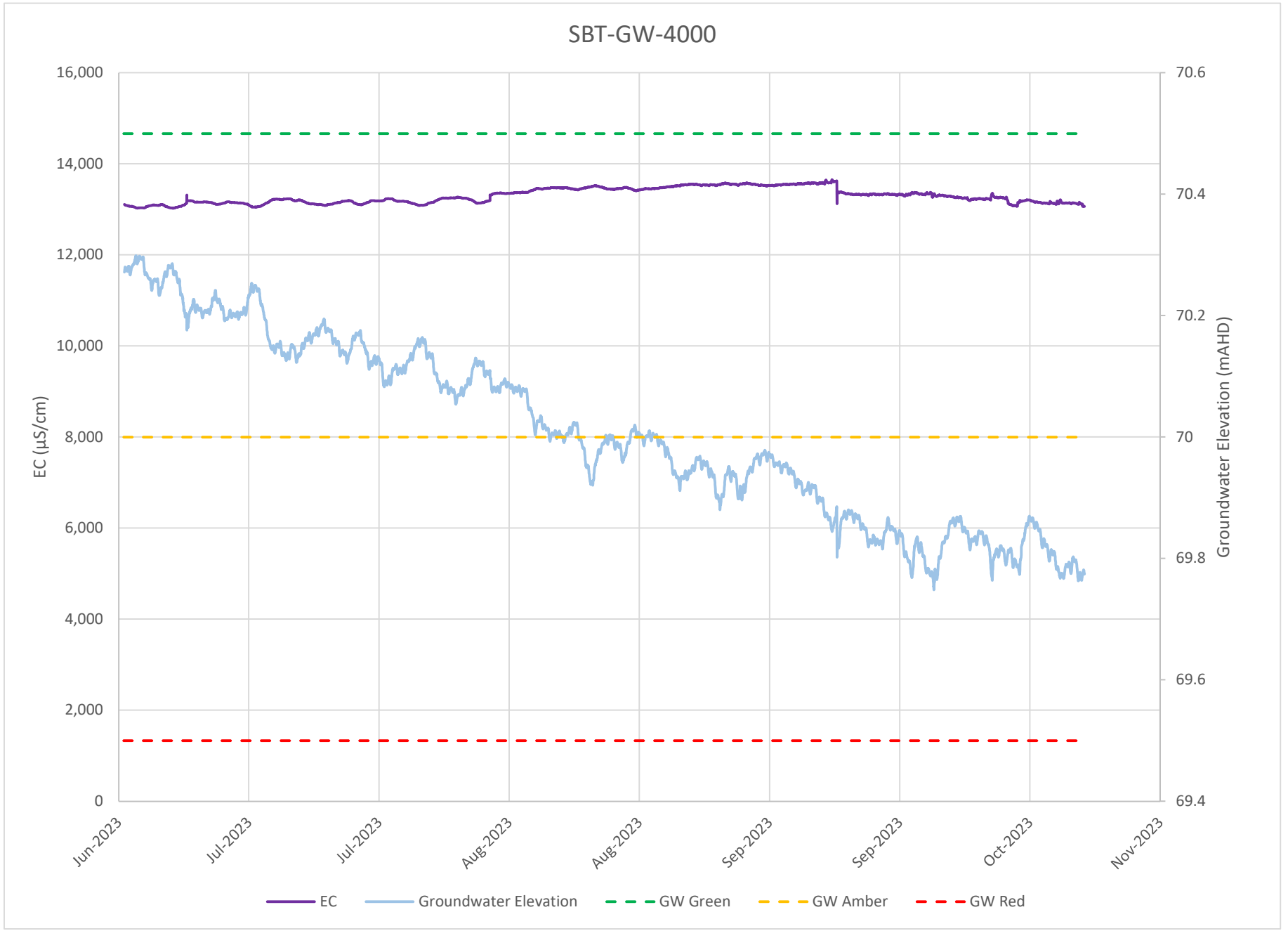

SMGW-BH-A107
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
EC (µS/cm)
21
20.8
20.6
20.4
20.2
20
19.8
19.6
Groundwater Elevation (mAHD)
Aug-2023
Aug-2023
Aug-2023
Sep-2023
Sep-2023
Sep-2023
Oct-2023
Oct-2023
EC
Groundwater Elevation
GW Green
GW Amber
GW Red


SBT-GW-3003-A
25,000
20,000
15,000
10,000
5,000
0
EC (µS/cm)
64
63
62
61
60
59
58
Groundwater Elevation (mAHD)
Jun-2023
Jun-2023
Jul-2023
Aug-2023
Aug-2023
Sep-2023
Sep-2023
Oct-2023
Oct-2023
Nov-2023
EC
Groundwater Elevation
GW Green
GW Amber
GW Red


SBT-GW-3003-B
25,000
20,000
15,000
10,000
5,000
0
EC (µS/cm)
60
59
58
57
56
55
54
53
52
51
50
Groundwater Elevation (mAHD)
Jun-2023
Jun-2023
Jul-2023
Aug-2023
EC
Groundwater Elevation
GW Green
GW Amber
GW Red


SBT-GW-3003-C
EC (µS/cm)
Groundwater Elevation (mAHD)
30,000
25,000
20,000
15,000
10,000
5,000
0
58
57
56
55
54
53
52
51
50
Jun-2023
Jun-2023
Jul-2023
Aug-2023
Aug-2023
Sep-2023
Sep-2023
Oct-2023
Oct-2023
Nov-2023
EC
Groundwater Elevation
GW Green
GW Amber
GW Red


SMGW-BH-A315
EC (µS/cm)
Groundwater Elevation (mAHD)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
41
40.5
40
39.5
39
38.5
38
37.5
37
36.5
36
Jul-2023
Jul-2023
Jul-2023
Aug-2023
Aug-2023
Aug-2023
Sep-2023
Sep-2023
Sep-2023
Oct-2023
EC
EC SSTV
Groundwater Elevation
GW Green
GW Amber
GW Red


SBT-GW-4000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
EC (µS/cm)
70.6
70.4
70.2
70
69.8
69.6
69.4
Groundwater Elevation (mAHD)
Jun-2023
Jul-2023
Jul-2023
Aug-2023
Aug-2023
Sep-2023
Sep-2023
Oct-2023
Nov-2023
EC
Groundwater Elevation
GW Green
GW Amber
GW Red

Annexure E Statistical trend analysis – groundwater quality

Monitoring Zone	Location ID	Aluminium	C10 - C40 (Sum of total)	C6 - C9	Cadmium	Copper	Naphthalene	Nitrogen	pH (Lab)
St Marys	MW1	0.1 mg/L	100 ug/L	3770 ug/L	0.0001 mg/L	0.003 mg/L	0.002 mg/L	31 mg/L	7.04 pH_unit
	SBT-CM-1022	0.04 mg/L	100 ug/L	20 ug/L	0.0002 mg/L	0.002 mg/L	0.002 mg/L	0.6 mg/L	6.68 pH_unit
	SBT-GW-0001	0.02 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.004 mg/L	0.002 mg/L	1.1 mg/L	7.12 pH_unit
	SBT-GW-1001	16.3 mg/L	100 ug/L	20 ug/L	0.0021 mg/L	0.037 mg/L	0.002 mg/L	0.9 mg/L	4.4 pH_unit
	SBT-GW-1002	3.29 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.026 mg/L	0.002 mg/L	0.6 mg/L	4.4 pH_unit
	SBT-GW-1005	0.03 mg/L	100 ug/L	20 ug/L	0.0002 mg/L	0.001 mg/L	0.002 mg/L	1.5 mg/L	7.73 pH_unit
	SBT-GW-1012	0.01 mg/L	100 ug/L	20 ug/L	0.0002 mg/L	0.001 mg/L	0.002 mg/L	5 mg/L	6.97 pH_unit
	SBT-GW-1013	0.01 mg/L	100 ug/L	20 ug/L	0.0002 mg/L	0.001 mg/L	0.002 mg/L	1.5 mg/L	6.79 pH_unit
	SBT-GW-1014	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	0.8 mg/L	7.13 pH_unit
	SBT-GW-1016	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.004 mg/L	0.002 mg/L	6 mg/L	7.21 pH_unit
	SBT-GW-1017	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	31.8 mg/L	6.86 pH_unit
	SBT-GW-1019_R	0.01 mg/L	100 ug/L	270 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	13 mg/L	7.73 pH_unit
	SBT-GW-1021	0.23 mg/L	450 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	11.6 mg/L	6.95 pH_unit
	SBT-GW-1347c	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	1 mg/L	7.79 pH_unit
	SBT-GW-1348c	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	3.1 mg/L	7.61 pH_unit
	SBT-GW-1803	0.01 mg/L	100 ug/L	20 ug/L	0.0004 mg/L	0.004 mg/L	0.002 mg/L	5 mg/L	7.62 pH_unit
	SMGW-BH-A401	2.01 mg/L	100 ug/L	20 ug/L	0.0002 mg/L	0.752 mg/L	0.002 mg/L	2.2 mg/L	5.18 pH_unit
	SMGW-GW02	0.67 mg/L	100 ug/L	40 ug/L	0.0001 mg/L	0.007 mg/L	0.002 mg/L	2.2 mg/L	6.1 pH_unit
Claremont Meadows	SBT-CM-1030	7.04 mg/L	100 ug/L	20 ug/L	0.001 mg/L	0.026 mg/L	0.002 mg/L	2.1 mg/L	6.12 pH_unit
	SBT-GW-1024	0.01 mg/L	100 ug/L	320 ug/L	0.0002 mg/L	0.001 mg/L	0.002 mg/L	5 mg/L	6.3 pH_unit
	SBT-GW-1031	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	4.6 mg/L	8.51 pH_unit
	SBT-GW-1805	0.05 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	12.3 mg/L	6.46 pH_unit
Orchard Hills	SBT-GW-1042	1.41 mg/L	100 ug/L	20 ug/L	0.0002 mg/L	0.015 mg/L	0.002 mg/L	150 mg/L	4.94 pH_unit
	SBT-GW-1048	0.14 mg/L	100 ug/L	20 ug/L	0.0028 mg/L	0.01 mg/L	0.002 mg/L	1.5 mg/L	6.2 pH_unit
	SBT-GW-1806	0.1 mg/L	100 ug/L	20 ug/L	0.001 mg/L	0.01 mg/L	0.002 mg/L	3.5 mg/L	9.89 pH_unit
	SBT-GW-1807	0.1 mg/L	100 ug/L	20 ug/L	0.001 mg/L	0.01 mg/L	0.002 mg/L	2.5 mg/L	7.93 pH_unit
	SBT-GW-1808	0.26 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	4.7 mg/L	5.91 pH_unit
	SMGW-BH-A315	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.001 mg/L	1.8 mg/L	6.81 pH_unit

Monitoring Zone	Location ID	Aluminium	C10 - C40 (Sum of total)	C6 - C9	Cadmium	Copper	Naphthalene	Nitrogen	pH (Lab)
Northern Tunnels	SBT-GW-1804	0.07 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.003 mg/L	0.002 mg/L	2.2 mg/L	7.56 pH_unit
	SMGW-BH-A107	0.07 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	2 mg/L	7.84 pH_unit
Airport Business Park	SBT-GW-3003_c	0.1 mg/L	100 ug/L	20 ug/L	0.001 mg/L	0.01 mg/L	0.002 mg/L	5.4 mg/L	7.59 pH_unit
	SBT-GW-3003-a	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	2 mg/L	7 pH_unit
	SBT-GW-3003-b	0.04 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.002 mg/L	0.002 mg/L	3.2 mg/L	7.59 pH_unit
Airport Terminal	SBT-GW-3006W	0.02 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	1 mg/L	7.31 pH_unit
	SBT-GW-3012-a	0.02 mg/L	100 ug/L	20 ug/L	0.0002 mg/L	0.004 mg/L	0.002 mg/L	7.4 mg/L	6.92 pH_unit
	SBT-GW-3012-b	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.004 mg/L	0.002 mg/L	4.1 mg/L	7.45 pH_unit
	SBT-GW-3012-c	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.005 mg/L	0.002 mg/L	9.4 mg/L	7.48 pH_unit
	SBT-GW-3022	0.1 mg/L	100 ug/L	20 ug/L	0.001 mg/L	0.01 mg/L	0.002 mg/L	3.1 mg/L	7.55 pH_unit
	SBT-GW-4000	0.01 mg/L	150 ug/L	50 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	3 mg/L	7.26 pH_unit
Bringelly	SBT-GW-4003	0.01 mg/L	100 ug/L	20 ug/L	0.0002 mg/L	0.001 mg/L	0.002 mg/L	1 mg/L	7.94 pH_unit
	SBT-GW-4005	0.6 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.006 mg/L	0.002 mg/L	4.7 mg/L	9.62 pH_unit
	SBT-GW-4800	0.06 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	5.7 mg/L	7.42 pH_unit
	SBT-GW-4801	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	3.7 mg/L	7.84 pH_unit
	SBT-GW-4802	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.003 mg/L	0.002 mg/L	5.5 mg/L	7.86 pH_unit
Aerotropolis	SBT-GW-4014	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	1.2 mg/L	7.71 pH_unit
	SBT-GW-4017	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	0.8 mg/L	7.71 pH_unit
	SBT-GW-4021	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	3.9 mg/L	7.55 pH_unit
	SBT-GW-4803	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	5.4 mg/L	7.58 pH_unit
WSI	SMGW-BH-C320	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	0.5 mg/L	7.5 pH_unit
	SMGW-BH-C321	0.01 mg/L	100 ug/L	20 ug/L	0.0001 mg/L	0.001 mg/L	0.002 mg/L	6.9 mg/L	7.78 pH_unit
	SMGW-BH-C330	0.08 mg/L	100 ug/L	20 ug/L	0.0003 mg/L	0.001 mg/L	0.002 mg/L	1.2 mg/L	6.71 pH_unit

Legend

- Red - Review trigger and system operation if
- Amber - Review data if required
- Green - No action required
- Grey - Insufficient data for trend

Monitoring Zone	Location ID	Phenol	Phosphorus	Sum of PFASs (n=28)	Tetrachloroethene	Toluene	Zinc
St Marys	MW1	2 µg/L	0.16 mg/L	1.14 µg/L	2.16 mg/L	0.005 mg/L	0.014 mg/L
	SBT-CM-1022	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.063 mg/L
	SBT-GW-0001	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.018 mg/L
	SBT-GW-1001	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	1.76 mg/L
	SBT-GW-1002	2 µg/L	0.16 mg/L	0.0008 µg/L	0.005 mg/L	0.002 mg/L	0.162 mg/L
	SBT-GW-1005	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.044 mg/L
	SBT-GW-1012	3 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.068 mg/L
	SBT-GW-1013	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.101 mg/L
	SBT-GW-1014	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.066 mg/L
	SBT-GW-1016	2 µg/L	0.16 mg/L	0.032 µg/L	0.005 mg/L	0.002 mg/L	0.065 mg/L
	SBT-GW-1017	2 µg/L	0.16 mg/L	0.008 µg/L	0.005 mg/L	0.002 mg/L	0.051 mg/L
	SBT-GW-1019_R	2 µg/L	0.16 mg/L	0.0008 µg/L	0.203 mg/L	0.002 mg/L	0.245 mg/L
	SBT-GW-1021	17 µg/L	0.16 mg/L	2.3 µg/L	0.005 mg/L	0.002 mg/L	0.005 mg/L
	SBT-GW-1347c	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.012 mg/L
	SBT-GW-1348c	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.006 mg/L
	SBT-GW-1803	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.067 mg/L
	SMGW-BH-A401	2 µg/L	0.16 mg/L	0.0207 µg/L	0.005 mg/L	0.002 mg/L	0.154 mg/L
	SMGW-GW02	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.119 mg/L
Claremont Meadows	SBT-CM-1030	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.542 mg/L
	SBT-GW-1024	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.02 mg/L
	SBT-GW-1031	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.005 mg/L
	SBT-GW-1805	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.019 mg/L
Orchard Hills	SBT-GW-1042	2 µg/L	0.16 mg/L	0.01 µg/L	0.005 mg/L	0.002 mg/L	0.166 mg/L
	SBT-GW-1048	2 µg/L	0.16 mg/L	0.0006 µg/L	0.005 mg/L	0.002 mg/L	0.559 mg/L
	SBT-GW-1806	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.003 mg/L	0.05 mg/L
	SBT-GW-1807	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.05 mg/L
	SBT-GW-1808	2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.059 mg/L
	SMGW-BH-A315	2 µg/L	0.16 mg/L	0.0134 µg/L	0.001 mg/L	0.002 mg/L	0.005 mg/L

Monitoring Zone	Location ID	Phenol	Phosphorus	Sum of PFASs (n=28)	Tetrachloroethene	Toluene	Zinc
Northern Tunnels	SBT-GW-1804						
		2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.01 mg/L
	SMGW-BH-A107						
		2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.005 mg/L
Airport Business Park	SBT-GW-3003_c						
		2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.05 mg/L
	SBT-GW-3003-a						
		2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.005 mg/L
	SBT-GW-3003-b						
		2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.005 mg/L
Airport Terminal	SBT-GW-3006W						
		2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.005 mg/L
	SBT-GW-3012-a						
		2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.022 mg/L
	SBT-GW-3012-b						
		2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.022 mg/L
	SBT-GW-3012-c						
		2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.043 mg/L
	SBT-GW-3022						
		2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.05 mg/L
	SBT-GW-4000						
		2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.046 mg/L	0.005 mg/L
Bringelly	SBT-GW-4003						
		2 µg/L	0.16 mg/L	0.0035 µg/L	0.005 mg/L	0.002 mg/L	0.013 mg/L
	SBT-GW-4005						
		2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.021 mg/L
	SBT-GW-4800						
		2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.005 mg/L
	SBT-GW-4801						
		2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.008 mg/L
	SBT-GW-4802						
		2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.015 mg/L
Aerotropolis	SBT-GW-4014						
		2 µg/L	0.16 mg/L	0.002 µg/L	0.005 mg/L	0.002 mg/L	0.005 mg/L
	SBT-GW-4017						
		2 µg/L	0.16 mg/L	0.0145 µg/L	0.005 mg/L	0.002 mg/L	0.005 mg/L
	SBT-GW-4021						
		2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.005 mg/L
	SBT-GW-4803						
		2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.015 mg/L
WSI	SMGW-BH-C320						
		2 µg/L	0.16 mg/L	0.005 µg/L	0.005 mg/L	0.002 mg/L	0.011 mg/L
	SMGW-BH-C321						
		2 µg/L	0.16 mg/L	0.0195 µg/L	0.005 mg/L	0.002 mg/L	0.005 mg/L
	SMGW-BH-C330						
		2 µg/L	0.16 mg/L	1.14 µg/L	0.005 mg/L	0.002 mg/L	0.289 mg/L

Legend

- Red - Review trigger and syste
- Amber - Review data if require
- Green - No action required
- Grey - Insufficient data for tren

Annexure E Statistical trend analysis – groundwater quality

Annexure F QAQC Report

F.1 Introduction

All groundwater quality monitoring was undertaken by CPBG trained personnel, and is understood to have been completed in accordance with the methodology detailed in Section 7.4 of the GMP.

Quality assurance (QA) and quality control (QC) measures during sampling and field data collection to ensure data integrity are detailed in Section 7 of the GMP. The measures outlined in the GMP included:

- Use of NATA accredited laboratories for sample analysis;
- Use of Chain of Custody (CoC) procedures between sample collection in the field and subsequent reception of the sample by the laboratory. CoC documentation included the sample type and code, analysis required, collection data, sampler and sample receiver(s);
- Appropriate sample handling and storage including using laboratory supplied containers, keeping samples chilled during storage and transport, ensuring samples are received in good condition within specified holding times by the laboratory;
- A consistent program of quality control sampling was adopted for fieldwork, including:
    - Collection of duplicate and triplicate samples at an average frequency of one sample per twenty primary samples (an overall ratio of 1:10 where PFAS sampled in accordance with NEMP 2.0);
    - Collection of rinsate blanks to measure the effectiveness of decontamination procedures; and
    - Collection of trip blanks to assess the adequacy of sample storage and transport procedures in preventing cross contamination.

F.2 Quality Control

The steps in the sampling and analysis process are subject to natural and inherent variability, and this can affect the results produced, and the overall quality of the data sets generated. In order to minimise the effect of this, standard procedures are used for works carried out in the field, and in the laboratory. The use of such procedures represents one aspect of the quality assurance process. To measure the effectiveness of the quality assurance process, quality control samples can be tested, and other quality control tests can be conducted during the analysis of samples taken in the field.

Quality control (QC) samples and tests can be used to assess both the accuracy and the precision of the results produced.

Measures of ACCURACY provide information on how close the reported result is to the true result. For practical reasons, measures of accuracy are usually confined to the laboratory steps in the overall process.

Measures of PRECISION provide information on the variability in the results. Precision can be assessed as:

- “repeatability” or intra-laboratory variation – the degree of variation in a result when the same laboratory analyses a sample (or blind replicate) several times, and;
- “reproducibility” or inter-laboratory variation – the degree of variation in a result when a different laboratory separately analyses a sample.

In addition, blank samples can be used to assess whether extraneous materials and factors have contributed to the results obtained from the sampling and analysis process.

QC testing can be conducted for all steps of the sampling and analysis process (referred to as Field QC in this report), or just one portion of the process, such as the laboratory steps (referred to as Laboratory QC in this report).

F2.1 Field Quality Control

Precision of the sample collection, transport and analysis process is measured by the relative percent difference (RPD) between duplicate results. An acceptable RPD limit of 50 % has been adopted for duplicate ground water samples. Sample heterogeneity at the site is expected to be higher than typical for groundwater as low groundwater sampling rates were required for many of the wells included in the GME, and many wells required purging dry with samples collected once recharged. These factors have been taken into consideration, in conjunction with RPD acceptance targets, when assessing data quality.

F2.2 Laboratory Quality Control

Laboratories are accredited by the National Association of Testing Authorities, Australia (NATA) on the basis of their ability to provide quantitative evidence of their ability and competence to produce reliable results against recognised benchmarks. Both the primary laboratory Australian Laboratory Services (ALS) and secondary laboratory Eurofins are accredited by the National Association of Testing Authorities (NATA).

NATA accredited laboratories are able to demonstrate the ability to produce reliable, repeatable results for a range of parameters within a range of sample matrices. Each laboratory method used undergoes a validation process before it is adopted by the laboratory and accredited by NATA. As part of the validation process, the precision and accuracy of the method are established.

In addition, laboratories conduct their own quality control testing to indicate their performance on each reported batch of samples. The results of this testing are compared with the validated precision and accuracy.

Precision of results is measured by the RPD between replicate samples selected at the laboratory.

Accuracy of results is assessed in a number of ways:

- **Method blanks:** An analyte free matrix, which is carried through the complete preparation and analytical procedure.
- **Matrix spikes**: Known amounts of targeted analytes are added to the samples to be analysed, and the spiked samples are processed through the analytical process. The recoveries of the spiked analytes are evaluated to determine accuracy in a given matrix.
- **Surrogate spikes:** Known amounts of chemical compounds with similar properties to the targeted analytes are added to the samples to be analysed, and the spiked samples are processed through the analytical process. The recoveries of the surrogate spikes are evaluated to determine extraction efficiency.
- **Laboratory control samples (LCS)**: A clean matrix (not containing any of the analyte of interest) spiked with known concentrations of the analytes of interest. LCS samples are analysed to determine if the procedure is working within established control limits where matrix interference is not an issue.

Schedule B(3) of the National Environment Protection Measure (NEPM) for contaminated sites states that, in general, at least 70% recovery should be achievable from a reference method. Additionally, standard methods prepared by international agencies such as the US EPA and APHA, frequently have performance data such as expected spike recovery incorporated within the method. Where these vary from 70% as indicated in NEPM, they are noted in the discussion of results.

A default acceptable range of 70% - 130% for metals and inorganics, and 60% - 140% for organics, was adopted for matrix spike recovery results (Table F-1).

F2.3 Summary of data quality acceptance targets for groundwater QC samples

Data quality acceptance targets for groundwater field and laboratory QC samples are summarised in Table F-1 below.

Table F.1: Data quality acceptance targets for field and analytical results for groundwater water samples

QC sample type	Acceptance limit
Duplicate and Triplicate Samples (applies to both field and lab duplicates)	Relative Percentage Difference (RPD) within 50% for groundwater.
Spike and surrogate recoveries	Spike and surrogate recoveries between the laboratory lower control limit and upper control limit and where not defined the following range to be adopted: 70% - 130% for inorganics / metals; and 60% - 140% for organics.
Lab control samples	Refer to internal laboratory control limits
Blanks	Analytes not detected, i.e., below the level of reporting (LOR).

F.3 Analytical Laboratory Processes

Table F-2: Summary of analytical laboratory processes

Analytical laboratory processes	YES	NO
1. Was a NATA registered laboratory used?	☒	☐
2. Did the laboratory perform the requested analysis?	☒	☐
3. Were the laboratory methods adopted NATA endorsed?	☒	☐
4. Were the appropriate test procedures followed?	☒	☐
5. Were the reporting limits satisfactory?	☒	☐
6. Was the NATA seal on the reports?	☒	☐
7. Were the reports signed by an authorised person?	☒	☐

COMMENTS

Nil.

Precision/Accuracy of the Laboratory Report		
Satisfactory ☒	Partially Satisfactory ☐	Unsatisfactory ☐

F4 Sample Handling Procedures

Table F-3: Summary of sample handling procedures

Sample handling	YES	NO	N/A
1. Were the sample holding times met?	☐	☒	☐
2. Were the samples in proper custody between the field and laboratory?	☒	☐	☐
3. Were the samples properly and adequately preserved? (This includes chilling the samples where appropriate)	☒	☐	☐
4. Were the samples received by the laboratory in good condition?	☒	☐	☐

COMMENTS

Samples were collected and sent to the laboratory for analysis by CPBG personnel. Sample receipt notifications (SRNs) indicated that samples were typically received and holding times were

acceptable with the exception of pH and alkalinity. The exceedances for alkalinity were minor (1 day) and so are not considered to have affected the useability of the dataset.

The holding time of pH is 6hrs. Given the distance and transit time to the laboratory it was not feasible for samples to be delivered to the lab within 6hrs.

To assess the implications of the delay in analysis for pH, the laboratory reported pH were compared with field pH values for groundwater samples, Figure F-1.

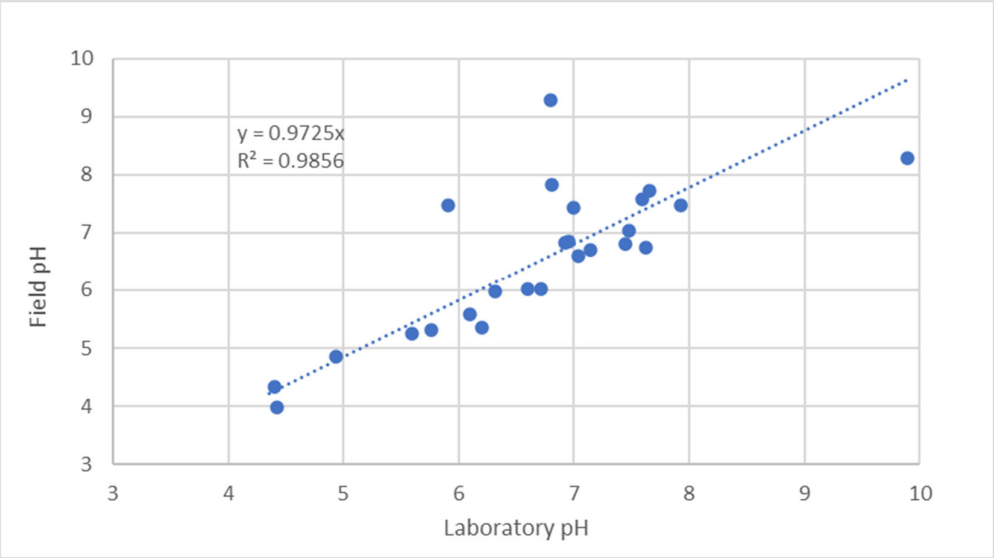


Figure F-1: Laboratory pH versus field pH

The data indicates that there is a good correlation between laboratory reported pH and field pH readings ($R^2 > 0.98$). Given the laboratory value was generally within one pH unit of the field pH value for all samples, the pH data is considered appropriate for use.

Sample Handling Procedure		
Satisfactory ☒	Partially Satisfactory ☐	Unsatisfactory ☐

F.5 Field QA/QC sampling and procedures

F5.1 Field QA/QC Summary

The monitoring event occurred over 13 days between 20 September 2023 and 14 November 2023. A summary of QC samples collected during the GME is provided in Table F-4 below

Table F-4: QA/QC sample summary

Sample Type	QC sample frequency requirements	Number of samples required	Number of samples collected
Primary Samples		-	43
QA/QC Samples	Field Duplicate & Triplicate pairs (1 in 10 primary samples)	6 (3 intra lab + 3 inter lab)	4 intra lab duplicates from two primary samples (see Table F-4)
	Trip Blanks (1 / day)	4 (trip blank samples were not collected for two sampling days)	None
	Field Blanks (1 / sampling event)	1	None
	Equipment Rinsates (1 / person / day)	13	None

F5.2 Field replicates

Field replicates collected over the monitoring period are summarised in Table F-5.

Table F-5: QA/QC samples

Primary sample ID	Duplicate IDs (ALS)	Triplicate ID (Secondary Laboratory)	Comment
SBT-GW-1805 (9 October 2023) Lab report ES2334701	SBT-GW-1805-DUP01 SBT-GW-1805-TRIP01	-	All field duplicates analysed by primary laboratory for metals, cations and anions and nutrients. No analysis for other COPCs as not required for these locations.
SBT-GW-3003-B (3 October 2023) Lab report ES2333799	DUP02-3003-B TRI02-3003-B	-	

	YES	NO	N/A
1. Were an adequate number of field replicates analysed for each chemical?	☐	☒	☐
2. Were RPD's for replicate samples within control limits?	☐	☒	☐

Where RPDs were outside the acceptable range, sampling procedures, laboratory analytical methods and laboratory results were investigated. The results of this review are presented in Table F-6.

Note, non-compliant RPDs were not considered for calculated parameters, such as, nitrate+nitrite, total nitrate+nitrite, total nitrogen, and ionic balances, as any non-conformances are already identified in the single analyte RPDs.

Table F-6: Replicate RPD exceedance summary

Primary Sample	Duplicate / Triplicate Sample ID	Lab report	Analyte	RPD %	See Comment
SBT-GW-1805	SBT-GW-1805-DUP01	ES2334701 (9 October 2023)	Total metals (all except cadmium and vanadium)	86% to 153%	3
			Nitrate	59%	2
			Total Kjeldahl Nitrogen (TKN)	68%	4
			Total Nitrogen	60%	4
			Total Phosphorus	72%	4
			TOC	80%	2
SBT-GW-1805	SBT-GW-1805-TRIP01	ES2334701 (9 October 2023)	Potassium	127%	4
			Total metals (all except cadmium, manganese, nickel, vanadium)	65% to 101%	3
			Total phosphorus	54%	2
			Total organic carbon	111%	2
SBT-GW-3003-C	DUP02-3003-B	ES2333799 (3 October 2023)	Nitrate	150%	1
SBT-GW-3003-C	TRI02-3003-B	ES2333799 (3 October 2023)	Nitrate	100%	1

Comments

1) RPDs outside the acceptable range are attributed to the primary or duplicate/triplicate analysis result <LOR.
2) RPDs reported outside the acceptable range are where the primary result is higher that the duplicate/triplicate reported result.
3) Poor RPD for total metals attributed to particulates in sample, discussed below.
4) RPDs reported outside the acceptable range are where the primary result is lower that the duplicate/triplicate reported result.

In total 25 of 138 duplicate pairs of analysis exceeded the RPD of 50% (18%). The majority of poor RPDs were associated with total metals analysis, however all RPDs for dissolved metal concentrations were acceptable (<50%). The poor RPDs for total metals is not unexpected as concentrations can be highly variable due to metals sorbing to particulates where present (i.e there is some turbidity in samples). Although the number of RPD exceedances was relatively high, as trigger levels are all based on dissolved metal concentrations, the field quality control results are considered to indicate that the data is suitable for use and comparison to triggers.

F5.3 Blank Samples

Blank field quality control samples include trip blanks, field blanks and equipment rinsates.

Trip blanks are used to assess whether sample storage and transport procedures minimised the introduction of contamination during storage and transport. Trip blanks are typically collected and analysed where volatile contaminants of concern are being assessed in the sample batch.

Trip blanks are laboratory prepared vials of distilled water that remained with the sample containers during sampling and transport to the laboratory. At no time during these procedures are the blanks opened.

Field blank samples are collected to assess if sampling procedures were conducted appropriately to minimise the potential impact of environmental factors during sample collection.

The blank are typically prepared by pouring laboratory supplied distilled water into sampling bottles, which were then stored (with lids off) with other samples throughout sampling activities.

Equipment rinsates are collected to assess if procedures for decontamination of non-disposable sampling equipment were adequate to minimise for cross-contamination between sampling points.

Rinsate samples are prepared in the field using laboratory supplied bottles and the distilled water used for the cleaning of non-disposable sampling equipment. Rinsate samples are typically collected at a rate of one per field operator per day where non-disposable sampling equipment was used. Analytical results for rinsate samples are expected to be below the laboratory detection limits.

Blanks and Rinsate Sampling and Analysis		
Satisfactory ☐	Partially Satisfactory ☐	Unsatisfactory ☒

No blank field quality control samples were collected during the current monitoring period.

Although not compliant, the absence of significant trigger exceedances (discussed in Section 5.3.1) indicates that cross-contamination between samples was not an issue. It is also noted that where mitigation measures have been implemented at St Marys to manage potential groundwater associated risk, field blanks have consistently been taken, and have not identified any issues with the sampling methodology.

F.6 Laboratory Quality Control Procedures

As noted in Section F.2, laboratories conduct their own quality control testing to indicate their performance on each reported batch of samples. An assessment of the adequacy of these procedures is provided in Tables F-7 and F-8.

Table F-7: Acceptability of laboratory quality controls

	YES	NO
1. Were laboratory method blanks free of contamination?	☒	☐
2. Were the matrix spike recoveries within control limits?	☐	☒ See comment
3. Were the Lab control samples within control limits?	☐	☒ See comment
4. Were the RPD's of the laboratory duplicates within control limits?	☐	☒ See comment
5. Were the surrogate recoveries within laboratory control limits?	☒	☐

Table F-8: Summary of laboratory quality controls results

Sample Type	Total Number of Analyses	Number of Identified Issues	% of Analyses with Identified Issues	Comment/Issues Identified
Method blank	1,519	-	0%	All results <LOR
Surrogate % recovery	137	-	0%	All results within Laboratory Control Limits
Laboratory control sample % recovery	1,705	6	0.4%	Outside of laboratory control limits
Spike % recovery	453	2	0.4%	Two results for mercury were below required 70 % recovery; both in ES2332652. Mercury is not a COPC.
Laboratory duplicates	1,658	2	0.1%	Two results for TOC did not meet the required RPDs (ES2333799)
Total	**5,472**	**10**	0.2%	

F.7 Data useability

Overall, of the 5,610 individual analyses conducted in association with the quality assessment, issues were identified in 35 analyses (< 1 %). A summary of the total analyses and proportion with issues is provided in Table F-9 below.

Table F-9: Quality Control Program Summary

Sample Type	Total Number of Analyses	Number of Identified Issues	% of Analyses with Identified Issues	Issues Identified
Field Duplicate/ Triplicates samples	138	25	18%	RPDs outside acceptable range mostly associated with total metals
Field quality control samples (rinsates, field blanks and trip blanks)	-	-	-	No field quality control samples taken
Internal laboratory analyses	5,472	10	0.2%	Matrix spike recoveries and lab duplicate RPDs outside of control limits
Total	**5,610**	**35**	0.6%	

The field QC results indicate that sample turbidity should be considered when interpreting total metal concentrations as the presence of particulates may result in higher total concentrations being reported.

Recommendations for future monitoring events include:

- Collection of field blanks, trip blanks, rinsate blanks and inter-laboratory duplicates consistent with the GMP;
- Field quality control replicate samples include locations where the broader suite of analysis is assessed.

Overall, the percentage of issues identified in the quality assessment (0.6%) is considered acceptable, and therefore the data is considered to be of appropriate quality for use.