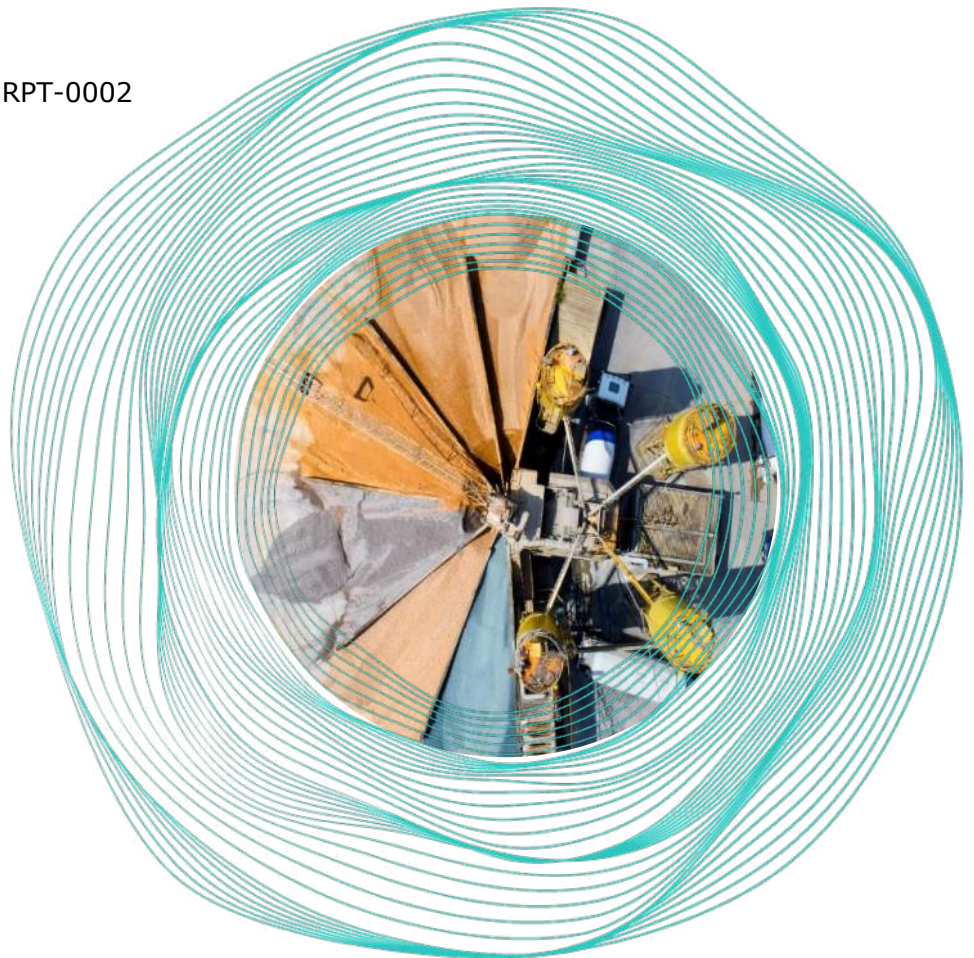


PORTS NORTH

Port of Cairns Maintenance Dredging 2025

Sediment Characterisation and Introduced Marine Pest Report: Outer Channel, Inner Port and Dredge Spoil Disposal Area

311001-00495 Rev 0: 00-EN-RPT-0002



18 Jun 2025

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PROJECT 311001-00495 - 00-EN-RPT-0002: Port of Cairns Maintenance Dredging 2025 - Sediment Characterisation and Introduced Marine Pest Report: Outer Channel, Inner Port and Dredge Spoil Disposal Area

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Acronyms and abbreviations

Acronym/abbreviation	Definition
Ag	Silver
ANZG	Australia and New Zealand Guidelines for Fresh and Marine Water Quality, 2018
ANZECC	Australia and New Zealand Environment and Conservation Council
ARNCANZ	Agriculture and Resource Management Council of Australia and New Zealand
As	Arsenic
BMT	BMT Group Limited
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
Cd	Cadmium
CFB	Commercial Fishing Base
CoC	Chain of Custody
CSDP EIS	Cairns Shipping Development Project Environmental Impact Statement
Cr	Chromium
Cu	Copper
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DPI	Department of Primary Industries
DBT	Dibutyltin
DGV	Default Guideline Values
DMPA	Dredge Material Placement Area (old)
DSDA	Dredge Spoil Disposal Area (new)
eDNA	Environmental DNA
GBRMPA	Great Barrier Reef Marine Park Authority
Hg	Mercury
HMAS	His Majesty's Australian Ship
IP	Inner Port
LMDMP	Long-term Maintenance Dredging Management Plan (BMT, 2021)
LOR	Limit of Reporting
LTMP	Long Term Management Plan (WorleyParsons, 2010)
MBT	Monobutyltin
MK	Mann-Kendall
MM	Marlin Marina
MSQ	Maritime Safety Queensland
NAGD	National Assessment Guidelines for Dredging 2009

Acronym/abbreviation	Definition
NATA	National Association of Testing Authorities
NB	Navy Base (HMAS Cairns)
Ni	Nickel
NH ₃ -	Ammonia
NO ₂ -	Nitrite
NO ₃ -	Nitrate
PAH	Polycyclic Aromatic Hydrocarbons
Pb	Lead
PCB	Polychlorinated Biphenyls
PCOC	Potential Contaminants of Concern
PFAS	Per-and Poly-Fluoroalkyl Substances
PN	Ports North
PSD	Particle Size Distribution
OC	Outer Channel
OC/OP	Organochlorine/ Organophosphate Pesticides
SAP	Sampling and Analysis Plan
Sb	Antimony
TBT	Tributyl-tin
TKN	Total Kjeldahl Nitrogen
TOC	Total Organic Carbon
TN	Total Nitrogen
TP	Total Phosphorous
TPH	Total Petroleum Hydrocarbons
TRH	Total Recoverable Hydrocarbon
TSHD	Trailing Arm Suction Hopper Dredge
UCL	Upper Confidence Limit
USEPA	United States Environmental Protection Agency
VCH	Volatile Chlorinated Hydrocarbons
Zn	Zinc

1. Introduction

Far North Queensland Ports Corporation (FNQPC), trading as Ports North, owns and operates the Port of Cairns, known as Cairns Seaport, which is a multi-purpose regional port that caters to a diverse range of customers from project, bulk and general cargo, cruise shipping, fishing fleet and reef passenger ferries. The Port of Cairns provides a range of marine facilities including:

- bulk cargo facilities for petroleum products, sugar, fertiliser and liquid petroleum gas
- a marina that accommodates 261 berths for yachts, fishing and tourism vessels
- His Majesty's Australian Ship (HMAS) Cairns Navy Base
- a cruise ship terminal and tourism facilities for access to the Great Barrier Reef.

Ports North maintains a regular sediment monitoring program to provide information regarding port operations management and to enable determination of the suitability of material for dredging and disposal at sea in accordance with Marine Parks Permit G22/44236.1 and Sea Dumping Permit SD22/01. Both permits are administered by the Great Barrier Reef Marine Park Authority (GBRMPA). The program incorporates monitoring for introduced marine pests.

Ports North intends to undertake maintenance dredging at the following locations over the 2025 campaign and place the material at the approved Dredge Spoil Disposal Area (DSDA):

- Outer Channel (OC)
- Inner Port (IP) wharves 1 to 8, 10 to 12, inner channel and new swing basins

In May 2025, Worley Consulting and Ports North undertook sampling of the OC, IP and the DSDA in advance of the annual maintenance dredging.

This report documents the findings of sediment and marine pest sampling at the OC, IP and DSDA.

1.1 Dredging plan

Maintenance dredging has been required annually at the Port of Cairns for over one hundred years. Ports North is required under the *Transport Infrastructure Act 1994* to maintain navigable depths within the port navigation areas.

A trailer suction hopper dredge (TSHD) (the 'Brisbane' in recent years) and bucket grab dredger (the 'Willunga') undertake annual maintenance dredging at the Port of Cairns. The 'Brisbane' is owned and operated by the Port of Brisbane and the 'Willunga' is owned and operated by Ports North. At the completion of dredging, bed levelling is typically undertaken to provide a more uniform bed profile.

Table 1-1 indicates the approximate dredge volume for each area for the 2025 dredge campaign, along with the dredge vessel likely to be used to undertake dredging.

Table 1-1: Proposed 2025 maintenance dredging program

Dredge area	Estimated dredging volume (in-situ m ³)	Dredge name	Dredge type	Design dredge depth (m LAT)	Typical dredge sediment depth
OC	525,000	TSHD Brisbane	Trailing Arm Suction Hopper Dredge	9.1 - 10.3	0 – 0.5m
IP (Wharves 1 to 8, 10 to 12), Swing basins, Inner Channel	36,000	Willunga	Bucket Grab Dredge	9.1	0 – 0.5m
NB (Inner)	N/A	Willunga	Bucket Grab Dredge	2.5 – 4.5	0.5* – 1.5m
MM (north)	N/A	Willunga	Bucket Grab Dredge	2.5 – 4.5	0 – 1.5m
MSQ	N/A	Willunga	Bucket Grab Dredge	3.5	0 – 3m
CFB2	N/A	Willunga	Bucket Grab Dredge	3.5	0 – 3.5m
CFB1	N/A	Willunga	Bucket Grab Dredge	3.5	0 – 3.5m
Estimated total	561,000				
Notes: * the minimum depth of sediment removed from the NB is 0.5m					

Maintenance dredging in port areas Navy Base (NB), Marlin Marina (MM), Commercial Fishing Base (CFB)1 and CFB2 and Maritime Safety Queensland (MSQ) is not required as part of the 2025 dredging program and therefore were not included as part of the sampling program.

1.2 Sediment sampling and analysis plan

As part of the sediment and marine pest monitoring program a Sampling and Analysis Plan (SAP) for 2025 was prepared by Worley on behalf of Ports North. The SAP was approved by GBRMPA on 30 April 2025 and was prepared in compliance with the proposed Port of Cairns Long-term Maintenance Dredging Management Plan (LMDMP) (BMT, 2021) submitted in support of the assessment and permit finalisation process. The SAP accommodates the LMDMP and SAP process requirements arising from the review by the determining authority (GBRMPA) and agreement reached regarding the proposed approach to sediment sampling and analysis within respective dredge areas. The methods outlined in the SAP are consistent with those outlined in the National Assessment Guidelines for Dredging (NAGD; Commonwealth of Australia, 2009) and clarification of the NAGD, 2009 decision tree and explanatory note for assessment of TBT in dredge spoil (Department of Agriculture, Water and the Environment (DAWE), 2021).

1.3 Objectives

The aim of the sediment investigations is to assess the quality of marine sediments and their suitability for dredging and placement at the approved DSDA during 2025. The key objectives are to:

- Analyse sediments for a range of physical and chemical properties
- Provide comparison of chemical concentrations against the adopted Screening Levels derived from the NAGD, locally agreed Screening Levels and Heads of Environmental Protection Agency's (HEPA) Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) National Environmental Management Plan (NEMP)
- Determine the suitability of dredged sediment for placement at sea
- Provide information to GBRMPA in the decision-making process for approval under Ports North's Sea Dumping Permit (SD22/01) and Marine Parks Permit (G22/44236.1).

The objectives of the marine pest investigation are to:

- Sample sediments for presence/absence of marine pest species previously detected within port limits, namely:
 - *Hydroides sanctaecrucis* (Caribbean Tubeworm)
 - *Perna viridis* (Asian Green Mussel)
 - *Musculista senhousia* (Asian Bag Mussel).
- Survey sediments for presence of other potential marine pest species not previously identified within port limits
- Characterise sediments for suitability for colonisation by identified marine pest species.

2. Sediment sampling method

Sampling of the OC and IP dredge areas and the DSDA was undertaken in accordance with the method described in the approved SAP (Worley Consulting, 2025).

The NAGD provides a decision tree approach for assessing potential contaminants comprising five phases. Phase I includes an evaluation of existing information, Phase II involves sampling and analysis of sediments and Phase III involves elutriate, and if required bioavailability testing. Subsequent phases are sometimes required dependent on the results of Phase I, II and III. These include:

- Phase IV (toxicity and bioaccumulation testing)
- Phase V (weight-of-evidence assessment).

This study required Phase I and II testing in accordance with the NAGD process.

2.1 Variations to the SAP

Variations to the approved SAP are summarised below.

- Marine pest sleds could not be completed within the IP at Wharves 1 to 6 and 12 due to presence of vessels that restricted the use of the towed sled during the initial field sampling day on 8 May 2025. As such, sampling for marine pests was completed through the collection of six replicate grab samples at Wharves 1 to 6 and 12. This method is described in more detail in Section 5.2.
- Triplicate sampling at OC60-d was changed to triplicate sampling at OC38-d to allow for a greater distance between triplicate sampling locations.
- Sampling location IP86-a was abandoned due to refusal on hard substrate. As such, sampling was subsequently completed at IP84-c instead.

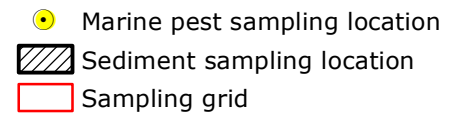
2.2 Study timing

Sediments for Phase II assessment (sampling and analysis of sediments) were collected on 7 May 2025 from the OC and DSDA areas, and on 8 May 2025 from the IP dredge area. Outcomes of the Phase II assessment informed the decision that Phase III analysis was not required as all parameters tested in OC, DSDA and IP samples had concentrations and or 95% upper confidence limits (UCL) values less than the NAGD Screening Levels.

2.3 Sampling locations

Sampling locations corresponded to those randomly selected during the preparation of the SAP and within the overall sampling grid area (in the SAP). The OC area contained 14 sediment sampling locations, the IP contained 15 locations and the DSDA contained six sampling locations. Samples from each location were used for data analysis. The sampling locations are provided in Figure 2-1, Figure 2-2 and Figure 2-3.

Figure 3-1
Outer Channel sediment sampling
and marine pest survey locations



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Cairns Port Maintenance Dredging
Program 2025
Sediment Sampling and
Analysis Plan and Introduced
Marine Pest Survey Plan

Figure 3-2
Inner Port (Wharves 1-8 and 10-12)
sediment sampling and marine pest
survey locations

- ▲ Marine pest sampling locations (Sieved grab)
- ▨ Marine pest sampling locations (Towed sled)
- ▨ Sediment sampling and Marine pest survey location
- Sampling grid

Source Information:
Port facility layout and sampling grid location
Based on data provided by Cairns Ports - June 2008.
Imagery
Queensland Imagery Latest State Program Public Basemap Service

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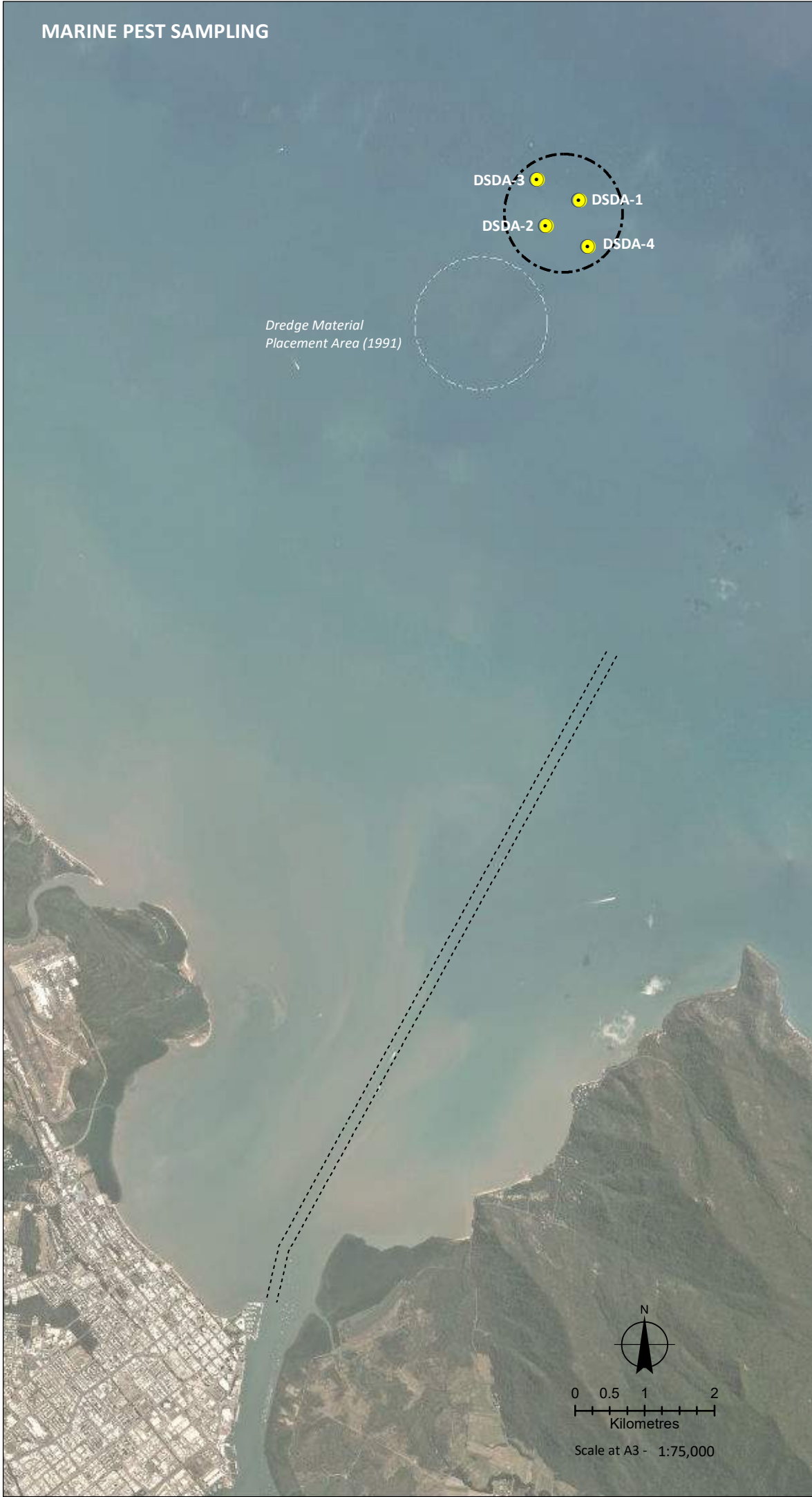
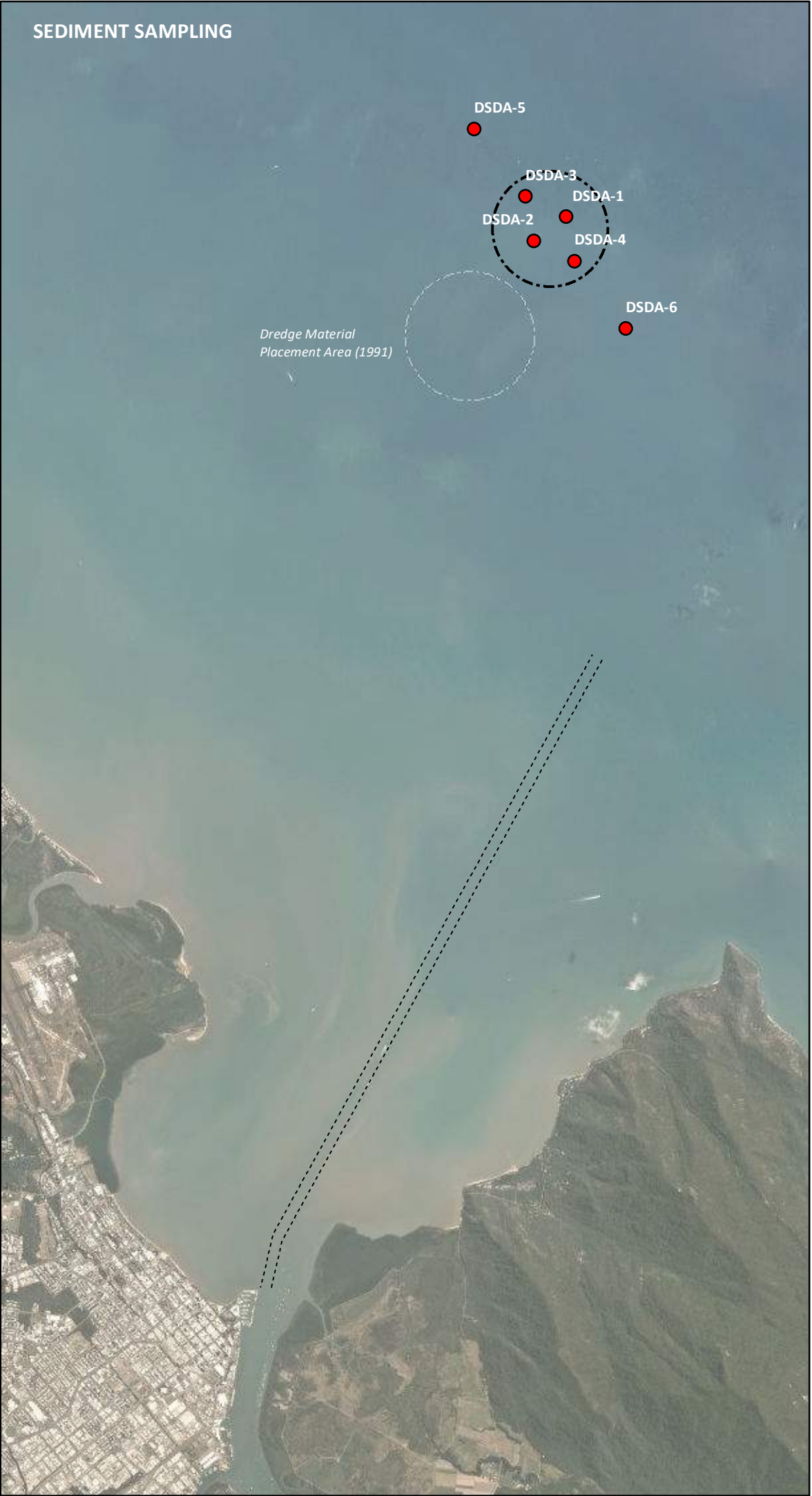
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**Cairns Port Maintenance Dredging
Program 2025**

**Sediment Sampling and
Analysis Plan and Introduced
Marine Pest Survey Plan**

Figure 3-3
Approved Dredge Spoil Disposal Area
sediment sampling and marine pest
survey locations

- Sediment sampling location
- Marine pest sampling locations (towed sled)
- Entrance channel
- Approved Dredge Spoil Disposal Area
- Dredge Material Placement Area (1991)

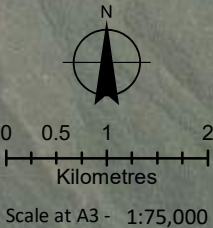
Source Information:
Port facility layout and sampling grid location
Based on data provided by Cairns Ports - June 2008.
Imagery
Queensland Imagery Whole Of State Satellite Public Basemap Service

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2.4 Sediment sample collection

Sampling was completed by two suitably qualified persons from Worley Consulting experienced in sediment and introduced marine pest sampling. Samples were collected in accordance with strict Quality Assurance / Quality Control (QA/QC) protocols for the field sampling program as described in Section 2.9.1. A summary is provided below. Laboratory analysis QA/QC processes are described in Section 2.9.2.

The OC, IP and DSDA samples were collected by means of a boat-deployed stainless steel van Veen grab, which typically samples the top 10cm-15cm of material from the seabed. Once collected, the sample was transferred from the van Veen grab to stainless steel mixing bowls where the sediment was logged, photographed and homogenised. Sediment logs are provided in Appendix A.

Following homogenisation, sediment was transferred by powder free nitrile gloved hands into laboratory supplied sample containers and stored with ice in eskies. Following the completion of each sampling round, samples were transferred to a refrigerator for storage until dispatch to the laboratory.

Samples were dispatched in batches consigned under chain-of-custody documentation to two NATA accredited analytical laboratories: Australian Laboratory Services (ALS) in Brisbane and Société Générale de Surveillance (SGS) in Cairns. Phase II primary samples from the OC, IP and DSDA were submitted to ALS, while the split replicate samples (i.e., secondary samples) from the OC and IP were submitted to SGS. A summary of laboratory work orders is provided in Table 2-1 and laboratory reports are provided in Appendix B and Appendix C.

2.5 Sample descriptions

At each sampling location the following information was collected / recorded:

- Name of client
- Sampling date
- General location of sample collection
- Sample identifiers assigned
- Name of the sample collector
- Type of sampler used
- Weather conditions at the time of sampling
- Sea state at time of sampling
- General comments (e.g., wind speed, level of shipping etc.)
- GPS location (easting and northing)
- Time of sampling
- Water depth
- Photograph of sediment sample.

Sediment logs were completed for each sample location on a field data sheet. These provided a description of the composition of each sample, including the following information:

- Colour
- Field texture
- Observed sand grain size
- Consistency
- Plasticity
- Moisture content of sample (e.g., wet, moist, dry)
- Percentage of stones
- Presence of shell/shell grit
- Odour (e.g., marine, sulphurous).

2.6 Sampling horizons

The van Veen grab collected samples from the top 10cm-15cm of sediment at the OC, IP and DSDA. Collected samples were brought to the surface and processed as a single horizon, the 'surface' horizon.

2.7 Laboratory analysis

ALS was commissioned by Ports North to undertake the primary laboratory analyses for Phase II testing, and SGS was commissioned to provide the secondary laboratory analyses. Both laboratories are NATA accredited for the analyses undertaken. Due to the timing of the fieldwork samples were collected over two days and submitted to the laboratories as a single work order / batch for each dredge area, i.e. OC and DSDA and IP. Additional sample material was sent and held by the laboratories should Phase III analysis be required. A list of the work orders is provided in Table 2-1.

Table 2-1: Laboratory work orders

Sampling area	Primary laboratory (ALS)	Secondary laboratory (SGS)
OC, DSDA, IP	EB2515665	CE181932

In accordance with the QA/QC process (refer to Section 2.9.2), the laboratory reported results to the Lowest Practical Quantitation Limit (PQL) or the Limit of Reporting (LOR) at the time of analysis. The LOR is defined as the lowest chemical analysis concentration that can be reliably achieved within specified limits of precision and accuracy during routine operating conditions. The LORs achieved for each of the respective analyses are reported in Table 3-2, Table 3-4 and Table 3-6. These LORs comply with minimum PQLs required under Appendix A, Table 1 of the NAGD.

Samples were analysed for the following physical characteristics and chemicals of concern, as indicated in the 2025 SAP (Worley Consulting, 2025) and approved by GBRMPA for Phase II analysis. This comprises a primary contaminant list and a secondary contaminant list where the secondary list is based on selecting 20% of sampling locations (with a minimum of three in any one dredge area excluding the OC). The contaminants analysed are listed below, while Table 2-2 provides a summary of the Phase II chemical analyses undertaken on sediments collected at specific sampling locations.

- Moisture content (%)
- Particle size distribution (PSD)
- Total organic carbon (%TOC)

- Metals and metalloids including: aluminium (Al), antimony (Sb), arsenic (As), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), manganese (Mn), mercury (Hg), nickel (Ni) selenium (Se), silver (Ag), vanadium (V) and zinc (Zn)
- Organotin compounds, tributyltin (TBT), dibutyltin (DBT) and monobutyltin (MBT)
- Diuron (not in the OC)
- Total Petroleum Hydrocarbons (TPH)
- Polycyclic Aromatic Hydrocarbons (PAH)
- PFAS
- Nutrients, including total nitrogen (TN), total kjeldahl nitrogen (TKN), nitrate (NO₃-), nitrite (NO₂-), ammonium (NH₄), and total phosphorus (TP).

Table 2-2: Summary of Phase II analysis undertaken at the Outer Channel, Inner Port and Dredge Spoil Disposal Area

Location ID	Sampling horizon	Location	Sample type	Sample purpose	Primary analysis					Secondary analysis					Water	
Analysis					Moisture content	TOC	PSD	Organo-tins	HM	Nutrients	TRH C6-40	PAH	Diuron	PFAS TOP	HM totals	TRH/ BTEXN
OC35-c	0.0-0.5	OC	G	Primary	1	1	1	1	1							
OC57-a	0.0-0.5	OC	G	Trip T1	1	1	1	1	1							
OC57-a	0.0-0.5	OC	G	Trip T2	1	1	1	1	1							
OC57-a	0.0-0.5	OC	G	Trip T3	1	1	1	1	1							
OC1-b	0.0-0.5	OC	G	Primary	1	1	1	1	1							
OC25-d	0.0-0.5	OC	G	Primary	1	1	1	1	1							
OC15-c	0.0-0.5	OC	G	Primary	1	1	1	1	1							
OC15-c	0.0-0.5	OC	G	D1	1	1		1	1							
OC15-c	0.0-0.5	OC	G	D2	1	1		1	1							
OC38-d	0.0-0.5	OC	G	Trip T1	1	1	1	1	1							
OC38-d	0.0-0.5	OC	G	Trip T2	1	1	1	1	1							
OC38-d	0.0-0.5	OC	G	Trip T3	1	1	1	1	1							
OC19-b	0.0-0.5	OC	G	Primary	1	1	1	1	1							
OC49-a	0.0-0.5	OC	G	Primary	1	1	1	1	1							
OC10-d	0.0-0.5	OC	G	Primary	1	1	1	1	1							
OC7-b	0.0-0.5	OC	G	Primary	1	1	1	1	1							
OC60-d	0.0-0.5	OC	G	Primary	1	1	1	1	1							
OC28-d	0.0-0.5	OC	G	Primary	1	1	1	1	1							
OC45-b	0.0-0.5	OC	G	Primary	1	1	1	1	1							
OC53-d	0.0-0.5	OC	G	Primary	1	1	1	1	1							
DSDA-1	0.0-0.5	DSDA	G	Primary	1	1	1	1	1							
DSDA-2	0.0-0.5	DSDA	G	Primary	1	1	1	1	1	1	1	1	1	1		
DSDA-3	0.0-0.5	DSDA	G	Primary	1	1	1	1	1	1	1	1	1	1		
DSDA-4	0.0-0.5	DSDA	G	Primary	1	1	1	1	1	1	1	1	1	1		

Location ID	Sampling horizon	Location	Sample type	Sample purpose	Primary analysis					Secondary analysis					Water	
Analysis					Moisture content	TOC	PSD	Organo-tins	HM	Nutrients	TRH CG-40	PAH	Diuron	PFAS TOP	HM totals	TRH/ BTEXN
DSDA-5	0.0-0.5	DSDA	G	Primary	1	1	1	1	1							
DSDA-6	0.0-0.5	DSDA	G	Primary	1	1	1	1	1							
Rinsate blank			QA/QC	Rinsate blank											1	
Trip blank			QA/QC	Trip blank												4
				Subtotal	26	26	24	26	26	3	3	3	3	3	1	4
02-d	0.0-0.5	IP	G	Primary	1	1	1	1	1							
84-c	0.0-0.5	IP	G	Primary	1	1	1	1	1							
71-a	0.0-0.5	IP	G	Primary	1	1	1	1	1							
88-d	0.0-0.5	IP	G	Trip T1	1	1	1	1	1	1	1	1	1	1		
88-d	0.0-0.5	IP	G	Trip T2	1	1	1	1	1				1	1		
88-d	0.0-0.5	IP	G	Trip T3	1	1	1	1	1				1	1		
74-b	0.0-0.5	IP	G	Primary	1	1	1	1	1							
77-c	0.0-0.5	IP	G	Primary	1	1	1	1	1							
78-c	0.0-0.5	IP	G	Primary	1	1	1	1	1	1	1	1	1	1		
78-c	0.0-0.5	IP	G	D3	1	1	1	1	1				1	1		
78-c	0.0-0.5	IP	G	D4	1	1	1	1	1				1	1		
97-b	0.0-0.5	IP	G	Primary	1	1	1	1	1							
81-d	0.0-0.5	IP	G	Primary	1	1	1	1	1							
90-c	0.0-0.5	IP	G	Trip T1	1	1	1	1	1	1	1	1	1	1		
90-c	0.0-0.5	IP	G	Trip T2	1	1	1	1	1				1	1		
90-c	0.0-0.5	IP	G	Trip T3	1	1	1	1	1				1	1		
93-d	0.0-0.5	IP	G	Primary	1	1	1	1	1							
83-d	0.0-0.5	IP	G	Primary	1	1	1	1	1							
86-c	0.0-0.5	IP	G	Primary	1	1	1	1	1							
104-c	0.0-0.5	IP	G	Primary	1	1	1	1	1							
106-c	0.0-0.5	IP	G	Primary	1	1	1	1	1							
Rinsate blank			QA/QC	Rinsate blank											1	
Trip blank			QA/QC	Trip blank												4
				Subtotal	21	21	21	21	21	3	3	3	9	9	1	4
				Grand TOTAL	47	47	45	47	47	6	6	6	12	12	2	8

2.8 Data analysis

2.8.1 Phase II – sediment analysis for total sediment concentrations

2.8.1.1 Screening levels

Contaminant levels for sediments are compared against the Screening Levels listed in Table 2 of Appendix A of the NAGD, Simpson *et al.*, 2013, Simpson *et al.*, 2021, local Screening Levels, Heads of Environmental Protection Agency's (HEPA), 2025 Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) National Environmental Management Plan (NEMP) V3 screening value for PFOS; and EnRiskS, 2020 screening value for PFOS + PFHxS. Collectively, these Screening Levels are referred to as the adopted Screening Levels in this report and are used to assess whether the material from each dredge area is suitable for placement at sea, if further testing is required (e.g., elutriate, bioavailability and/or toxicity assessment) or if hot spots are present. A hot spot is a cluster of two or more samples exceeding the adopted Screening Levels. If present, the area may be treated as a separate unit and selectively dredged.

Local Screening Levels were assessed and established during the development of the 2010-2020 LTMP (WorleyParsons 2010). During development of the approved 2010-2020 LTMP, the Port Authority commissioned a technical assessment of existing information to inform the contaminant list and guideline levels for the term of the LTMP. In that process, justification was provided to the Determining Authority for agreed local screening guideline limits for As and Diuron. For As, Section 4.1.2 of the LTMP (pages 36 to 38) indicates:

"Based on evaluation of existing current information an increase in the local screening level within the Cairns Port dredge management areas to 30 mg/kg for arsenic was agreed by the Determining Authority."

In addition, a literature derived screening guideline limit for the herbicide Diuron was agreed at a level of 2 µg/kg. Note that Diuron is not tested in the OC.

Sediment specific guidance on PFAS has not been yet been developed by Australian environmental regulators; however, it is understood that guidance on PFAS is presently in development by DAWE for use within the NAGD framework and a sediment specific guideline is also being developed by the HEPA. In previous SAPs, a Screening Level of 0.0046mg/kg for PFAS (i.e., PFOS + PFHxS) has been used. This Screening Level was derived by EnRiskS from HEPA NEMP, 2020 ecological direct exposure for wildlife diet and published 18 August 2020 titled *Human Health and Ecological Risk Assessment: Investigation of PFAS at HMAS Cairns* prepared for Aurecon Australasia Pty Ltd and the Australian Government Department of Defence. The use of this Screening Level is summarised in Advisian, 2021a. Following the release of the EnRiskS report, Simpson, *et al.*, 2021 derived a 99% species protection concentration of 0.060 mg/kg for PFOS (normalised to 1% organic carbon (OC)) in benthic marine sediment. As such, both EnRiskS and Simpson, *et al.*, 2021 values are used as interim Screening Levels in this SAP implementation report.

2.8.1.2 Statistical Assessment

Following the assessment of individual samples to the adopted screening levels, a comparison of mean contaminant concentrations at the upper 95% confidence level (95% UCL) of the mean was completed. A minimum of 10 samples are required for accurate calculation of 95% UCL, however, it can be calculated with fewer samples. Using fewer samples sometimes results in a 95% UCL value that is higher than the highest concentration detected. In this instance the highest value is adopted as the 95% UCL. If the 95% UCL value exceeds the adopted Screening Levels further testing (e.g., Phase III elutriate and bioavailability) is required.

Detections for organic parameters were normalised to 1% TOC as the recorded TOC value was within the range of 0.2-10%. For the calculation of normalised values and of 95% UCLs, values below the LOR were set to one half of the LOR value in accordance with NAGD recommendations. For organic concentrations below detection, the half LOR values are not normalised to %TOC. Means, standard deviations and 95% UCLs were calculated for the OC, IP and DSDA. Means and 95% UCLs were not calculated for contaminant groups where concentrations were below detection levels at all sampling locations or where there were less than 10 data points.

The methods used to calculate the 95% UCLs were based on the required methods outlined in Appendix A of the NAGD (p38, comparison of data to Screening Levels). Normality of datasets was determined using the Shapiro-Wilks test and quantile-quantile plots in ProUCL Version 5 (5.2) developed by the US EPA. Datasets were determined as being either normal, log-normal or neither in their distributions. Normal datasets were analysed using the 1-tailed student's t UCL. Log-normal datasets were analysed using non-parametric Bootstrap analysis as recommended in the NAGD. Similarly, datasets that were neither normal nor log-normally distributed were analysed using non-parametric Bootstrap analysis.

According to the NAGD, if the 95% UCL values for all chemicals of concern are below relevant adopted Screening Levels, it is unlikely that concentrations in the sediment will have an adverse effect on organisms living in or on that sediment. Sediments are therefore considered non-toxic and there are no chemical obstacles to unconfined sea disposal.

2.9 Quality Assurance and Quality Control

This section details the methods employed in field sampling and laboratory QA/QC to ensure validity of the analytical results.

2.9.1 QA/QC – Field Sampling

Consistent with NAGD requirements, the following QA/QC measures were implemented:

- Collection of field triplicates (three separate samples taken at the same location) at 10% of sites, to determine the variability of the sediment physical and chemical characteristics
- Collection of split replicates (one sample split into three separate containers) at 5% of sites, to assess variation in results between laboratory analysis methods and processes
- Comparison of results of field quality control split replicate and field triplicate samples against NAGD criteria
- Collection of a rinsate blank (RB) sample to assess QA/QC field procedures for each day of sampling

- Collection of trip blank (TB) samples for each dredge area.

A summary of the QA/QC sampling locations are presented in Table 2-3. The field QA/QC standards are outlined in Section 4.1 and the results presented in Section 4.

Table 2-3: Summary of field triplicate and split replicate samples collected

Dredge Area	Sampling Location	Horizon Depth (m)	Field Triplicate	Triplicate Split Replicate
Outer Channel	OC 57-a	0.0-0.5m	X	
Outer Channel	OC 15-c	0.0-0.5m		X (D1, D2)
Outer Channel	OC 38-d	0.0-0.5m	X	
Inner Port	IP 88-d	0.0-0.5m	X	
Inner Port	IP 78-c	0.0-0.5m		X (D3, D4)
Inner Port	IP 90-c	0.0-0.5m	X	

QA/QC during field work was ensured by:

- Using suitably qualified environmental staff (>5 years' experience) and support personnel experienced in grab sediment sampling, field supervision and sediment logging
- Using a surveyed vessel which is thoroughly inspected and washed down
- Samples contained in appropriately cleaned, pre-treated and labelled sample containers that were provided by the analytical laboratory
- Samples were kept cool (4°C) after sample containment and during transport by being stored in eskies with ice packs
- Transportation of samples under chain of custody documentation
- Generating additional QC samples in accordance with the NAGD (refer Section 2.9.2 below)
- All field QC replicate (split) samples were 'blind' labelled in the field with QC field numbers, which did not relate to sampling location names
- All sampling equipment, including mixing bowls etc. was decontaminated between sampling locations via a decontamination procedure involving a wash with ambient sea water and a laboratory grade detergent (Liquinox), and successive rinsing with deionised water.

2.9.2 QA/QC – Laboratory Analysis

A validation of the analytical data was undertaken in accordance with Appendix A of the NAGD to confirm that the data quality was suitable for undertaking an assessment to characterise material proposed for dredging and disposal. This validation included a consideration of results for laboratory blanks, standards, spikes, duplicate samples and surrogate recovery. These results are presented in Section 4.2 and Appendix B and Appendix C.

The laboratories used for sediment sample analyses are NATA accredited for the methods used and are experienced in the analysis of marine sediments. Laboratory QA/QC procedures were carried out in accordance with the requirements of Appendix F of the NAGD. These requirements included analysis of:

- A laboratory blank
- Laboratory control sample
- Matrix spikes
- Laboratory duplicates
- Surrogate recovery.

Laboratory blanks are samples submitted by the laboratory during sample analysis to assist in identifying any cross contamination of samples during laboratory preparation, extraction or analysis. Analysis of laboratory blank samples should result in a concentration not exceeding the LOR for a particular contaminant.

Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes to monitor method precision and accuracy independent of sample matrix. Recovery limits are based on statistical evaluation of processed LCS.

The laboratory undertakes matrix spikes to identify the amount of interference from the sediment matrix on contaminant recovery. Samples collected from the field are split from the base sample and spiked with a known contaminant concentration. The percent recovery of the contaminant is then calculated. The purpose of this is to monitor potential matrix effects on analyte recoveries.

Laboratory duplicates determine the precision of analysis performed by the laboratory by the calculation of the Relative Percentage Difference (RPD). The RPD is calculated based on a comparison of an intra-laboratory split of the sample material with results representing the RPD between the two sample concentrations for a specific contaminant.

Surrogate recovery is undertaken by "spiking" a sample with a chemical similar to the contaminant and assessing its recovery after analysis. If a high percentage of the surrogate is recovered (specified as 75-125% under NAGD guidelines), it indicates that the laboratory analytical methods can accurately measure the contaminant of concern.

3. Sediment characterisation results

Sediment samples were physically characterised in the field at each sampling location. In addition, samples were collected from each location for PSD analysis. Field log data summaries and photographs are provided in Appendix A. Complete laboratory reporting is provided in Appendix B and Appendix C.

3.1 Outer Channel

3.1.1 Physical characteristics

Sediments within the OC are dominated by silt and clay fractions (i.e., fines) which account for over 85% (on average) of sediment at all sampling locations. Sand was present in all samples, however the highest percentages (greater than 20%) were detected in three samples OC 1-b (27%), OC 28-d (20%) and OC 38-d (21%). Gravel was detected in four samples and generally closer to the entrance of Chinaman's Creek. No samples contained cobbles. Triplicate PSD data indicates generally consistent texture within individual locations. A summary of PSD results for the OC is presented in Figure 3-1 and Table 3-1.

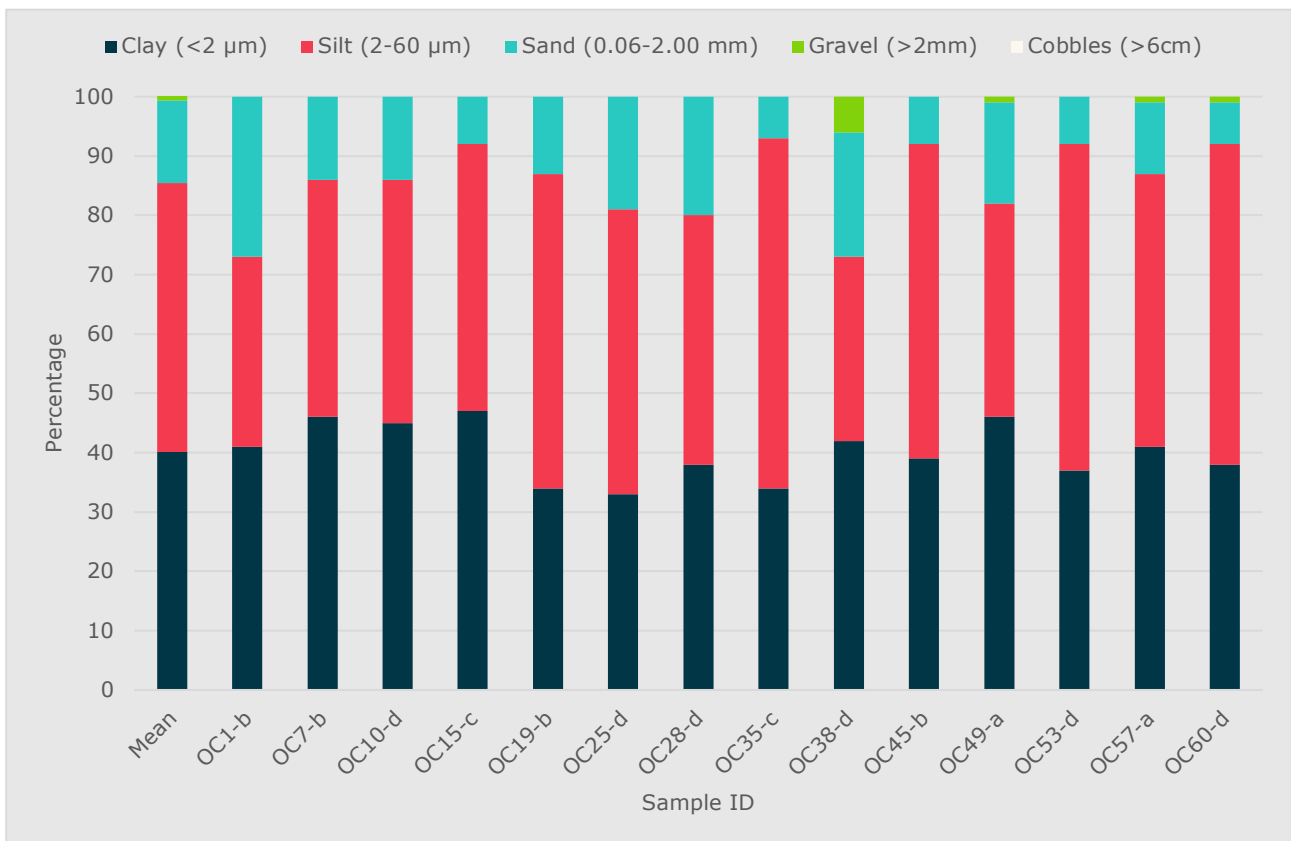


Figure 3-1: Graphical summary of PSD for sediments within the Outer Channel dredge area

Table 3-1: Summary statistics of PSD for sediments within the Outer Channel dredge area

Sample ID	Date Sampled	Texture					Soil Particle Density (Clay/Silt/Sand)
		Clay	Silt	Sand	Gravel	Cobbles	
	Units	%	%	%	%	%	g/cm3
	PQL	1	1	1	1	1	0.01
Size (mm)		<0.02	0.02-0.6	0.6-2	2-60	>60	-
OC1-b	07/05/2025	41	32	27	<1	<1	2.37
OC7-b	07/05/2025	46	40	14	<1	<1	2.83
OC10-d	07/05/2025	45	41	14	<1	<1	2.92
OC15-c	07/05/2025	47	45	8	<1	<1	2.64
OC19-b	07/05/2025	34	53	13	<1	<1	2.3
OC25-d	07/05/2025	33	48	19	<1	<1	2.16
OC28-d	07/05/2025	38	42	20	<1	<1	2.26
OC35-c	07/05/2025	34	59	7	<1	<1	2.5
OC38-d	07/05/2025	42	31	21	6	<1	2.58
OC45-b	07/05/2025	39	53	8	<1	<1	2.4
OC49-a	07/05/2025	46	36	17	1	<1	2.75
OC53-d	07/05/2025	37	55	8	<1	<1	2.11
OC57-a	07/05/2025	41	46	12	1	<1	2.2
OC60-d	07/05/2025	38	54	7	1	<1	2.2
Mean		40	45	14	2.3	-	2.44
OC57-a T1	07/05/2025	41	46	12	1	<1	2.2
OC57-a T2	07/05/2025	35	56	9	<1	<1	2.17
OC57-a T3	07/05/2025	37	32	29	2	<1	2.21
OC38-d T1	07/05/2025	42	31	21	6	<1	2.58
OC38-d T2	07/05/2025	41	37	13	9	<1	2.77
OC38-d T3	07/05/2025	38	48	12	2	<1	2.51

3.1.2 Phase II chemical results

The results of chemical analyses for sediments in the OC dredging area are summarised below and presented in Table 3 2 which includes a comparison against adopted Screening Levels discussed in Section 2.8.

3.1.2.1 Metals and metalloids

There were detectable concentrations of most metals and metalloids analysed including Al, As, Cr, Co, Cu, Fe, Pb, Mn, Hg, Ni, Se, V and Zn. Only Sb and Cd had concentrations below the respective LORs. All metals and metalloids concentrations for primary samples, including means and 95% UCL of the mean values were below the respective adopted Screening Levels. These results are consistent with 2024 OC dredge area sampling data.

3.1.2.2 Organotin compounds

Concentrations of MBT and DBT were below the 1 µgSn/kg LOR. There are no NAGD Screening Levels for these analytes. Concentrations of TBT were all below the 0.5 µgSn/kg LOR and therefore less than the NAGD Screening Level of 9 µgSn/kg. As such, the 95% UCL of the mean value could not be calculated. These results are consistent with 2024 OC dredge area sampling data.

3.1.3 Screening level assessment of suitability for unconfined placement at sea

According to the NAGD assessment framework, sediments in the OC of the Port of Cairns are suitable for unconfined placement at sea at the approved DSDA. This is on the basis that all 95% UCLs of the mean for contaminant substances analysed were below respective adopted Screening Levels (Table 3-2).

Table 3-2: Summary Phase II results for the Outer Channel dredge area

Sample ID	Units	PQL	NAGD PQL	NAGD (Local) Screening Level	OC1-b	OC7-b	OC10-d	OC15-c	OC19-b	OC25-d	OC28-d	OC35-c	OC38-d	OC45-b	OC49-a	OC53-d	OC57-a	OC60-d	Mean/ Geo-mean	Standard Deviation	95% UCL	Normal (N) Log-normal (L) Neither (X)
Date Sampled					7/5/25	7/5/25	7/5/25	7/5/25	7/5/25	7/5/25	7/5/25	7/5/25	7/5/25	7/5/25	7/5/25	7/5/25	7/5/25	7/5/25				
Misc																						
% Moisture	%	1	0.1	-	46.7	52.7	52.2	60.2	58.3	63.9	67.1	71.6	49	70.5	60.8	72.7	74.6	69.6	62.1	9.0	66.6	N
Total Organic Carbon	%	0.02	0.1	-	0.6	0.85	0.87	1.18	0.86	2	2.14	2.06	0.78	1.98	1.85	1.67	3.01	2.45	1.6	0.7	1.9	N
Metals and Metalloids																						
Aluminium, Al	mg/kg	50	200	-	9250	9480	9950	11700	8370	10000	11000	14400	9390	13700	12000	12600	16100	13800	11552.9	2227.4	12647.00	N
Antimony, Sb	mg/kg	0.5	0.5	2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50				
Arsenic, As	mg/kg	1	1	20 (30)	9.38	10.8	11.8	14.1	11.3	15.4	20.2	18.4	11.7	17.5	18.6	15.7	20.5	16.7	15.1	3.5	16.89	N
Cadmium, Cd	mg/kg	0.1	0.1	1.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				
Chromium, Cr	mg/kg	1	1	80	19.8	19.3	20.2	24.5	17.3	21.6	24.9	29	20.6	27.2	24.7	25.4	31.8	27.2	23.8	4.0	25.79	N
Cobalt, Co	mg/kg	0.5	0.5	-	6.8	6.4	6.7	8	5.7	7.2	8.3	9.2	7	8.7	8.1	7.9	10.2	8.6	7.8	1.2	8.35	N
Copper, Cu	mg/kg	1	1	65	5.5	6	6.4	8.6	5.3	9.7	10.6	12.5	6.6	11.3	10.8	8.3	15.2	10.7	9.1	2.8	10.50	N
Iron, Fe	mg/kg	50	100	-	17900	16000	19100	22700	14600	20600	25100	26200	20000	24200	25900	21400	32000	26200	22278.6	4525	24501	N
Lead, Pb	mg/kg	1	1	50	10.6	10.5	11.2	13.9	9.2	12.7	15.4	16.5	10.8	15.9	15	14.6	19.4	16	13.7	2.8	15.08	N
Manganese, Mn	mg/kg	10	10	-	327	339	348	516	463	618	646	758	342	638	500	622	744	609	533.6	145.6	605.1	N
Mercury, Hg	mg/kg	0.01	0.01	0.15	0.01	0.01	0.02	0.02	0.01	0.02	0.03	0.03	0.01	0.03	0.02	0.02	0.04	0.03	0.021	0.009	0.026	N
Nickel, Ni	mg/kg	1	1	21	9.5	9.4	9.7	11.8	8.3	10	11.5	13.7	10	13.1	11.7	12.2	15.3	12.9	11.4	1.9	12.30	N
Selenium, Se	mg/kg	0.1	0.1	-	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.5	0.4	0.5	0.5	0.4	0.6	0.5	0.4	0.1	0.459	N
Silver, Ag	mg/kg	0.1	0.1	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	0.1	<0.1	0.1	<0.1				
Vanadium, V	mg/kg	2		-	26.2	25.2	26.2	31.6	21.6	27.1	32.1	37.3	24.2	34.6	34	32.2	41	34	30.5	5.3	33.15	N
Zinc, Zn	mg/kg	1	1	200	27.9	27	28.1	34.7	24.8	33.8	38.4	43.1	28.1	42.5	36.4	36.2	52.7	40.4	35.3	7.5	39.0	N
Organotins																						
Monobutyltin	µgSn/kg	1	1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1				
Dibutyltin	µgSn/kg	1	1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1				
Tributyltin	µgSn/kg	0.5	1	9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				
Normalised to % TOC				9																		
Notes																						
Note	When calculating averages and 95%UCLs, values below detection for individual sample results were set to half the detection levels (consistent with the NAGD).																					
PQL	Practical Quantitation Limit																					
Sample ID	Sample location numbers																					
-	No guidelines levels (i.e. Screening or Maximum Levels) set in NAGD for given parameter, or no analysis undertaken for a given sample																					
**	Unreliable/Unstable/Unrealistic UCL due to small dataset. A minimum of 10 samples are required for accurate calculation of 95%UCL, however, it can be calculated with fewer samples. Using fewer samples sometimes results in a 95%UCL value that is higher than the highest concentration detected. In this instance the highest value is adopted as the 95%UCL.																					
^	Values based on the HEPA PFAS NEMP 2020 Version 2 - The use of this Screening Level is justified in a study completed by EnRiskS and published 18 August 2020 titled Human Health and Ecological Risk Assessment: Investigation of PFAS at HMAS Cairns prepared for Aurecon Australasia Pty Ltd and the Australian Government Department of Defence																					
	Value exceeds NAGD or agreed local screening level																					
Normalised to % TOC	Normalised to % TOC, over the range of TOC from 0.2 to 10%																					
	Not tested																					



3.2 Inner Port

3.2.1 Physical characteristics

Sediments within the IP are dominated by silt and clay fractions (i.e., fines) which account for over 61% (on average comprising 35% silt and 26% clay) of sediment. Sand was present in all samples ranging from 3 to 66% with an average of 26%. Gravel ranged from <1% to 40% with an average of 13.9%. These percentages indicate variability in sediment textures across the inner channel, swing basins and wharves. However, variability of textures appears to be relatively consistent within individual locations as reflected in generally consistent triplicate PSD results. A summary of PSD results for the IP is presented in Figure 3-2 and Table 3-3.

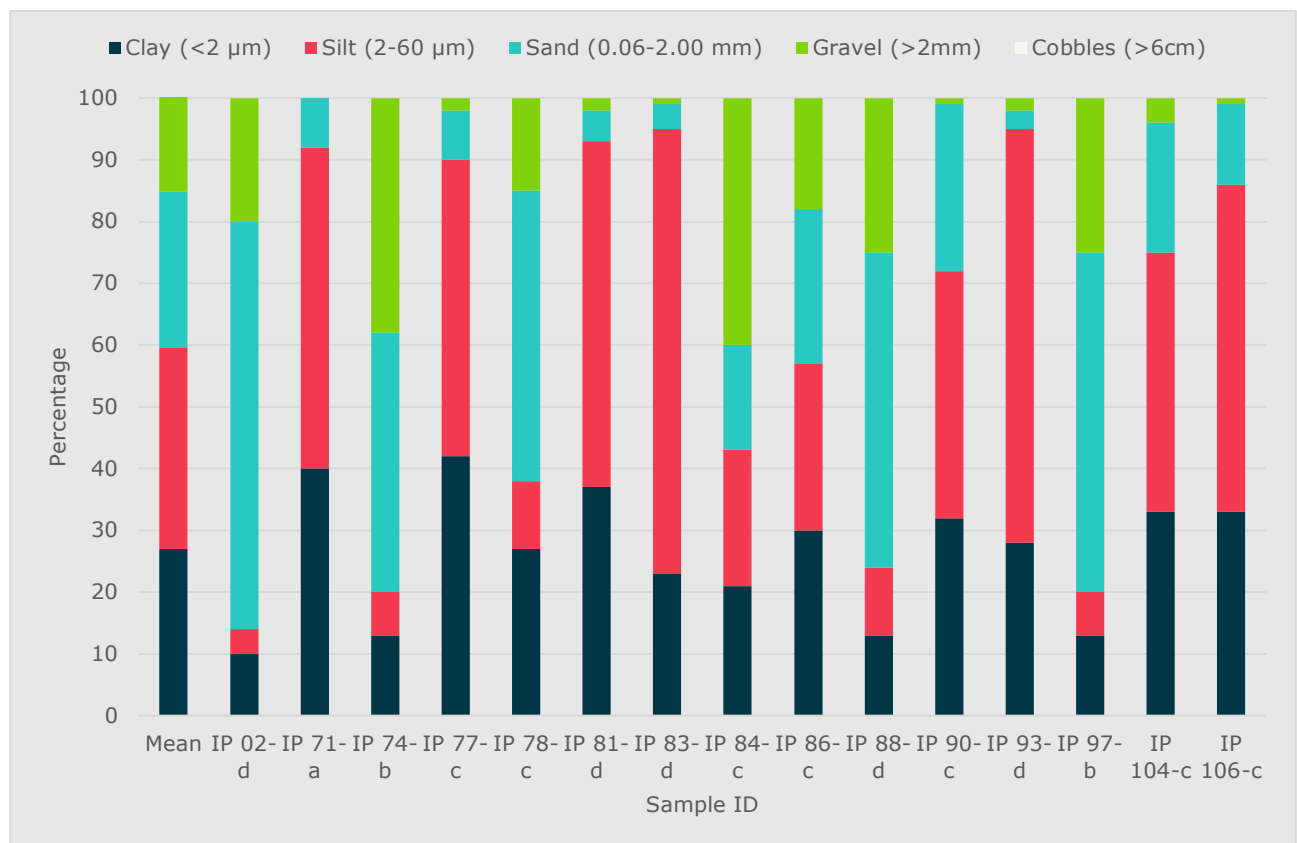


Figure 3-2: Graphical summary of PSD for sediments within the Inner Port dredge area

Table 3-3: Summary statistics of PSD for sediments within the Inner Port dredge area

Sample ID	Date Sampled	Texture					Soil Particle Density (Clay/Silt/Sand)
		Clay	Silt	Sand	Gravel	Cobbles	
	Units	%	%	%	%	%	g/cm ³
	PQL	1	1	1	1	1	0.01
Size (mm)		<0.02	0.02-0.6	0.6-2	2-60	>60	-
IP 02-d	8/5/2025	10	4	66	20	<1	2.66
IP 71-a	8/5/2025	40	52	8	<1	<1	2.09
IP 74-b	8/5/2025	13	7	42	38	<1	2.61
IP 77-c	8/5/2025	42	48	8	2	<1	2.41
IP 78-c	8/5/2025	27	11	47	15	<1	2.65
IP 81-d	8/5/2025	37	56	5	2	<1	2.13
IP 83-d	8/5/2025	23	72	4	1	<1	2.12
IP 84-c	8/5/2025	21	22	17	40	<1	2.59
IP 86-c	8/5/2025	30	27	25	18	<1	2.56
IP 88-d (T1)	8/5/2025	13	11	51	25	<1	2.6
IP 90-c (T1)	8/5/2025	32	40	27	1	<1	2.13
IP 93-d	8/5/2025	28	67	3	2	<1	2.43
IP 97-b	8/5/2025	13	7	55	25	<1	2.68
IP 104-c	8/5/2025	33	42	21	4	<1	2.56
IP 106-c	8/5/2025	33	53	13	1	<1	2.58
Mean		26	35	26	13.9	-	2.45
IP 88-d (T1)	8/5/2025	13	11	51	25	<1	2.6
IP 88-d (T2)	8/5/2025	32	22	22	24	<1	2.66
IP 88-d (T3)	8/5/2025	15	6	26	53	<1	2.7
IP 90-c (T1)	8/5/2025	32	40	27	1	<1	2.13
IP 90-c (T2)	8/5/2025	43	41	14	2	<1	2.61
IP 90-c (T3)	8/5/2025	28	47	25	<1	<1	2.3

3.2.2 Phase II chemical results

The results of chemical analyses for sediments in the IP dredging area are summarised below and presented in Table 3-4 which includes a comparison against adopted Screening Levels discussed in Section 2.8.

3.2.2.1 Metals and metalloids

There were detectable concentrations of most metals and metalloids analysed including Al, As, Cr, Co, Cu, Fe, Pb, Mn, Hg, Ni, Sb, Se, V and Zn. Only Sb and Cd had concentrations below the respective LORs. All metals and metalloids concentrations for primary samples, including means and 95% UCL of the mean values were below the respective adopted Screening Levels. These results are consistent with 2024 IP dredge area sampling data.

3.2.2.2 Organotin compounds

Concentrations of MBT were below the 1 µgSn/kg LOR. Concentrations of DBT were also below the 1 µgSn/kg LOR except for a single concentration of DBT (0.52 µgSn/kg normalised to %TOC) at IP 90-c. There are no NAGD Screening Levels for these analytes. Normalised (to %TOC) TBT concentrations ranged from below the 0.5 µgSn/kg LOR to 1.57 µgSn/kg (normalised to %TOC). These TBT concentrations and the 95% UCL of the mean (1.905 µgSn/kg) were below the NAGD Screening Level of 9 µgSn/kg at all sampling locations. These results are consistent with 2024 IP dredge area sampling data.

3.2.2.3 Diuron

A total of three primary samples were analysed for Diuron. Concentrations of Diuron in all three samples were less than the LOR of 0.001 mg/kg and therefore also less than the Local Screening Level of 0.002 mg/kg. These results are consistent with 2024 IP dredge area sampling data.

3.2.2.4 Hydrocarbons

Hydrocarbons including TPH, TRH, BTEX and PAH were analysed for samples collected at three locations including IP 88-a, IP 78-c and IP 90-c. Concentrations of TPH C10-14, C15-28, C29-36 and total TPH were detected in all three samples. However, with and without normalising to %TOC, these detectable concentrations were less than NAGD Screening Criteria of 280 mg/kg for Total TPH. These results are consistent with 2024 IP dredge area sampling data.

Normalised (to %TOC) concentrations of PAH were either below the respective LORs or below the NAGD Screening Level of 10,000 mg/kg for total PAH. These results are consistent with 2024 IP dredge area sampling data.

3.2.2.5 Nutrients

Nutrients including TN, TKN, NO₃⁻, NO₂⁻, TP and NH₄ were analysed for samples collected at three locations including IP 88-a, IP 78-c and IP 90-c. TN, TKN and TP were detected in each sample. TN was entirely comprised of TKN, which is evident as the TN and TKN concentrations were equal for each sample. These concentrations ranged between 320 mg/kg and 1,410 mg/kg and generally consistent with 2024 data that ranged from 320 mg/kg to 1,530 mg/kg.

Concentrations of TP ranged between 262 mg/kg to 443 mg/kg. These concentrations are generally consistent with 2024 data that ranged from 267 mg/kg and 449 mg/kg.

Concentrations of NO₂⁻ were less than the LOR and consistent with 2024 data.

Concentrations of NO₃⁻ and NO₃⁻ + NO₂⁻ ranged from less than the LOR of 0.1 mg/kg to 2 mg/kg. This is a slight increase compared to 2024 data that ranged from less than 0.1 mg/kg to 0.3 mg/kg.

Concentrations of NH₄ ranged from 0.4 mg/kg to 44.3 mg/kg. This is an increase compared to 2024 (but similar to 2023 data) NH₄ data that ranged from less than 0.2 mg/kg to 8.9 mg/kg.

There are no adopted Screening Levels for nutrient concentrations.

3.2.2.6 PFAS

PFAS analysis was completed at three locations including IP 88-a, IP 78-c and IP 90-c. Concentrations of PFAS, PFHxS + PFOS and PFOS were less than the LOR of 0.0002 mg/kg and therefore also less than the adopted Screening Level of 0.0046mg/kg (for PFHxS + PFOS) and 0.06 mg/kg (for PFOS).

3.2.3 Screening level assessment of suitability for unconfined placement at sea

According to the NAGD assessment framework, sediments in the IP of the Port of Cairns are suitable for unconfined placement at sea at the approved DSDA. This is on the basis that all 95% UCLs of the mean for contaminant substances analysed were below respective adopted Screening Levels.

Table 3-4: Summary Phase II results for the Inner Port dredge area

Sample ID	Units	PQL	NAGD PQL	NAGD (Local) Screening Level	IP 02-d	IP 71-a	IP 74-b	IP 77-c	IP 78-c	IP 81-d	IP 83-d	IP 84-c	IP 86-c	IP 88-d (T1)	IP 90-c (T1)	IP 93-d	IP 97-b	IP 104-c	IP 106-c	Mean / Geo-mean	Standard Deviation	95% UCL	Normal (N) Log-normal (L) Neither (X)	
Date Sampled					8/5/25	8/5/25	8/5/25	8/5/25	8/5/25	8/5/25	8/5/25	8/5/25	8/5/25	8/5/25	8/5/25	8/5/25	8/5/25	8/5/25	8/5/25					
Misc																								
% Moisture	%	1	0.1	-	35.9	68	25.1	66.3	42.4	70.2	63.7	47.4	41.2	38.3	61.1	74.2	27.2	61.8	68.1	52.7	16.1			
Total Organic Carbon	%	0.02	0.1	-	1.46	2.08	0.49	1.89	0.91	2.46	2.3	0.91	0.67	1.14	1.94	3.37	0.66	1.53	2.39	1.6	0.8			
Metals and Metalloids																								
Aluminium, Al	mg/kg	50	200	-	2670	12900	2240	12400	3970	12900	13200	8180	6190	3470	11800	9940	2470	8310	12200	8189.3	4179.8	10157	N	
Antimony, Sb	mg/kg	0.5	0.5	2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					
Arsenic, As	mg/kg	1	1	20 (30)	5.72	13.60	10.60	16.00	18.20	16.90	18.20	14.30	12.90	23.40	14.80	13.50	7.27	12.40	18.40	14.4	4.3	16.5	N	
Cadmium, Cd	mg/kg	0.1	0.1	1.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					
Chromium, Cr	mg/kg	1	1	80	6.60	26.20	8.90	28.90	16.70	27.70	28.60	18.10	16.20	16.50	26.60	22.00	6.50	18.60	26.20	19.6	7.6	23.2	N	
Cobalt, Co	mg/kg	0.5	0.5	-	3.9	8.8	2.8	9.1	4.9	8.8	8.9	6.1	4.9	9.9	8.7	6.8	2.4	6.1	8.7	6.7	2.4	7.85	N	
Copper, Cu	mg/kg	1	1	65	2.4	14.9	2.4	19.5	6.1	15.7	15.2	9.5	11.8	5.9	19.5	13.9	3.3	9.5	13.9	10.9	5.6	13.56	N	
Iron, Fe	mg/kg	50	100	-	7120	25300	12300	25000	19800	24700	27000	22400	19200	21400	25100	18200	9050	16900	24800	19884.7	5996	22707	N	
Lead, Pb	mg/kg	1	1	50	3.9	15.9	4.6	16.6	11.5	16.0	16.0	11.7	8.2	6.6	15.9	12.7	3.9	10.7	14.9	11.3	4.6	13.43	N	
Manganese, Mn	mg/kg	10	10	-	147	380	246	354	305	670	748	378	282	284	521	492	196	232	512	383.1	167.8	462.1	N	
Mercury, Hg	mg/kg	0.01	0.01	0.15	<0.01	0.03	<0.01	0.03	0.02	0.03	0.03	0.02	<0.01	0.01	0.03	0.03	<0.01	0.02	0.03	0.0	0.007	0.032	X	
Nickel, Ni	mg/kg	1	1	21	2.7	12.6	2.8	13.0	5.5	12.6	13.1	8.6	7.0	7.0	12.2	10.0	2.8	8.6	12.0	8.7	3.8	10.48	N	
Selenium, Se	mg/kg	0.1	0.1	-	0.2	0.5	0.2	0.5	0.2	0.5	0.5	0.3	0.2	0.3	0.5	0.5	0.2	0.4	0.6	0.4	0.1	0.435	X	
Silver, Ag	mg/kg	0.1	0.1	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1				
Vanadium, V	mg/kg	2		-	9.9	34.8	15.6	38	22.7	35.1	35.3	25.4	20.4	24.9	34.3	27.7	11.1	24.8	34.6	26.3	8.8	30.46	N	
Zinc, Zn	mg/kg	1	1	200	8.5	49.6	9.3	54.4	49.1	48.6	49.0	32.9	29.9	25.9	50.0	38.4	10.0	29.8	42.8	35.2	15.5	42.50	N	
Organotins																								
Monobutyltin	µgSn/kg	1	1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1					
Dibutyltin	µgSn/kg	1	1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.00	<1	<1	<1	<1					
Normalised to % TOC				9							0.1				1.9					1.0	0.9			
Tributyltin	µgSn/kg	0.5	1	9	<0.5	<0.5	0.7	0.8	0.8	0.5	0.7	0.8	<0.5	1.1	2.2	1.2	<0.5	<0.5	<0.5					
Normalised to % TOC				9	0.25	0.25	0.7	2.4	1.1	4.9	3.3	1.1	0.25	1.0	0.9	2.8	0.25	0.25	0.25	1.3	1.4	1.905	X	
Nutrients																								
Total Nitrogen as N (TKN + NOx)	mg/kg	20	0.1						400					320	1410					710.0	496.1			
Total Kjeldahl Nitrogen as N	mg/kg	20	0.1						400					320	1410					710.0	496.1			
Nitrate as N (Sol.)	mg/kg	0.1	0.1						2					0.2	<0.1					1.1	0.9			
Nitrite as N (Sol.)	mg/kg	0.1	0.1						<0.1					<0.1	<0.1									
Nitrite + Nitrate as N (Sol.)	mg/kg	0.1	0.1						2					0.2	<0.1					1.1	0.9			
Ammonium as N	mg/kg	0.2	-						4.7					34.4	0.6					13.2	15.1			
Ammonium as NH4	mg/kg	0.2	-						6.1					44.3	0.4					16.9	19.5			
Total Phosphorus as P	mg/kg	2	0.1						345					262	432					346.3	69.4			
TPH																								
TPH C6-C9	mg/kg	3	10	-					<3					<3	<3									
TPH C10-14	mg/kg	3	10	-					4					28	9					13.67	12.66			
TPH C15-28	mg/kg	3	50	-					34					55	34					41.00	12.12			
TPH C29-36	mg/kg	5	50	-					41					42	44					42.33	1.53			
Total TPH	mg/kg	3	-	280					79					125	87					97.00	24.58			
Normalised to % TOC	mg/kg	3	-	280					86.81					109.65	44.85					80.44	32.87			
Polycyclic Aromatic Hydrocarbons																								
Naphthalene	µg/kg	5	5	-					<5					<5	8									
2-Methylnaphthalene	µg/kg	5	5	-					<5					<5	6									
Acenaphthylene	µg/kg	4	5	-					<4					<4	<5									
Acenaphthene	µg/kg	4	5	-					<4					<4	<5									
Fluorene	µg/kg	4	5	-					<4					<4	<5									
Phenanthrene	µg/kg	4	5	-					<4					22	<5									
Anthracene	µg/kg	4	5	-					<4					<4	<5									
Fluoranthene	µg/kg	4	5	-					8					31	5									
Pyrene	µg/kg	4	5	-					9					26	8									
Benz(a)anthracene	µg/kg	4	5	-					5					15	<5									
Chrysene	µg/kg	4	5	-					4					17	<5									
Benzo(b+j)fluoranthene	µg/kg	4	5	-					6					18	<5									
Benzo(k)fluoranthene	µg/kg	4	5	-					<4					8	<5									
Benzo(e)pyrene	µg/kg	4	5	-					<4					10	<5									
Benzo(a)pyrene	µg/kg	4	5	-					5					18	<5									
Perylene	µg/kg	4	5	-					<4					16	8									
Benzo(g,h,i)perylene	µg/kg	4	5	-					5					16	<5									

3.3 Dredge spoil disposal area

3.3.1 Physical characteristics

Sediment in the DSDA is dominated by fine textures (i.e., 86% on average comprising 43% clay and 43% silt). Sand comprises 14% (on average) of the sediment in all samples from the DSDA. Sample (DSDA-1 to 3) contained 1 to 2% gravel. No samples contained cobbles. A summary of PSD results for the DSDA is presented in Figure 3-3 and Table 3-5.

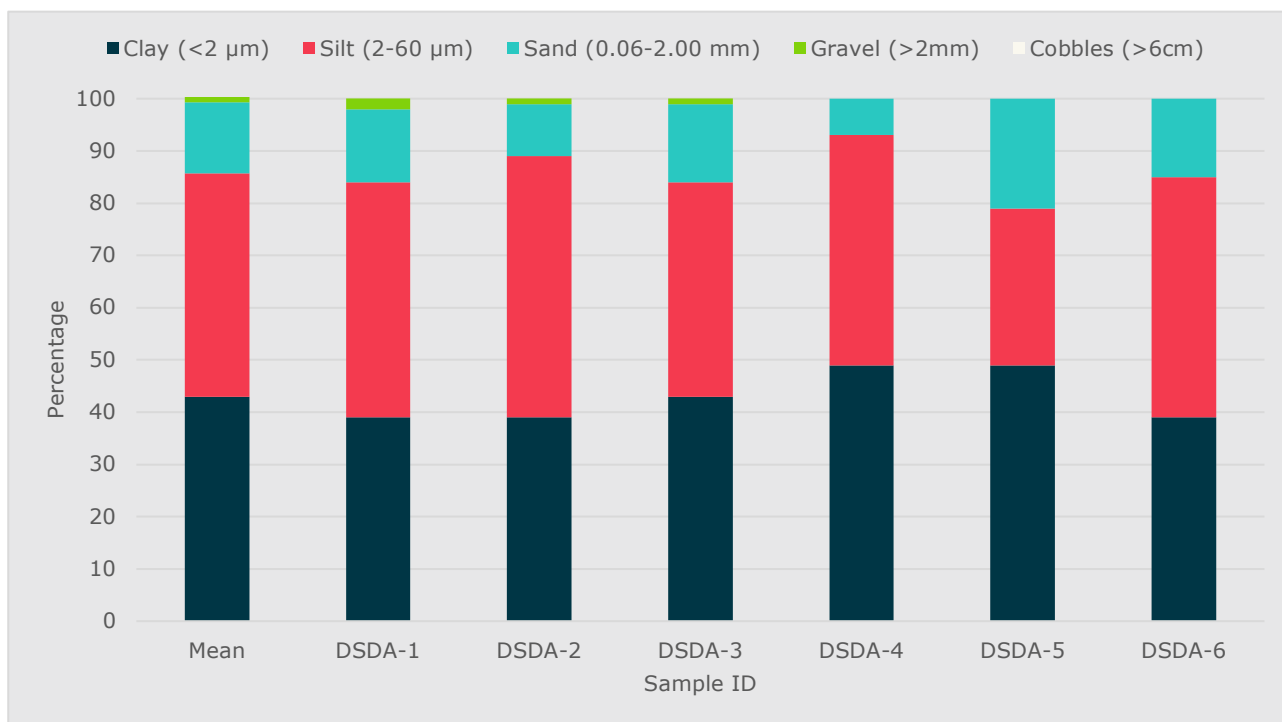


Figure 3-3: Graphical summary of PSD for sediments within the Dredge Spoil Disposal Area

Table 3-5: Typical sediment dredge depth and collection method for dredge areas

Sample ID	Date Sampled	Texture					Soil Particle Density (Clay / Silt / Sand)
		Clay	Silt	Sand	Gravel	Cobbles	
		Units	Units	Units	Units	Units	
	PQL	1	1	1	1	1	0.01
Size (mm)		<0.02	0.02-0.6	0.6-2	2-60	>60	-
DSDA-1	07/05/2025	39	45	14	2.00	<1	2.16
DSDA-2	07/05/2025	39	50	10	1.00	<1	2.53
DSDA-3	07/05/2025	43	41	15	1.00	<1	2.30
DSDA-4	07/05/2025	49	44	7	<1	<1	2.89
DSDA-5	07/05/2025	49	30	21	<1	<1	2.50
DSDA-6	07/05/2025	39	46	15	<1	<1	2.58
Mean		43	43	14	1	-	2.49

3.3.1.1 Phase II chemical results

The results of chemical analyses for sediments in the DSDA are summarised below and presented in Table 3-6 which includes a comparison against adopted Screening Levels discussed in Section 2.8.

3.3.1.2 Metals and Metalloids

There were detectable concentrations of most metals and metalloids analysed including Al, As, Cr, Co, Cu, Fe, Pb, Mn, Hg, Ni, Sb, Se, V and Zn. Only Sb and Cd had concentrations below the respective LORs. All metals and metalloids concentrations for primary samples were below the respective adopted Screening Levels. These results are consistent with 2024 DSDA data and similar to 2025 data for the OC and IP.

3.3.1.3 Organotin Compounds

Concentrations of MBT and DBT were less than the 1 µgSn/kg LOR. There are no NAGD Screening Levels for these analytes. Concentrations of TBT were below the 0.5 µgSn/kg LOR and therefore less than the adopted Screening Level of 9 µgSn/kg at all sampling locations. These results are consistent with 2024 DSDA data and similar to 2025 data for the OC and IP.

3.3.1.4 Diuron

A total of three primary samples were analysed for Diuron. Concentrations of Diuron in all three samples were less than the LOR of 0.001 mg/kg and therefore also less than the Local Screening Level of 0.002 mg/kg. These results are consistent with 2024 IP dredge area sampling data and similar to 2025 data for the IP.

3.3.1.5 Hydrocarbons

Hydrocarbons including TPH, TRH, BTEX and PAH were analysed for samples collected at three locations including DSDA-2, DSDA-3 and DSDA-4. Concentrations of TPH C10-14, C15-28, C29-36 and total TPH were detected in all three samples. However, with and without normalising to %TOC, these detectable concentrations were less than NAGD Screening Criteria of 280 mg/kg for Total TPH. This is similar to 2025 data for IP.

Normalised (to %TOC) concentrations of PAH were either below the respective LORs or below the NAGD Screening Level of 10,000 mg/kg for total PAH. This is similar to 2025 data for IP.

3.3.1.6 Nutrients

Nutrients including TN, TKN, NO₃⁻, NO₂⁻, TP and NH₄ were analysed for samples collected at three locations including DSDA-2, DSDA-3 and DSDA-4. TN, TKN and TP were detected in each sample. TN was entirely comprised of TKN (ranging from 900 to 1,020 mg/kg), which is evident as the TN and TKN concentrations were equal for each sample. This is similar to 2025 data for IP.

Concentrations of TP ranged between 354 mg/kg to 392 mg/kg. This is similar to 2025 data for IP.

Concentrations of NO_2^- were less than the LOR of 0.1 mg/kg. This is similar to 2025 data for IP.

Concentrations of NO_3^- and $\text{NO}_3^- + \text{NO}_2^-$ ranged from less than the LOR of 0.1 mg/kg to 0.1 mg/kg. This is similar to 2025 data for IP.

Concentrations of NH_4 ranged from less than the LOR of 0.2 mg/kg mg/kg to 18.5 mg/kg. This is similar to 2025 data for IP.

There are no adopted Screening Levels for nutrient concentrations.

3.3.1.7 PFAS

PFAS analysis was completed at three locations including DSDA-2, DSDA-3 and DSDA-4.

Concentrations of sum of PFAS, PFHxS + PFOS and PFOS were less than the LOR of 0.0002 mg/kg and therefore also less than the adopted Screening Level of 0.0046mg/kg (for PFHxS + PFOS) and 0.06 mg/kg (for PFOS). This is similar to 2025 data for IP.

Table 3-6: Summary Phase II results for the Dredge Spoil Disposal Area

Sample ID	Units	PQL	NAGD PQL	NAGD (Local) Screening Level	DSDA-1	DSDA-2	DSDA-3	DSDA-4	DSDA-5	DSDA-6	Mean / Geo-mean	Standard Deviation	95% UCL Or max value if less than 10 samples	Normal (N) Log-normal (L) Neither (X)
Date Sampled					8/5/25	8/5/25	8/5/25	8/5/25	8/5/25	8/5/25				
Misc														
% Moisture	%	1	0.1	-	60.7	61.2	57	53	55	56.3	57.2	2.9		
Total Organic Carbon	%	0.02	0.1	-	1.48	1.58	1.84	1	0.57	0.7	1.2	0.5		
Metals and Metalloids														
Aluminium, Al	mg/kg	50	200	-	11300	11100	11700	11600	9160	9590	10741.7	993.6	11700.0	
Antimony, Sb	mg/kg	0.5	0.5	2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50				
Arsenic, As	mg/kg	1	1	20 (30)	14.90	16.20	17.20	14.30	9.33	9.60	13.6	3.1	17.2	
Cadmium, Cd	mg/kg	0.1	0.1	1.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				
Chromium, Cr	mg/kg	1	1	80	28.10	22.60	22.60	24.10	17.80	19.60	22.5	3.3	28.1	
Cobalt, Co	mg/kg	0.5	0.5	-	7.6	7.8	7.9	8.2	5.6	6.2	7.2	1.0	8.2	
Copper, Cu	mg/kg	1	1	65	8.6	8.9	10.2	8.2	4.8	5.6	7.7	1.9	10.2	
Iron, Fe	mg/kg	50	100	-	23100	22000	23800	24200	15500	16800	20900.0	3448	24200.0	
Lead, Pb	mg/kg	1	1	50	13.5	13.7	14.8	14.2	9.4	10.6	12.7	2.0	14.8	
Manganese, Mn	mg/kg	10	10	-	461	454	411	510	274	296	401.0	87.1	510.0	
Mercury, Hg	mg/kg	0.01	0.01	0.15	0.02	0.02	0.02	0.02	0.01	0.01	0.017	0.005		
Nickel, Ni	mg/kg	1	1	21	11.1	11.1	11.1	12.0	8.8	9.8	10.7	1.0	12.0	
Selenium, Se	mg/kg	0.1	0.1	-	0.4	0.4	0.5	0.4	0.3	0.3	0.4	0.1	0.5	
Silver, Ag	mg/kg	0.1	0.1	1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1				
Vanadium, V	mg/kg	2		-	31.7	30.9	31.7	31.6	23.5	25.7	29.2	3.3	31.7	
Zinc, Zn	mg/kg	1	1	200	33.3	34.2	32.7	33.6	23.6	26.9	30.7	4.0	34.2	
Organotins														
Monobutyltin	µgSn/kg	1	1	-	<1	<1	<1	<1	<1	<1				
Dibutyltin	µgSn/kg	1	1	-	<1	<1	<1	<1	<1	<1				
Tributyltin	µgSn/kg	0.5	1	9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				
Nutrients														
Total Nitrogen as N (TKN + NOx)	mg/kg	20	0.1			1020.00	960.00	900.00						
Total Kjeldahl Nitrogen as N	mg/kg	20	0.1			1020.00	960.00	900.00						
Nitrate as N (Sol.)	mg/kg	0.1	0.1			0.10	<0.1	<0.1						
Nitrite as N (Sol.)	mg/kg	0.1	0.1			<0.1	<0.1	<0.1						
Nitrite + Nitrate as N (Sol.)	mg/kg	0.1	0.1			0.10	<0.1	<0.1						
Ammonium as N	mg/kg	0.2	-			14.40	<0.2	3.70						
Ammonium as NH4	mg/kg	0.2	-			18.50	<0.2	4.80						
Total Phosphorus as P	mg/kg	2	0.1			385.00	354.00	392.00						
TPH														
TPH C6-C9	mg/kg	3	10	-		<3	<3	<3						
TPH C10-14	mg/kg	3	10	-		18.00	5.00	10.00						
TPH C15-28	mg/kg	3	50	-		41.00	19.00	21.00						
TPH C29-36	mg/kg	5	50	-		38.00	30.00	16.00						
Total TPH	mg/kg	3	-	280		97.00	54.00	47.00						
Normalised to % TOC	mg/kg	3	-	280		61.39	29.35	47.00						
Polycyclic Aromatic Hydrocarbons														
Naphthalene	µg/kg	5	5	-		<5	<5	<5						
2-Methylnaphthalene	µg/kg	5	5	-		<5	<5	<5						
Acenaphthylene	µg/kg	4	5	-		<5	<5	<5						
Acenaphthene	µg/kg	4	5	-		<5	<5	<5						
Fluorene	µg/kg	4	5	-		<5	<5	<5						
Phenanthrene	µg/kg	4	5	-		<5	<5	<5						
Anthracene	µg/kg	4	5	-		<5	<5	<5						
Fluoranthene	µg/kg	4	5	-		<5	<5	<5						
Pyrene	µg/kg	4	5	-		<5	<5	<5						
Benz(a)anthracene	µg/kg	4	5	-		<5	<5	<5						
Chrysene	µg/kg	4	5	-		<5	<5	<5						
Benzo(b+j)fluoranthene	µg/kg	4	5	-		<5	<5	<5						
Benzo(k)fluoranthene	µg/kg	4	5	-		<5	<5	<5						
Benzo(e)pyrene	µg/kg	4	5	-		<5	<5	<5						
Benzo(a)pyrene	µg/kg	4	5	-		<5	<5	<5						
Perylene	µg/kg	4	5	-		10.00	39.00	6.00						
Benzo(g,h,i)perylene	µg/kg	4	5	-		<5	<5	<5						
Dibenz(a,h)anthracene	µg/kg	4	5	-		<5	<5	<5						
Indeno(1.2.3.cd)pyrene	µg/kg	4	5	-		<5	<5	<5						
Coronene	µg/kg	5	5	-		<5	<5	<5						
Sum of PAHs	µg/kg	4	100	10000		10.00	39.00	6.00						
Normalised to % TOC	µg/kg	4	100	10000		6.33	21.20	6.00						
Herbicide														
Diuron	mg/kg	0.001	0.001	0.002		<0.001	<0.001	<0.001						
PFAS														
PFOS (99% species protection)	mg/kg	0.0002		0.060^^		<0.0002	<0.0002	<0.0002						
Sum of PFAS	mg/kg	0.0002		0.0046^		<0.0002	<0.0002	<0.0002						
Sum of PFHxS + PFOS	mg/kg	0.0002		0.0046^		<0.0002	<0.0002	<0.0002						
Sum of TOP C4 - C14 Carboxylates and C4 - C8 Sulfonates	mg/kg	0.000		-		<0.0002	<0.0002	<0.0002						
Sum of TOP C4 - C14 as Fluorine	mg/kg	0.0002		-		<0.0002	<0.0002	<0.0002						
Notes														
Note	When calculating averages and 95%UCLs, values below detection for individual sample results were set to half the detection levels (consistent with the NAGD).													
PQL	Practical Quantitation Limit													
Sample ID	Sample location numbers													
-	No guidelines levels (i.e. Screening or Maximum Levels) set in NAGD for given parameter, or no analysis undertaken for a given sample													
**	Unreliable/Unstable/Unrealistic UCL due to small dataset. A minimum of 10 samples are required for accurate calculation of 95%UCL, however, it can be calculated with fewer samples. Using fewer samples sometimes results in a 95%UCL value that is higher than the highest concentration detected. In this instance the highest value is adopted as the 95%UCL.													
^	Values based on the HEPA PFAS NEMP 2020 Version 2 - The use of this Screening Level is justified in a study completed by EnRiskS and published 18 August 2020 titled Human Health and Ecological Risk Assessment: Investigation of PFAS at HMAS Cairns prepared for Aurecon Australasia Pty Ltd and the Australian Government Department of Defence													
^^	Values based on Simpson, S. L., Liu, Y., Spadaro, D. A., Wang, X., Kookana, R. S., & Batley, G. E. (2021). Chronic effects and thresholds for estuarine and marine benthic organism exposure to perfluorooctane sulfonic acid (PFOS)-contaminated sediments: Influence of organic carbon and exposure routes. Science of the Total Environment Vol. 776													
	Value exceeds NAGD or agreed local screening level													
Normalised to % TOC	Normalised to % TOC, over the range of TOC from 0.2 to 10%													
	Not tested													

4. Laboratory analysis

This section examines the validity of the analytical data reported for this study. It discusses the confidence and accuracy in the presented results. Note that QA/QC sampling and analysis was not undertaken for the DSDA as the results for this area are an assessment of long-term condition, not an assessment of suitability for dredging or placement.

4.1 Field QA/QC

4.1.1 Field Triplicates

Field triplicates (i.e., three separate samples collected in the field at the same sampling location) were collected to determine the variability of the sediment physical and chemical characteristics. Contaminant results were compared through calculation of the relative standard deviation (RSD). The NAGD states that the RSD for field triplicates should be $\pm 50\%$, "although they may not always do so where the sediments are very inhomogeneous or greatly differing in grain size".

Field triplicate samples were collected at OC 38-d, OC 57-a, IP 88-d and IP 90-c and provided to the primary laboratory (ALS). A single exceedance was recorded:

- IP88-d (T1) exceeds the RSD for Total Organic Carbon (TOC)

This exceedance indicates that there is some spatial chemical heterogeneity between triplicate sampling locations at IP88-d. This variation is due to heterogeneity in organic matter present in triplicate samples. This may impact normalised TBT concentrations however, as there are no screening values for TOC; and as TBT concentrations for T2 and T3 samples were less than the LOR this RPD exceedance does not impact data quality. The results of triplicate analysis are presented in Table 4-1 and Table 4-2.

4.1.2 Split Triplicates

Split triplicates are samples that are split from the same original sample into three samples. Two samples are analysed by the primary laboratory (intra laboratory analysis) and one sample is submitted to a secondary laboratory for analysis and compared to the primary sample (inter laboratory analysis). Contaminant concentrations are compared between the two split samples through calculation of the RPD. The NAGD states that the RPD for duplicate split samples should be $\pm 35\%$. The RPD value provides an indication of variation within and between the laboratories.

Split triplicate samples were collected at OC 15-c and IP 78-c and provided to the primary laboratory (ALS) and secondary laboratory (SGS) as required. There were RPD exceedances for TOC, Al, Hg and Se in D2; Cr, Cu and Mn in D3; and % Moisture, Al, Cu, Mn, Ni, Se, and Zn in D4. This indicates potential heterogeneity (associated with sediment texture) and or variations in laboratory analysis methods which are likely to be associated with the variation in metals. Exceedances can also occur when concentrations are less than five times the LOR (i.e., Se) as small variations close to the LOR can result in large RPDs which often have no material bearing on data quality and therefore dismissed. As 95%UCL of the mean values for primary

concentrations of metals are less than the adopted Screening Levels; and there are no Screening Levels for Al, Mn and Se; and as there are no other exceedances for key parameters assessed against adopted Screening Levels, these RPD exceedances do not impact data quality.

The results of the analysis are presented in Table 4-1 and Table 4-2.

4.1.3 Blanks

A rinsate blank sample collected by rinsing decontaminated equipment with laboratory prepared deionised water was also analysed for total metals. The rinsate blank sample should have results that are below the LORs to provide evidence that effective decontamination techniques were used onsite. Sample RB01 was collected for sampling completed at OC and DSDA on 7 May 2025, whilst RB02 was collected for sampling completed at IP on 8 May 2025. Very low concentrations of Al (0.05 mg/L), Cr (0.004 mg/L), Zn (0.015 mg/L) and Fe (0.1 mg/L) were detected in Rinsate 01. These detectable concentrations suggest there may be some cross contamination of these metals, however, as all primary concentrations of Al, Cr, Zn and Fe are high (but below relevant Screening Levels) within sediments, these concentrations are not considered to impact data quality. Concentrations of metals and metalloids in RB02 were less than the respective LORs and therefore indicate decontamination procedures were appropriate. The results of the analysis are presented in Table 4-3.

Seven trip blank samples (Trip blank 01 to 07) were collected for sampling completed at OC, DSDA and IP to assess potential hydrocarbon contamination during transit to the laboratory. Concentrations of volatile hydrocarbons (i.e. TPH C6-9, TRH C6-10, TRH C6 - C10 minus BTEX (F1), BTEX and naphthalene) were less than the respective LORs and therefore indicate contamination during transit to the laboratory was unlikely to have occurred. The results of the analysis are presented in Table 4-3.

Table 4-1: Outer Channel field QA/QC results

Sample Description	% Moisture	Total Organic Carbon (TOC)	Metals										Organotins								
			Aluminium, Al	Antimony, Sb	Arsenic, As	Cadmium, Cd	Chromium, Cr	Cobalt, Co	Copper, Cu	Iron, Fe	Lead, Pb	Manganese, Mn	Mercury, Hg	Nickel, Ni	Selenium, Se	Silver, Ag	Vanadium, V	Zinc, Zn	Monobutyltin	Dibutyltin	Tributyltin
Units	%	%w/w	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µgSn/kg	µg Sn/kg	µgSn/kg
LOR	1.0	0.02	50.0	0.5	1.0	0.1	1.0	0.5	1	50.0	1.0	10.0	0.01	1	0.1	0.1	2.0	1	1.0	1.0	0.5
Field Triplicate																					
OC38-d / 0.0-0.5 / T1	49	0.78	9390	<0.50	11.7	<0.1	20.6	7	6.6	20000	10.8	342	0.01	10	0.4	<0.1	24.2	28.1	<1	<1	<0.5
OC38-d / 0.0-0.5 / T2	44	0.78	8970	<0.50	10.1	<0.1	19.2	6.3	6.6	17700	10.4	305	0.01	9.3	0.3	<0.1	23.4	26.3	<1	<1	<0.5
OC38-d / 0.0-0.5 / T3	64.3	1.57	12700	<0.50	14.8	<0.1	25.8	8.3	10.3	25100	14.9	420	0.02	11.9	0.4	<0.1	32.8	39.3	<1	<1	<0.5
RSD	20%	44%	20%	ND	20%	ND	16%	14%	27%	18%	21%	17%	43%	13%	16%	ND	19%	23%	ND	ND	ND
Field Triplicate																					
OC57-a / 0.0-0.5 / T1	74.6	3.01	16100	<0.50	20.5	<0.1	31.8	10.2	15.2	32000	19.4	744	0.04	15.3	0.6	0.1	41	52.7	<1	<1	<0.5
OC57-a / 0.0-0.5 / T2	62.6	1.79	10600	<0.50	14.7	<0.1	22.8	7.2	9.6	21100	13.3	474	0.02	10.3	0.4	<0.1	29.3	33.9	<1	<1	<0.5
OC57-a / 0.0-0.5 / T3	65.2	2.56	10600	<0.50	16.7	<0.1	23	7.3	10	22400	13.9	545	0.03	10.3	0.4	<0.1	29.7	35.2	<1	<1	<0.5
RSD	9%	25%	26%	ND	17%	ND	20%	21%	27%	24%	22%	24%	33%	24%	25%	ND	20%	26%	ND	ND	ND
Split replicate																					
OC15-c / 0.0-0.5 /	60.2	1.18	11700	<0.50	14.1	<0.1	24.5	8	8.6	22700	13.9	516	0.02	11.8	0.4	<0.1	31.6	34.7	<1	<1	<0.5
OC15-c / 0.0-0.5 / D1	60.9	1.19	11600	<0.50	14	<0.1	24.7	8.1	9.1	22900	14.3	535	0.02	11.8	0.4	<0.1	32.5	36.1	<1	<1	<0.5
RPD	1%	1%	1%	ND	1%	ND	1%	1%	6%	1%	3%	4%	0%	0%	0%	ND	3%	4%	ND	ND	ND
OC15-c / 0.0-0.5 / D2	58.7	1.7	18000	1.8	16	0.1	33	9.3	11	27000	16	570	0.05	16	0.1	0.7	40	48	<1	<1	<1
RPD	3%	36%	42%	ND	13%	ND	30%	15%	24%	17%	14%	10%	86%	30%	120%	ND	23%	32%	ND	ND	ND
Relative percent difference (RPD) or relative standard deviation (RSD) outside suggested NAGD data validation level of ±35% and 50% respectively.																					
ND		Not determinable																			
:		Not tested																			

Table 4-2: Inner Port field QA/QC results

Sample Description	% Moisture	Total Organic Carbon (TOC)	Metals															Herbicides		Organotins		
			Aluminium, Al	Antimony, Sb	Arsenic, As	Cadmium, Cd	Chromium, Cr	Cobalt, Co	Copper, Cu	Iron, Fe	Lead, Pb	Manganese, Mn	Mercury, Hg	Nickel, Ni	Selenium, Se	Silver, Ag	Vanadium, V	Zinc, Zn	Diuron	Monobutyltin	Dibutyltin	Tributyltin
Units	%	%w/w	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µgSn/kg	µg Sn/kg	µgSn/kg
LOR	1.0	0.02	50.0	0.5	1.0	0.1	1.0	0.5	1	50.0	1.0	10.0	0.01	1	0.1	0.1	2.0	1	0.001	1.0	1.0	0.5
Field Triplicate																						
IP 88-d / 0.0-0.5 / T1	38.3	1.14	3470	<0.50	23.4	<0.1	16.5	9.9	5.9	21400	6.6	284	0.01	7	0.3	0.1	24.9	25.9	<0.001	<1	<1	1.1
IP 88-d / 0.0-0.5 / T2	30.5	0.33	5800	<0.50	19.7	<0.1	16.4	5.9	6.6	21500	8.8	597	<0.01	7	0.3	<0.1	22.4	22.3	<0.001	<1	<1	<0.5
IP 88-d / 0.0-0.5 / T3	36.3	0.54	5000	<0.50	27.5	<0.1	15.2	7.2	8.2	31700	13.5	415	<0.01	7.6	0.3	<0.1	32.2	28.3	<0.001	<1	<1	<0.5
RSD	12%	63%	25%	ND	17%	ND	5%	27%	17%	24%	37%	36%	ND	5%	0%	ND	19%	12%	ND	ND	ND	ND
Field Triplicate																						
IP 90-c / 0.0-0.5 / T1	61.1	1.94	11800	<0.50	14.8	<0.1	26.6	8.7	19.5	25100	15.9	521	0.03	12.2	0.5	<0.1	34.3	50	<0.001	<1	1	2.2
IP 90-c / 0.0-0.5 / T2	64.8	3.04	11000	<0.50	14.2	<0.1	24.9	8.3	18.7	23700	15.7	430	0.03	11.6	0.4	<0.1	31.8	48.4	<0.001	<1	<1	2.5
IP 90-c / 0.0-0.5 / T3	60.4	2.1	11800	<0.50	17.6	<0.1	26	8.6	22	26200	15.4	483	0.03	12.2	0.5	<0.1	34.7	48.7	<0.001	<1	<1	3.3
RSD	4%	25%	4%	ND	12%	ND	3%	2%	9%	5%	2%	10%	0%	3%	12%	ND	5%	2%	ND	ND	ND	21%
Split replicate																						
IP 78-c / 0.0-0.5 /	42.4	0.91	3970	<0.50	18.2	<0.1	16.7	4.9	6.1	19800	11.5	305	0.02	5.5	0.2	<0.1	22.7	49.1	<0.001	<1	<1	0.8
IP 78-c / 0.0-0.5 / D3	41.5	0.9	3860	<0.50	14	<0.1	11.2	3.9	11.1	15300	6.6	314	<0.01	4.8	0.2	<0.1	17.9	17.6	<0.001	<1	<1	0.6
RPD	2%	1%	3%	ND	26%	ND	39%	23%	58%	26%	54%	3%	ND	14%	0%	ND	24%	94%	ND	ND	ND	29%
IP 78-c / 0.0-0.5 / D4	25.6	1	8100	1.6	21	0.1	21	6	11	22000	13	590	<0.01	8.1	0.6	0.1	28	29	<1	<1	<1	<1
RPD	49%	9%	68%	ND	14%	ND	23%	20%	57%	11%	12%	64%	ND	38%	100%	ND	21%	51%	ND	ND	ND	ND
	Relative percent difference (RPD) or relative standard deviation (RSD) outside suggested NAGD data validation level of ±35% and 50% respectively.																					
ND	Not determinable																					
	Not tested																					

Table 4-3: Trip and rinsate blank sample results

Sample description	LAB PREP date	LAB ID	C6 - C9 Fraction	C6 - C10 Fraction	C6 - C10 Fraction minus BTEX (F1)	Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Sum of BTEX	Naphthalene
Units			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR			20	20	20	1	2	2	2	2	2	1	5
TB1	8/05/2025	EB2515665048	<20	<20	<20	<1	<2	<2	<2	<2	<2	<1	<5
TB2	9/05/2025	EB2515665049	<20	<20	<20	<1	<2	<2	<2	<2	<2	<1	<5
TB3	10/05/2025	EB2515665050	<20	<20	<20	<1	<2	<2	<2	<2	<2	<1	<5
TB4	11/05/2025	EB2515665051	<20	<20	<20	<1	<2	<2	<2	<2	<2	<1	<5
TB5	12/05/2025	EB2515665052	<20	<20	<20	<1	<2	<2	<2	<2	<2	<1	<5
TB6	13/05/2025	EB2515665053	<20	<20	<20	<1	<2	<2	<2	<2	<2	<1	<5
TB7	14/05/2025	EB2515665054	<20	<20	<20	<1	<2	<2	<2	<2	<2	<1	<5

Sample description	Date	Aluminium	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Selenium	Zinc	Iron	Mercury
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LOR		0.01	0.001	0.0001	0.001	0.001	0.001	0.001	0.01	0.005	0.05	0.0001
RB01	7/05/2025	0.05	<0.001	<0.0001	0.004	<0.001	<0.001	<0.001	<0.01	0.015	0.1	<0.0001
RB02	8/05/2025	<0.01	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.005	<0.05	<0.0001

4.2 Laboratory QA/QC

Table 4-4 summarises the OC, IP and DSDA outliers reported by both the primary and secondary laboratory's QA/QC analysis. SGS QA/QC analyses reported no outliers for any QA/QC methods.

Table 4-4: Outliers noted in laboratory QA/QC compliance assessment

QA/QC methods	Laboratory work order	Outlier comments
Raised LORs	EB2515665	LORs raised for compounds of PAH due to high moisture content. However, as total PAH was detected in concentrations less than the Screening Level this outlier does not impact data quality.
	CE181932	No outliers
Method Blanks	EB2515665	No outliers
	CE181932	No outliers – Se detected in an external laboratory batch (LB140599)
Laboratory duplicates	EB2515665	Fe, Ar, Co, Mn and Zn RPD exceeds the LOR based limit in IP 88-d; NH ₄ – IP90-c / 0.0-0.5 due to sample heterogeneity. These outliers do not impact data quality as primary concentrations of these constituents across the dataset are either less than the adopted Screening Levels; or there are no adopted Screening Levels.
	CE181932	No outliers
Laboratory Control Samples (LCS)	EB2515665	No outliers
	CE181932	No outliers
Matrix spikes (MS)	EB2515665	Recovery greater than upper data quality objective for Total Phosphorus as anonymous laboratory sample. This outlier does not impact data quality as primary as there are no adopted Screening Levels for Total Phosphorus; and there are no LCS or MB outliers.
		Recoveries less than the lower data quality objective for MBT occurred in OC57-a (T1), DSDA-2 and IP 90-c. These outliers do not impact data quality as primary concentrations of these constituents across the dataset as there are no adopted Screening Levels for MBT; and there are no LCS or MB outliers.
	CE181932	No outliers
Surrogates	EB2515665	No outliers
	CE181932	No outliers
	EB2515665	Soil particle density laboratory duplicates and ammonium MS were less than expected. However, as soil particle density and ammonium are not

QA/QC methods	Laboratory work order	Outlier comments
Frequency of quality control samples		primary contaminants of concern, and as there are no MB or LCS outliers these frequency exceedances do not impact data quality.
	CE181932	No outliers
Hold time compliance	EB2409581	No outliers
	CE181932	No outliers

5. Introduced marine pest survey

Conditions of the Marine Park Permit G22/44236.1 and Sea Dumping Permit (SD22/01) includes the requirement to prevent the introduction of marine pests into the Marine Park and prevent the transfer of marine pests between locations within the Marine Park. This condition is implemented through the ongoing assessment of the potential presence of marine pests in sediments completed concurrently with sediment sampling.

Historical marine pest monitoring in the Port of Cairns, or detections on the hulls of slipped vessels, has identified three species, the Asian green mussel (*Perna viridis*), Caribbean tube worm (*Hydroides sanctaecrucis*) and Asian bag mussel (*Musculista senhousia*). As such, annual surveys have focused on these three species previously recorded in the Port area as a priority, and also aim to identify the presence of any specimens that appear as suspect marine macro-invertebrate pest species. Ports North partners with the Queensland Department of Primary Industries (DPI) to implement an Environmental DNA (eDNA) surveillance program for early detection of marine pests (the Q-SEAS program). Inspection of eDNA settlement plates in February 2025 did not detect any specimens from the priority list for the SAP investigation or additional suspect marine pest material. Initial reporting on outcomes of the eDNA program over the summer of 2024 into 2025 confirmed no marine pest detections from either the plankton or sampling plates methods of this program and final reporting remains with DPI for finalisation.

These findings confirm that previous incursions of marine pest species have not resulted in establishment of populations of Caribbean Tube Worm, Asian Green Mussels, or Asian Bag Mussels within Trinity Inlet.

With respect to other marine pest species, it is notable White Colonial Sea Squirt (*Didemnum perlucidum*) has been detected in areas adjacent to Cairns and along portions of the Queensland coast but there has been no visual identification or sample recorded in Trinity Inlet. White Colonial Sea Squirt is commonly associated with disturbed habitats such as marinas, harbours and aquaculture structures (Kremer et al., 2010). It also grows on buoys and mooring lines in Queensland (NIMPIS, 2024). Black Scar Oyster (*Magallana bilineata*) was detected by DPI along the North Queensland coast in 2022, and appears to remain present within the intertidal zone, associated with hard marine infrastructure surfaces around Trinity Inlet. In Australia, Black Scar Oyster has been found attached to rocks, pylons, jetties and boat hulls in disturbed estuarine areas (Willan et al., 2021). Given habitat preferences of these species it is considered unlikely they would be present within maintenance dredge material in the maintenance dredge areas of the Port of Cairns. DPI continues to lead response activities with respect to marine pest species and the Q-SEAS program continues to inform an understanding of risk these species pose to Trinity Inlet and its surrounds.

It is envisaged that ongoing awareness training for slipway staff, implementation of post-deployment vessels inspections by Defence Maritime Services, the Q-SEAS program and Ports Norths' SAP sampling will remain as the primary monitoring methods for evaluating the ongoing risk of the incursion of marine pest species during the Marine Park Permit G22/44236.1 and Sea Dumping Permit (SD22/01) validity period. Permit G22/44236.1 and Sea Dumping Permit (SD22/01) validity period.

5.1 Objectives

The primary objectives of marine pest investigations in the sediments of the OC, IP and DSDA are to:

- Sample sediments for presence/absence of marine pest species previously detected within port limits, namely:
 - *Hydroides sanctaecrucis* (Caribbean Tubeworm)
 - *Perna viridis* (Asian Green Mussel)
 - *Musculista senhousia* (Asian Bag Mussel)
- Survey sediments for presence of other potential marine pest species not previously identified within port limits
- Characterise sediments for suitability for colonisation of identified marine pest species.

5.2 Method

Sediment sampling for introduced marine pest species in the OC, DSDA and Wharves 7-8 and 10 within the IP was undertaken using 100m long benthic sled tows. The benthic sled used is designed to sample seabed surface sediments to 5-10cm depth. Sled tows were completed on the 7 May 2025 at 12 locations along the OC and four locations within the DSDA; and on 8 May 2025 along Wharves 7-8 and 10 within the IP. Sled tows could not be completed along Wharves 1-3, 4-6 and 12 due to the presence of vessels that restricted sled use. Locations are presented in Figure 2-1, Figure 2-2 and Figure 2-3.

Benthic sled tows were completed from a survey vessel positioned within 10m of each sampling location using the vessel GPS unit. The sled was deployed from the stern of the survey vessel and lowered to the seabed. Once on the seabed the sled was towed at an approximate speed of 1-2 knots for approximately 100m. At the end of each transect the sled was retrieved to the surface where any fine material less than 5mm in diameter remaining in the sled was washed through the sled sieve with seawater using the on-board deck hose. The remaining material was then flushed into a white sorting tray. All biota collected from the sled tows was photographed and assessed for presence or absence of marine pest species.

Sediment sampling for introduced marine pest species at IP Wharves 1-3, 4-6 and 12 were undertaken using a composite of six sediment grabs per wharf taken using a van Veen Grab at IP81-d, IP83-d and IP93-d respectively (refer to Figure 2-2). This sampling was undertaken on 8 May 2025 along with all other marine pest sampling IP locations. Once collected, each van Veen Grab was placed into a 2mm sieve and washed through the sieve using a deck hose to remove all sediments. All biota collected from the grabs was photographed and assessed for presence or absence of marine pest species.

Field notes describing the biota contained within each sample and any additional relevant information were recorded. Suspect individuals were noted and retained for formal identification. The field notes and photographs are presented in Appendix D.

5.3 Results

5.3.1 Outer Channel

Sediments encountered in the OC were primarily silts and clays. Many samples contained live marine fauna such as snails, tube worms, seagrass, sand crabs, prawns, starfish, sea urchins, bivalves (*Phaphia ocellatilis*), coral, mud gobies, jellies, and shrimp. Several samples also contained detritus, shell grit, clay, leaves. No mussels (shells or fragments) were found. This is consistent with sampling results from 2024.

5.3.2 Inner Port

Sediments encountered in the IP were primarily silts and clay, however there was also a high percentage of sand and gravel. The samples contained live marine fauna including snails, horse mussels, bivalve shells, sea urchins, crabs, jellyfish, seagrass and oyster barnacles. There was also abundant mangrove detritus. Three potential mussel specimens were collected from IP77-c, IP78-c and IP71-c and analysed by Benthic Australia (refer to Appendix E). However, no target species including the green mussels or bag mussels (shells or fragments) were identified. This is consistent with sampling results from 2024.

5.3.3 Dredge Spoil Disposal Area

Sediments encountered in the DSDA can be summarised as primarily silts and clays and some sand with minor levels of gravel. Live marine fauna included snails, jellies, prawns, sea pens and coral. Samples also contained detritus, shell grit and clay clumps. A single potential mussel specimen was collected at DSDA-3 and analysed by Benthic Australia (refer to Appendix E). However, no target species including the green mussels or bag mussels (shells or fragments) were identified. This is consistent with sampling results from 2024.

5.4 Discussion

Marine pest species were not identified during this investigation. Bottom substrates are unlikely to support most marine pest species except for the Asian Bag Mussel. The Asian Bag Mussel can cluster together in soft substrates such as silt (Stafford and Willan, 2007), however no evidence of the presence of this species was identified as part of this study. The results are comparable to historical studies (i.e., Neil et al 2003, Neil and Stafford 2004, GHD 2005, WorleyParsons 2010 and WorleyParsons 2014) and previous Worley investigations of dredge material in the Port of Cairns, which found no evidence of target marine pest species.

6. Conclusions

Based on the results of the sediment monitoring program and marine pest survey, the following conclusions are drawn:

- Sediments from the OC and IP are considered suitable for unconfined placement at sea on the basis that all sediments tested have 95% UCLs below their respective NAGD or agreed Local Screening Level.
- Field and laboratory QA/QC analyses confirm that the results upon which conclusions are drawn have acceptable levels of data validity.
- Results of sled tows at twelve sites along the OC, IP wharves 7-8 and 10 and van Veen grab locations at IP sampling locations indicated that bottom substrates are typically silt and clays (with some areas of sand and gravel) and unlikely to support the colonisation of any of the species of concern. The exception is the Asian Bag Mussel; however, no evidence of this species was identified as part of this study.
- Based on the marine pest survey undertaken, there does not appear to be any significant risk of introducing marine pest species to the DSDA within Trinity Bay as a result of translocation of sediments dredged from the OC and IP.
- Results for the DSDA indicate that contaminant concentrations are generally consistent with concentrations from 2024 and 2025 concentrations in the OC and IP.

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Appendix A. Sediment logs

General Location of Sampling		Outer Channel								
Site Number		1-b								
Date/Sample Time		07/05/2025								
Water Depth at Site		9.8m								
Type of Core Sampler		Grab								
Depth Retained		0.1m								
Weather Conditions / Sea state		1m swell, Wind 20-25kts								
Comments										
PSD (%)										
Gravel (<1)		Sand (27)		Silt & Clay (73)						
Strata Change (m)		Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0.1		Grey Brown	Clay SILT	Wet	Soft	Fine	Low	Nil	Organics and Shell Grit	Nil

General Location of Sampling		Outer Channel								
Site Number		7-b								
Date/Sample Time		07/05/2025								
Water Depth at Site		8m								
Type of Core Sampler		Grab								
Depth Retained		0.1m								
Weather Conditions / Sea state		1m swell, Wind 20-25kts								
Comments										
PSD (%)										
Gravel (<1)		Sand (14)		Silt & Clay (86)						
Strata Change (m)		Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0.1		Grey Brown	Clay SILT	Wet	Soft	Fine	Low	Nil	Organics and Shell Grit	Nil

General Location of Sampling		Outer Channel							
Site Number		10-d							
Date/Sample Time		07/05/2025							
Water Depth at Site		10m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		1m swell, Wind 20-25kts							
Comments									
PSD (%)									
Gravel (<1)	Sand (14)	Silt & Clay (86)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0.1	Grey Brown	Clay SILT	Wet	Soft	Fine	Low	Nil	Organics and Shell Grit	Nil

General Location of Sampling		Outer Channel							
Site Number		15-c (D1,D2)							
Date/Sample Time		07/05/2025							
Water Depth at Site		6.5m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		1m swell, Wind 20-25kts							
Comments									
PSD (%)									
Gravel (<1)	Sand (8)	Silt & Clay (92)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0.1	Grey	Silt	Wet	Soft	Fine	Low	Nil	Organics	Nil

General Location of Sampling		Outer Channel								
Site Number		19-b								
Date/Sample Time		07/05/2025								
Water Depth at Site		10m								
Type of Core Sampler		Grab								
Depth Retained		0.1m								
Weather Conditions / Sea state		1m swell, Wind 20-25kts								
Comments										
PSD (%)										
Gravel (<1)	Sand (13)	Silt & Clay (87)								
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour	
0.1	Brown	Silt	Wet	Soft	Fine	Non plastic	Nil	Organics	Nil	

General Location of Sampling		Outer Channel								
Site Number		25-d								
Date/Sample Time		07/05/2025								
Water Depth at Site		10m								
Type of Core Sampler		Grab								
Depth Retained		0.1m								
Weather Conditions / Sea state		1m swell, Wind 20-25kts								
Comments										
PSD (%)										
Gravel (<1)	Sand (19)	Silt & Clay (81)								
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour	
0.1	Brown	Silt	Wet	Soft	Fine	Non plastic	Nil	Organics and shell grit	Nil	

General Location of Sampling		Outer Channel							
Site Number		28-d							
Date/Sample Time		07/05/2025							
Water Depth at Site		9.5m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		0.5m swell							
Comments									
PSD (%)									
Gravel (<1)	Sand (20)	Silt & Clay (80)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0.1	Brown	Silt	Wet	Soft	Fine	Non plastic	Nil	Organics	Nil

General Location of Sampling		Outer Channel							
Site Number		35-c							
Date/Sample Time		07/05/2025							
Water Depth at Site		10m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		0.3m swell							
Comments									
PSD (%)									
Gravel (<1)	Sand (7)	Silt & Clay (93)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0.1	Brown	Silt	Wet	Soft	Fine	Non plastic	Nil	Organics	Nil

General Location of Sampling		Outer Channel							
Site Number		38-d (T1,T2,T3)							
Date/Sample Time		07/05/2025							
Water Depth at Site		9.3m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		<0.3m swell							
Comments									
PSD (%)									
Gravel (6)	Sand (21)	Silt & Clay (73)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0.1	Dark Grey Brown	Silty sandy CLAY	Wet	Firm	Fine	High plasticity	Nil	Coarse shell grit with Organics	Sulphur

General Location of Sampling		Outer Channel							
Site Number		45-b							
Date/Sample Time		07/05/2025							
Water Depth at Site		10m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		<0.3m swell							
Comments									
PSD (%)									
Gravel (<1)	Sand (8)	Silt & Clay (92)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0.1	Brown Grey	Silt	Wet	Soft	Fine	Non plastic	Nil	Fine Organics	Mild sulphur

General Location of Sampling		Outer Channel							
Site Number		49-a							
Date/Sample Time		07/05/2025							
Water Depth at Site		10m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		<0.3m swell							
Comments									
PSD (%)									
Gravel (1)	Sand (17)	Silt & Clay (82)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0.1	Dark Grey	Silt	Wet	Soft	Fine	Non plastic	Nil	Coarse organics	Sulphur

General Location of Sampling		Outer Channel							
Site Number		53-d							
Date/Sample Time		07/05/2025							
Water Depth at Site		10m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		<0.3m swell							
Comments									
PSD (%)									
Gravel (<1)	Sand (8)	Silt & Clay (92)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0.1	Brown	Silt	Wet	Soft	Fine	Non plastic	Nil	Fine to coarse organics	Sulphur

General Location of Sampling		Outer Channel							
Site Number		57-a (T1, T2, T3)							
Date/Sample Time		07/05/2025							
Water Depth at Site		10.7m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		0.1m swell							
Comments									
PSD (%)									
Gravel (1)	Sand (12)	Silt & Clay (87)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0.1	Brown Ggrey	Silt	Wet	Soft	Fine	Non plastic	Nil	Abundant fine to coarse organics	Sulphur

General Location of Sampling		Outer Channel							
Site Number		60-d							
Date/Sample Time		07/05/2025							
Water Depth at Site		10m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		0.1m swell							
Comments									
PSD (%)									
Gravel (1)	Sand (7)	Silt & Clay (92)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0.1	Grey brown	Silt	Wet	Soft	Fine	Non plastic	Nil	Fine organics	Sulphur

General Location of Sampling		Dredge Spoil Disposal Area							
Site Number		DSDA-1							
Date/Sample Time		07/05/2025							
Water Depth at Site		15m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		1m swell							
Comments									
PSD (%)									
Gravel (2)	Sand (14)	Silt & Clay (84)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0.1	Grey brown	Silt with clay lumps	Wet	Soft	Coarse	Low	Nil	Coarse sand and fine organics	Nil

General Location of Sampling		Dredge Spoil Disposal Area							
Site Number		DSDA-2							
Date/Sample Time		07/05/2025							
Water Depth at Site		15m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		1m swell							
Comments									
PSD (%)									
Gravel (1)	Sand (10)	Silt & Clay (89)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0.1	Grey brown	Silt with clay lumps	Wet	Soft	Coarse	Low	Nil	Coarse sand and fine organics	Nil

Phase II sediment logs

General Location of Sampling		Dredge Spoil Disposal Area							
Site Number		DSDA-3							
Date/Sample Time		07/05/2025							
Water Depth at Site		15m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		1m swell							
Comments									
PSD (%)									
Gravel (1)	Sand (15)	Silt & Clay (84)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0.1	Grey brown	Silt with clay lumps	Wet	Soft	Coarse	Low	Nil	Coarse sand and fine organics	Nil

General Location of Sampling		Dredge Spoil Disposal Area							
Site Number		DSDA-4							
Date/Sample Time		07/05/2025							
Water Depth at Site		15m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		1m swell							
Comments									
PSD (%)									
Gravel (<1)	Sand (7)	Silt & Clay (93)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0.1	Grey brown	Silt with clay lumps	Wet	Soft	Coarse	Low	Nil	Coarse sand and fine organics	Nil

General Location of Sampling		Dredge Spoil Disposal Area							
Site Number		DSDA-5							
Date/Sample Time		07/05/2025							
Water Depth at Site		15m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		1m swell							
Comments									
PSD (%)									
Gravel (<1)	Sand (21)	Silt & Clay (79)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0.1	Grey brown	Silt with clay lumps	Wet	Soft	Coarse	Low	Nil	Coarse sand and fine organics	Nil

General Location of Sampling		Dredge Spoil Disposal Area							
Site Number		DSDA-6							
Date/Sample Time		07/05/2025							
Water Depth at Site		15m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		1m swell							
Comments									
PSD (%)									
Gravel (<1)	Sand (15)	Silt & Clay (85)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0.1	Grey brown	Silt with clay lumps	Wet	Soft	Coarse	Low	Nil	Coarse sand and fine organics	Nil

General Location of Sampling		Inner Port							
Site Number		02-d							
Date/Sample Time		08/05/2025							
Water Depth at Site		9.3m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		Fine							
Comments									
PSD (%)									
Gravel (20)	Sand (66)	Silt & Clay (14)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0-0.1	Grey brown	Sandy clayey SILT	Wet	Soft	Fine	Non plastic	Nil	Fine-coarse shell & fine organics	Marine

General Location of Sampling		Inner Port							
Site Number		71-a							
Date/Sample Time		08/05/2025							
Water Depth at Site		3.2m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		Fine							
Comments									
PSD (%)									
Gravel (<1)	Sand (8)	Silt & Clay (92)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0-0.1	Dark grey	Silt	Wet	Soft	Fine	Non-plastic	Nil	Fine organics	Sulphur

General Location of Sampling		Inner Port							
Site Number		74-b							
Date/Sample Time		08/05/2025							
Water Depth at Site		10.2m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		Fine							
Comments									
PSD (%)									
Gravel (38)	Sand (42)	Silt & Clay (20)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0-0.1	Brown	Silty GRAVEL	Wet	Loose	Fine - coarse	Non plastic	Nil	Fine to coarse shell grit and organics	Nil

General Location of Sampling		Inner Port							
Site Number		77-c							
Date/Sample Time		08/05/2025							
Water Depth at Site		5.4m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		Fine							
Comments									
PSD (%)									
Gravel (2)	Sand (8)	Silt & Clay (90)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0-0.1	Dark grey brown	Silt	Wet	Soft	Fine	Non-plastic	Nil	Coarse organics and trace shell grit	Sulphur

General Location of Sampling		Inner Port							
Site Number		78-c							
Date/Sample Time		08/05/2025							
Water Depth at Site		10.8m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		Fine							
Comments									
PSD (%)									
Gravel (15)	Sand (47)	Silt & Clay (38)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0-0.1	Brown	Silty gravelly SAND	Wet	Loose	Coarse	Non plastic	Nil	Fine to coarse gravel and abundant shell grit with fine to coarse organics	Nil

General Location of Sampling		Inner Port							
Site Number		81-d							
Date/Sample Time		08/05/2025							
Water Depth at Site		11.3m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		Fine							
Comments									
PSD (%)									
Gravel (2)	Sand (5)	Silt & Clay (93)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0-0.1	Dark grey	Silt	Wet	Soft	Fine	Non-plastic	Nil	Mangrove detritus and shell grit	Sulphur

General Location of Sampling		Inner Port							
Site Number		83-d							
Date/Sample Time		08/05/2025							
Water Depth at Site		11m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		Fine							
Comments									
PSD (%)									
Gravel (1)	Sand (4)	Silt & Clay (95)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0-0.1	Dark grey	Silt	Wet	Soft	Fine	Non plastic	Nil	Fine organics	Sulphur

General Location of Sampling		Inner Port							
Site Number		84-c							
Date/Sample Time		08/05/2025							
Water Depth at Site		11.5m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		Fine							
Comments		Busy traffic							
PSD (%)									
Gravel (40)	Sand (17)	Silt & Clay (43)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0-0.1	Dark grey brown	Gravelly silt	Wet	Loose	Fine to coarse	Non-plastic	Fine to cobble size gravel	Fine to coarse organics, fine shell git	Sulphur

General Location of Sampling		Inner Port							
Site Number		86-c							
Date/Sample Time		08/05/2025							
Water Depth at Site		Not recorded							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		Fine							
Comments									
PSD (%)									
Gravel (18)	Sand (25)	Silt & Clay (57)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0-0.1	Dark grey	Sandy SILT	Wet	Soft	Coarse	Non plastic	Nil	Fine to coarse organics and coarse shell grit	Sulphur

General Location of Sampling		Inner Port							
Site Number		88-d (T1, T2, T3)							
Date/Sample Time		08/05/2025							
Water Depth at Site		11m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		Fine							
Comments									
PSD (%)									
Gravel (25)	Sand (51)	Silt & Clay (24)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0-0.1	Brown grey	Silty clayey SAND	Wet	Loose	Coarse	Non-plastic	Coarse gravel	Abundant fine to coarse shell	Marine

General Location of Sampling		Inner Port							
Site Number		90-c (T1, T2, T3)							
Date/Sample Time		08/05/2025							
Water Depth at Site		Not recorded							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		Fine							
Comments									
PSD (%)									
Gravel (1)	Sand (27)	Silt & Clay (72)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0-0.1	Dark grey	Silt	Wet	Soft	Coarse	Non plastic	Nil	Fine shell fragments	Sulphur

General Location of Sampling		Inner Port							
Site Number		93-d							
Date/Sample Time		08/05/2025							
Water Depth at Site		11m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		Fine							
Comments									
PSD (%)									
Gravel (2)	Sand (3)	Silt & Clay (95)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0-0.1	Dark grey	Silt	Wet	Soft	Coarse	Non-plastic	Nil	Fine to coarse organics	Sulphur

General Location of Sampling		Inner Port							
Site Number		97-b							
Date/Sample Time		08/05/2025							
Water Depth at Site		10.7m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		Fine							
Comments									
PSD (%)									
Gravel (25)	Sand (55)	Silt & Clay (20)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0-0.1	Dark grey	Silt	Wet	Soft	Coarse	Non plastic	Nil	Fine shell fragments	Sulphur

General Location of Sampling		Inner Port							
Site Number		104-c							
Date/Sample Time		08/05/2025							
Water Depth at Site		9.1m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		Fine							
Comments									
PSD (%)									
Gravel (4)	Sand (21)	Silt & Clay (75)							
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0-0.1	Dark grey brown	Silt	Wet	Soft	-	Non-plastic	Nil	Abundant fine to coarse organics and trace fine to coarse shell	Sulphur

General Location of Sampling		Inner Port							
Site Number		106-c							
Date/Sample Time		08/05/2025							
Water Depth at Site		9.1m							
Type of Core Sampler		Grab							
Depth Retained		0.1m							
Weather Conditions / Sea state		Fine							
Comments									
PSD (%)									
Gravel (1)		Sand (13)		Silt & Clay (86)					
Strata Change (m)	Colour	Field Texture	Moist.	Consist.	Sand Grain Size	Plasticity	% Stones	Shell/Grit/Biota	Odour
0-0.1	Dark grey	Silt	Wet	Soft	Coarse	Non plastic	Nil	Fine organics and trace fine shell grit	Sulphur

Appendix B. ALS Laboratory certificates



CERTIFICATE OF ANALYSIS

Work Order	: EB2515665	Page	: 1 of 44
Client	: PORTS NORTH	Laboratory	: Environmental Division Brisbane
Contact	: ALEX KOCHNIEFF (SQP Consulting)	Contact	: Customer Services EB
Address	: C/- WORLEYPARSONS LTD 80 ALBERT ST BRISBANE QLD, AUSTRALIA 4000	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3552-8685
Project	: 311001-00495	Date Samples Received	: 08-May-2025 20:50
Order number	: 311001-00495	Date Analysis Commenced	: 09-May-2025
C-O-C number	: ----	Issue Date	: 20-May-2025 16:22
Sampler	: ----		
Site	: ----		
Quote number	: EB25CAIPOR0001		
No. of samples received	: 54		
No. of samples analysed	: 54		



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
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Edwandy Fadjjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Soil Preparation, Stafford, QLD
Layla Hafner	Acid Sulphate Soils - Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Morgan Lennox	Senior Organic Chemist	Brisbane Organics, Stafford, QLD
Tatijana Markoska	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EK255A SD (Ammonium in Sediments): Sample IP 90-c 0.0-0.5 "EB2515665-038" show poor duplicate results due to sample heterogeneity. Confirmed by visual inspection.
- EA150H: Soil particle density results fell outside the scope of AS1289.3.6.3. Results should be scrutinised accordingly.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP080-SD: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- **Diurons and UT-PAH conducted by ALS Sydney, NATA accreditation no. 825, site no 10911.**
- EK067G (Total Phosphorus as P): Sample EB2515648-005 shows poor matrix spike recovery due to sample heterogeneity. Confirmed by visual inspection.
- EP132B-SD : LOR is raised due to high amount of moistures is present.
- EG020SD (Total Metals in Sediments by ICP-MS): IP 88-d (EB2515665-029) shows poor duplicate results due to sample heterogeneity. This has been confirmed by visual inspection.
- EG005SD (Total Fe and Al in Sediments by ICP-AES): IP 88-d (EB2515665-029) shows poor duplicate results due to sample heterogeneity. This has been confirmed by visual inspection.
- EP090 – Organotin Analysis: Sample 'OC57-a T1' (EB2515665-002) shows poor matrix spike recovery due to matrix interference.
- EP090 – Organotin Analysis: Sample 'DSDA-2' (EB2515665-021) shows poor matrix spike recovery due to matrix interference.
- EP090 – Organotin Analysis: Sample 'IP 90-c' (EB2515665-040) shows poor matrix spike recovery due to matrix interference.



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				OC35-c 0.0-0.5	OC57-a T1 0.0-0.5	OC57-a T2 0.0-0.5	OC57-a T3 0.0-0.5	OC1-b 0.0-0.5
Sampling date / time				07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-001	EB2515665-002	EB2515665-003	EB2515665-004	EB2515665-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	71.6	74.6	62.6	65.2	46.7
EA150: Particle Sizing								
+75µm	----	1	%	5	11	7	29	24
+150µm	----	1	%	4	10	5	24	7
+300µm	----	1	%	3	7	3	15	4
+425µm	----	1	%	2	6	2	11	3
+600µm	----	1	%	<1	5	<1	8	2
+1180µm	----	1	%	<1	2	<1	4	<1
+2.36mm	----	1	%	<1	<1	<1	1	<1
+4.75mm	----	1	%	<1	<1	<1	<1	<1
+9.5mm	----	1	%	<1	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	34	41	35	37	41
Silt (2-60 µm)	----	1	%	59	46	56	32	32
Sand (0.06-2.00 mm)	----	1	%	7	12	9	29	27
Gravel (>2mm)	----	1	%	<1	1	<1	2	<1
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.50	2.20	2.17	2.21	2.37
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	14400	16100	10600	10600	9250
Iron	7439-89-6	50	mg/kg	26200	32000	21100	22400	17900
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				OC35-c 0.0-0.5	OC57-a T1 0.0-0.5	OC57-a T2 0.0-0.5	OC57-a T3 0.0-0.5	OC1-b 0.0-0.5
Sampling date / time				07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-001	EB2515665-002	EB2515665-003	EB2515665-004	EB2515665-005
				Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued								
Arsenic	7440-38-2	1.00	mg/kg	18.4	20.5	14.7	16.7	9.38
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	7440-47-3	1.0	mg/kg	29.0	31.8	22.8	23.0	19.8
Copper	7440-50-8	1.0	mg/kg	12.5	15.2	9.6	10.0	5.5
Cobalt	7440-48-4	0.5	mg/kg	9.2	10.2	7.2	7.3	6.8
Lead	7439-92-1	1.0	mg/kg	16.5	19.4	13.3	13.9	10.6
Manganese	7439-96-5	10	mg/kg	758	744	474	545	327
Nickel	7440-02-0	1.0	mg/kg	13.7	15.3	10.3	10.3	9.5
Selenium	7782-49-2	0.1	mg/kg	0.5	0.6	0.4	0.4	0.3
Silver	7440-22-4	0.1	mg/kg	0.2	0.1	<0.1	<0.1	<0.1
Vanadium	7440-62-2	2.0	mg/kg	37.3	41.0	29.3	29.7	26.2
Zinc	7440-66-6	1.0	mg/kg	43.1	52.7	33.9	35.2	27.9
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.01	mg/kg	0.03	0.04	0.02	0.03	0.01
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	2.06	3.01	1.79	2.56	0.60
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	<1	<1	<1
Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	<1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP090S: Organotin Surrogate								
Tripropyltin	----	0.5	%	73.1	102	81.0	98.3	101



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				OC25-d 0.0-0.5	OC15-c 0.0-0.5	D1 0.0-0.5	OC38-d T1 0.0-0.5	OC38-d T2 0.0-0.5
Sampling date / time				07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-006	EB2515665-007	EB2515665-008	EB2515665-009	EB2515665-010
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	63.9	60.2	60.9	49.0	44.0
EA150: Particle Sizing								
+75µm	----	1	%	15	7	7	24	21
+150µm	----	1	%	7	5	4	17	17
+300µm	----	1	%	4	4	2	14	15
+425µm	----	1	%	3	3	2	13	14
+600µm	----	1	%	2	2	1	11	13
+1180µm	----	1	%	<1	<1	<1	8	11
+2.36mm	----	1	%	<1	<1	<1	5	8
+4.75mm	----	1	%	<1	<1	<1	1	5
+9.5mm	----	1	%	<1	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	33	47	40	42	41
Silt (2-60 µm)	----	1	%	48	45	52	31	37
Sand (0.06-2.00 mm)	----	1	%	19	8	8	21	13
Gravel (>2mm)	----	1	%	<1	<1	<1	6	9
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.16	2.64	2.18	2.58	2.77
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	10000	11700	11600	9390	8970
Iron	7439-89-6	50	mg/kg	20600	22700	22900	20000	17700
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				OC25-d 0.0-0.5	OC15-c 0.0-0.5	D1 0.0-0.5	OC38-d T1 0.0-0.5	OC38-d T2 0.0-0.5
Sampling date / time				07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-006	EB2515665-007	EB2515665-008	EB2515665-009	EB2515665-010
				Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued								
Arsenic	7440-38-2	1.00	mg/kg	15.4	14.1	14.0	11.7	10.1
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	7440-47-3	1.0	mg/kg	21.6	24.5	24.7	20.6	19.2
Copper	7440-50-8	1.0	mg/kg	9.7	8.6	9.1	6.6	6.6
Cobalt	7440-48-4	0.5	mg/kg	7.2	8.0	8.1	7.0	6.3
Lead	7439-92-1	1.0	mg/kg	12.7	13.9	14.3	10.8	10.4
Manganese	7439-96-5	10	mg/kg	618	516	535	342	305
Nickel	7440-02-0	1.0	mg/kg	10.0	11.8	11.8	10.0	9.3
Selenium	7782-49-2	0.1	mg/kg	0.4	0.4	0.4	0.4	0.3
Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	7440-62-2	2.0	mg/kg	27.1	31.6	32.5	24.2	23.4
Zinc	7440-66-6	1.0	mg/kg	33.8	34.7	36.1	28.1	26.3
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.01	mg/kg	0.02	0.02	0.02	0.01	0.01
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	2.00	1.18	1.19	0.78	0.78
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	<1	<1	<1
Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	<1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP090S: Organotin Surrogate								
Tripropyltin	----	0.5	%	121	112	88.4	35.7	87.7



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				OC38-d T3 0.0-0.5	OC19-b 0.0-0.5	OC49-a 0.0-0.5	OC10-d 0.0-0.5	OC7-b 0.0-0.5
Sampling date / time				07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-011	EB2515665-012	EB2515665-013	EB2515665-014	EB2515665-015
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	64.3	58.3	60.8	52.2	52.7
EA150: Particle Sizing								
+75µm	----	1	%	11	10	17	13	13
+150µm	----	1	%	9	3	11	4	4
+300µm	----	1	%	8	2	7	2	2
+425µm	----	1	%	7	2	6	2	<1
+600µm	----	1	%	6	1	5	1	<1
+1180µm	----	1	%	3	<1	3	<1	<1
+2.36mm	----	1	%	2	<1	<1	<1	<1
+4.75mm	----	1	%	<1	<1	<1	<1	<1
+9.5mm	----	1	%	<1	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	38	34	46	45	46
Silt (2-60 µm)	----	1	%	48	53	36	41	40
Sand (0.06-2.00 mm)	----	1	%	12	13	17	14	14
Gravel (>2mm)	----	1	%	2	<1	1	<1	<1
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.51	2.30	2.75	2.92	2.83
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	12700	8370	12000	9950	9480
Iron	7439-89-6	50	mg/kg	25100	14600	25900	19100	16000
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				OC38-d T3 0.0-0.5	OC19-b 0.0-0.5	OC49-a 0.0-0.5	OC10-d 0.0-0.5	OC7-b 0.0-0.5
Sampling date / time				07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-011	EB2515665-012	EB2515665-013	EB2515665-014	EB2515665-015
				Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued								
Arsenic	7440-38-2	1.00	mg/kg	14.8	11.3	18.6	11.8	10.8
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	7440-47-3	1.0	mg/kg	25.8	17.3	24.7	20.2	19.3
Copper	7440-50-8	1.0	mg/kg	10.3	5.3	10.8	6.4	6.0
Cobalt	7440-48-4	0.5	mg/kg	8.3	5.7	8.1	6.7	6.4
Lead	7439-92-1	1.0	mg/kg	14.9	9.2	15.0	11.2	10.5
Manganese	7439-96-5	10	mg/kg	420	463	500	348	339
Nickel	7440-02-0	1.0	mg/kg	11.9	8.3	11.7	9.7	9.4
Selenium	7782-49-2	0.1	mg/kg	0.4	0.3	0.5	0.3	0.3
Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Vanadium	7440-62-2	2.0	mg/kg	32.8	21.6	34.0	26.2	25.2
Zinc	7440-66-6	1.0	mg/kg	39.3	24.8	36.4	28.1	27.0
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.01	mg/kg	0.02	0.01	0.02	0.02	0.01
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	1.57	0.86	1.85	0.87	0.85
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	<1	<1	<1
Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	<1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP090S: Organotin Surrogate								
Tripropyltin	----	0.5	%	81.9	108	71.3	69.6	93.8



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				OC60-d 0.0-0.5	OC28-d 0.0-0.5	OC45-b 0.0-0.5	OC53-d 0.0-0.5	DSDA-1 0.0-0.5
Sampling date / time				07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-016	EB2515665-017	EB2515665-018	EB2515665-019	EB2515665-020
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	69.6	67.1	70.5	72.7	60.7
EA150: Particle Sizing								
+75µm	----	1	%	5	18	6	6	14
+150µm	----	1	%	4	9	4	5	12
+300µm	----	1	%	4	4	2	4	9
+425µm	----	1	%	3	2	2	3	7
+600µm	----	1	%	3	<1	<1	3	6
+1180µm	----	1	%	1	<1	<1	<1	3
+2.36mm	----	1	%	<1	<1	<1	<1	1
+4.75mm	----	1	%	<1	<1	<1	<1	<1
+9.5mm	----	1	%	<1	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	38	38	39	37	39
Silt (2-60 µm)	----	1	%	54	42	53	55	45
Sand (0.06-2.00 mm)	----	1	%	7	20	8	8	14
Gravel (>2mm)	----	1	%	1	<1	<1	<1	2
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.20	2.26	2.40	2.11	2.16
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	13800	11000	13700	12600	11300
Iron	7439-89-6	50	mg/kg	26200	25100	24200	21400	23100
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				OC60-d 0.0-0.5	OC28-d 0.0-0.5	OC45-b 0.0-0.5	OC53-d 0.0-0.5	DSDA-1 0.0-0.5
Sampling date / time				07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-016	EB2515665-017	EB2515665-018	EB2515665-019	EB2515665-020
				Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued								
Arsenic	7440-38-2	1.00	mg/kg	16.7	20.2	17.5	15.7	14.9
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	7440-47-3	1.0	mg/kg	27.2	24.9	27.2	25.4	28.1
Copper	7440-50-8	1.0	mg/kg	10.7	10.6	11.3	8.3	8.6
Cobalt	7440-48-4	0.5	mg/kg	8.6	8.3	8.7	7.9	7.6
Lead	7439-92-1	1.0	mg/kg	16.0	15.4	15.9	14.6	13.5
Manganese	7439-96-5	10	mg/kg	609	646	638	622	461
Nickel	7440-02-0	1.0	mg/kg	12.9	11.5	13.1	12.2	11.1
Selenium	7782-49-2	0.1	mg/kg	0.5	0.4	0.5	0.4	0.4
Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	7440-62-2	2.0	mg/kg	34.0	32.1	34.6	32.2	31.7
Zinc	7440-66-6	1.0	mg/kg	40.4	38.4	42.5	36.2	33.3
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.01	mg/kg	0.03	0.03	0.03	0.02	0.02
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	2.45	2.14	1.98	1.67	1.48
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	<1	<1	<1
Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	<1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP090S: Organotin Surrogate								
Tripropyltin	----	0.5	%	52.1	63.2	83.6	67.4	84.7



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				DSDA-2 0.0-0.5	DSDA-3 0.0-0.5	DSDA-4 0.0-0.5	DSDA-5 0.0-0.5	DSDA-6 0.0-0.5
Sampling date / time				07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-021	EB2515665-022	EB2515665-023	EB2515665-024	EB2515665-025
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	61.2	57.0	53.0	55.0	56.3
EA150: Particle Sizing								
+75µm	----	1	%	9	11	7	18	10
+150µm	----	1	%	5	7	3	5	3
+300µm	----	1	%	3	5	2	1	1
+425µm	----	1	%	2	4	2	<1	<1
+600µm	----	1	%	2	3	1	<1	<1
+1180µm	----	1	%	1	2	<1	<1	<1
+2.36mm	----	1	%	<1	<1	<1	<1	<1
+4.75mm	----	1	%	<1	<1	<1	<1	<1
+9.5mm	----	1	%	<1	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	39	43	49	49	39
Silt (2-60 µm)	----	1	%	50	41	44	30	46
Sand (0.06-2.00 mm)	----	1	%	10	15	7	21	15
Gravel (>2mm)	----	1	%	1	1	<1	<1	<1
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.53	2.30	2.89	2.50	2.58
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	11100	11700	11600	9160	9590
Iron	7439-89-6	50	mg/kg	22000	23800	24200	15500	16800
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Sample ID

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DSDA-2 0.0-0.5	DSDA-3 0.0-0.5	DSDA-4 0.0-0.5	DSDA-5 0.0-0.5	DSDA-6 0.0-0.5
Sampling date / time				07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2515665-021	EB2515665-022	EB2515665-023	EB2515665-024	EB2515665-025	
				Result	Result	Result	Result	Result	
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Arsenic	7440-38-2	1.00	mg/kg	16.2	17.2	14.3	9.33	9.60	
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	
Chromium	7440-47-3	1.0	mg/kg	22.6	22.6	24.1	17.8	19.6	
Copper	7440-50-8	1.0	mg/kg	8.9	10.2	8.2	4.8	5.6	
Cobalt	7440-48-4	0.5	mg/kg	7.8	7.9	8.2	5.6	6.2	
Lead	7439-92-1	1.0	mg/kg	13.7	14.8	14.2	9.4	10.6	
Manganese	7439-96-5	10	mg/kg	454	411	510	274	296	
Nickel	7440-02-0	1.0	mg/kg	11.1	11.1	12.0	8.8	9.8	
Selenium	7782-49-2	0.1	mg/kg	0.4	0.5	0.4	0.3	0.3	
Silver	7440-22-4	0.1	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	
Vanadium	7440-62-2	2.0	mg/kg	30.9	31.7	31.6	23.5	25.7	
Zinc	7440-66-6	1.0	mg/kg	34.2	32.7	33.6	23.6	26.9	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg	0.02	0.02	0.02	0.01	0.01	
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	<0.1	----	----	
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	0.1	<0.1	<0.1	----	----	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	0.1	<0.1	<0.1	----	----	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg	1020	960	900	----	----	
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg	1020	960	900	----	----	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg	385	354	392	----	----	
EK255A SD: Ammonium in Sediment									



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				DSDA-2 0.0-0.5	DSDA-3 0.0-0.5	DSDA-4 0.0-0.5	DSDA-5 0.0-0.5	DSDA-6 0.0-0.5
Sampling date / time				07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-021	EB2515665-022	EB2515665-023	EB2515665-024	EB2515665-025
				Result	Result	Result	Result	Result
EK255A SD: Ammonium in Sediment - Continued								
Ammonium as N	14798-03-9_N	0.2	mg/kg	14.4	<0.2	3.7	----	----
Ammonium as NH4	----	0.2	mg/kg	18.5	<0.2	4.8	----	----
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	1.58	1.84	1.00	0.57	0.70
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
>C10 - C16 Fraction	----	3	mg/kg	15	4	11	----	----
>C16 - C34 Fraction	----	3	mg/kg	70	44	31	----	----
>C34 - C40 Fraction	----	5	mg/kg	6	6	<5	----	----
>C10 - C40 Fraction (sum)	----	3	mg/kg	91	54	42	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	3	mg/kg	15	4	11	----	----
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	3	mg/kg	<3	<3	<3	----	----
C10 - C14 Fraction	----	3	mg/kg	18	5	10	----	----
C15 - C28 Fraction	----	3	mg/kg	41	19	21	----	----
C29 - C36 Fraction	----	5	mg/kg	38	30	16	----	----
^ C10 - C36 Fraction (sum)	----	3	mg/kg	97	54	47	----	----
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	C6_C10	3	mg/kg	<3	<3	<3	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	3.0	mg/kg	<3.0	<3.0	<3.0	----	----
EP080-SD: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				DSDA-2 0.0-0.5	DSDA-3 0.0-0.5	DSDA-4 0.0-0.5	DSDA-5 0.0-0.5	DSDA-6 0.0-0.5
Sampling date / time				07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-021	EB2515665-022	EB2515665-023	EB2515665-024	EB2515665-025
				Result	Result	Result	Result	Result
EP080-SD: BTEXN - Continued								
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Naphthalene	91-20-3	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	<1	<1	<1
Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	<1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP132B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	5	µg/kg	<5	<5	<5	----	----
2-Methylnaphthalene	91-57-6	5	µg/kg	<5	<5	<5	----	----
Acenaphthylene	208-96-8	4	µg/kg	<5	<5	<5	----	----
Acenaphthene	83-32-9	4	µg/kg	<5	<5	<5	----	----
Fluorene	86-73-7	4	µg/kg	<5	<5	<5	----	----
Phenanthrene	85-01-8	4	µg/kg	<5	<5	<5	----	----
Anthracene	120-12-7	4	µg/kg	<5	<5	<5	----	----
Fluoranthene	206-44-0	4	µg/kg	<5	<5	<5	----	----
Pyrene	129-00-0	4	µg/kg	<5	<5	<5	----	----
Benz(a)anthracene	56-55-3	4	µg/kg	<5	<5	<5	----	----
Chrysene	218-01-9	4	µg/kg	<5	<5	<5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	4	µg/kg	<5	<5	<5	----	----
Benzo(k)fluoranthene	207-08-9	4	µg/kg	<5	<5	<5	----	----
Benzo(e)pyrene	192-97-2	4	µg/kg	<5	<5	<5	----	----
Benzo(a)pyrene	50-32-8	4	µg/kg	<5	<5	<5	----	----
Perylene	198-55-0	4	µg/kg	10	39	6	----	----
Benzo(g,h,i)perylene	191-24-2	4	µg/kg	<5	<5	<5	----	----
Dibenz(a,h)anthracene	53-70-3	4	µg/kg	<5	<5	<5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	<5	<5	<5	----	----
Coronene	191-07-1	5	µg/kg	<5	<5	<5	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				DSDA-2 0.0-0.5	DSDA-3 0.0-0.5	DSDA-4 0.0-0.5	DSDA-5 0.0-0.5	DSDA-6 0.0-0.5
Sampling date / time				07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-021	EB2515665-022	EB2515665-023	EB2515665-024	EB2515665-025
				Result	Result	Result	Result	Result
EP132B: Polynuclear Aromatic Hydrocarbons - Continued								
^ Sum of PAHs	----	4	µg/kg	10	39	6	----	----
^ Benzo(a)pyrene TEQ (zero)	----	4	µg/kg	<5	<5	<5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	4	µg/kg	<5	<5	<5	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	4	µg/kg	10	10	10	----	----
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	<0.001	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----
Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DSDA-2 0.0-0.5	DSDA-3 0.0-0.5	DSDA-4 0.0-0.5	DSDA-5 0.0-0.5	DSDA-6 0.0-0.5
Sampling date / time					07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-021	EB2515665-022	EB2515665-023	EB2515665-024	EB2515665-025	
				Result	Result	Result	Result	Result	
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
EP231_TOP_C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
EP231_TOP_D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
EP231_TOP_P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Sum of TOP C4 - C14 Carboxylates and C4 - C8 Sulfonates	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Sum of TOP C4 - C14 as Fluorine	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DSDA-2 0.0-0.5	DSDA-3 0.0-0.5	DSDA-4 0.0-0.5	DSDA-5 0.0-0.5	DSDA-6 0.0-0.5
Sampling date / time					07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00	07-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-021	EB2515665-022	EB2515665-023	EB2515665-024	EB2515665-025	
				Result	Result	Result	Result	Result	
EP231_TOP_P: PFAS Sums - Continued									
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides									
Diuron	330-54-1	0.001	mg/kg	<0.001	<0.001	<0.001	----	----	
EP080-SD: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	56.1	58.7	64.4	----	----	
Toluene-D8	2037-26-5	0.2	%	54.2	57.5	62.3	----	----	
4-Bromofluorobenzene	460-00-4	0.2	%	60.0	60.3	60.7	----	----	
EP090S: Organotin Surrogate									
TripropyItin	----	0.5	%	122	83.3	91.9	127	84.6	
EP231_TOP_S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%	82.4	81.9	81.9	----	----	
13C8-PFOA	----	0.0002	%	114	113	119	----	----	
EP132T: Base/Neutral Extractable Surrogates - SD									
2-Fluorobiphenyl	321-60-8	10	%	76.0	72.3	108	----	----	
Anthracene-d10	1719-06-8	10	%	79.1	91.9	109	----	----	
4-Terphenyl-d14	1718-51-0	10	%	88.1	83.3	119	----	----	



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				IP 02-d 0.0-0.5	IP 84-c 0.0-0.5	IP 71-a 0.0-0.5	IP 88-d 0.0-0.5	IP 88-d 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-026	EB2515665-027	EB2515665-028	EB2515665-029	EB2515665-030
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	35.9	47.4	68.0	38.3	30.5
EA150: Particle Sizing								
+75µm	----	1	%	84	55	6	74	45
+150µm	----	1	%	83	54	3	73	44
+300µm	----	1	%	67	49	2	66	41
+425µm	----	1	%	56	47	2	57	37
+600µm	----	1	%	48	46	1	47	34
+1180µm	----	1	%	30	43	<1	33	29
+2.36mm	----	1	%	15	38	<1	21	22
+4.75mm	----	1	%	8	26	<1	10	16
+9.5mm	----	1	%	<1	6	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	10	21	40	13	32
Silt (2-60 µm)	----	1	%	4	22	52	11	22
Sand (0.06-2.00 mm)	----	1	%	66	17	8	51	22
Gravel (>2mm)	----	1	%	20	40	<1	25	24
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.66	2.59	2.09	2.60	2.66
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	2670	8180	12900	3470	5800
Iron	7439-89-6	50	mg/kg	7120	22400	25300	21400	21500
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

IP 02-d 0.0-0.5	IP 84-c 0.0-0.5	IP 71-a 0.0-0.5	IP 88-d 0.0-0.5	IP 88-d 0.0-0.5
08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
EB2515665-026	EB2515665-027	EB2515665-028	EB2515665-029	EB2515665-030
Result	Result	Result	Result	Result

Arsenic	7440-38-2	1.00	mg/kg	5.72	14.3	13.6	23.4	19.7
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	7440-47-3	1.0	mg/kg	6.6	18.1	26.2	16.5	16.4
Copper	7440-50-8	1.0	mg/kg	2.4	9.5	14.9	5.9	6.6
Cobalt	7440-48-4	0.5	mg/kg	3.9	6.1	8.8	9.9	5.9
Lead	7439-92-1	1.0	mg/kg	3.9	11.7	15.9	6.6	8.8
Manganese	7439-96-5	10	mg/kg	147	378	380	284	597
Nickel	7440-02-0	1.0	mg/kg	2.7	8.6	12.6	7.0	7.0
Selenium	7782-49-2	0.1	mg/kg	0.2	0.3	0.5	0.3	0.3
Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Vanadium	7440-62-2	2.0	mg/kg	9.9	25.4	34.8	24.9	22.4
Zinc	7440-66-6	1.0	mg/kg	8.5	32.9	49.6	25.9	22.3

Mercury	7439-97-6	0.01	mg/kg	<0.01	0.02	0.03	0.01	<0.01
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Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	----	----	----	<0.1	----
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Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	----	----	----	0.2	----
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Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	----	----	----	0.2	----
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Total Kjeldahl Nitrogen as N	20	mg/kg				320	
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^	Total Nitrogen as N	20	mg/kg	----	----	----	320	----
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Total Phosphorus as P	2	mg/kg	----	----	----	262	----
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EK255A SD: Ammonium in Sediment



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				IP 02-d 0.0-0.5	IP 84-c 0.0-0.5	IP 71-a 0.0-0.5	IP 88-d 0.0-0.5	IP 88-d 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-026	EB2515665-027	EB2515665-028	EB2515665-029	EB2515665-030
				Result	Result	Result	Result	Result
EK255A SD: Ammonium in Sediment - Continued								
Ammonium as N	14798-03-9_N	0.2	mg/kg	----	----	----	34.4	----
Ammonium as NH4	----	0.2	mg/kg	----	----	----	44.3	----
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	1.46	0.91	2.08	1.14	0.33
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
>C10 - C16 Fraction	----	3	mg/kg	----	----	----	29	----
>C16 - C34 Fraction	----	3	mg/kg	----	----	----	84	----
>C34 - C40 Fraction	----	5	mg/kg	----	----	----	14	----
>C10 - C40 Fraction (sum)	----	3	mg/kg	----	----	----	127	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	3	mg/kg	----	----	----	29	----
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	3	mg/kg	----	----	----	<3	----
C10 - C14 Fraction	----	3	mg/kg	----	----	----	28	----
C15 - C28 Fraction	----	3	mg/kg	----	----	----	55	----
C29 - C36 Fraction	----	5	mg/kg	----	----	----	42	----
^ C10 - C36 Fraction (sum)	----	3	mg/kg	----	----	----	125	----
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	C6_C10	3	mg/kg	----	----	----	<3	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	3.0	mg/kg	----	----	----	<3.0	----
EP080-SD: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	----	----	<0.2	----
Toluene	108-88-3	0.2	mg/kg	----	----	----	<0.2	----
Ethylbenzene	100-41-4	0.2	mg/kg	----	----	----	<0.2	----
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	----	----	----	<0.2	----
ortho-Xylene	95-47-6	0.2	mg/kg	----	----	----	<0.2	----
^ Total Xylenes	----	0.5	mg/kg	----	----	----	<0.5	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				IP 02-d 0.0-0.5	IP 84-c 0.0-0.5	IP 71-a 0.0-0.5	IP 88-d 0.0-0.5	IP 88-d 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-026	EB2515665-027	EB2515665-028	EB2515665-029	EB2515665-030
				Result	Result	Result	Result	Result
EP080-SD: BTEXN - Continued								
^ Sum of BTEX	----	0.2	mg/kg	----	----	----	<0.2	----
Naphthalene	91-20-3	0.2	mg/kg	----	----	----	<0.2	----
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	<1	<1	<1
Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	<1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	0.8	<0.5	1.1	<0.5
EP132B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	5	µg/kg	----	----	----	<5	----
2-Methylnaphthalene	91-57-6	5	µg/kg	----	----	----	<5	----
Acenaphthylene	208-96-8	4	µg/kg	----	----	----	<4	----
Acenaphthene	83-32-9	4	µg/kg	----	----	----	<4	----
Fluorene	86-73-7	4	µg/kg	----	----	----	<4	----
Phenanthrene	85-01-8	4	µg/kg	----	----	----	22	----
Anthracene	120-12-7	4	µg/kg	----	----	----	<4	----
Fluoranthene	206-44-0	4	µg/kg	----	----	----	31	----
Pyrene	129-00-0	4	µg/kg	----	----	----	26	----
Benz(a)anthracene	56-55-3	4	µg/kg	----	----	----	15	----
Chrysene	218-01-9	4	µg/kg	----	----	----	17	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	4	µg/kg	----	----	----	18	----
Benzo(k)fluoranthene	207-08-9	4	µg/kg	----	----	----	8	----
Benzo(e)pyrene	192-97-2	4	µg/kg	----	----	----	10	----
Benzo(a)pyrene	50-32-8	4	µg/kg	----	----	----	18	----
Perylene	198-55-0	4	µg/kg	----	----	----	16	----
Benzo(g,h,i)perylene	191-24-2	4	µg/kg	----	----	----	16	----
Dibenz(a,h)anthracene	53-70-3	4	µg/kg	----	----	----	<4	----
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	----	----	----	10	----
Coronene	191-07-1	5	µg/kg	----	----	----	<5	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				IP 02-d 0.0-0.5	IP 84-c 0.0-0.5	IP 71-a 0.0-0.5	IP 88-d 0.0-0.5	IP 88-d 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-026	EB2515665-027	EB2515665-028	EB2515665-029	EB2515665-030
				Result	Result	Result	Result	Result
EP132B: Polynuclear Aromatic Hydrocarbons - Continued								
^ Sum of PAHs	----	4	µg/kg	----	----	----	207	----
^ Benzo(a)pyrene TEQ (zero)	----	4	µg/kg	----	----	----	23	----
^ Benzo(a)pyrene TEQ (half LOR)	----	4	µg/kg	----	----	----	25	----
^ Benzo(a)pyrene TEQ (LOR)	----	4	µg/kg	----	----	----	27	----
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	----	----	----	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	----	----	----	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	----	----	----	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	----	----	----	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	----	----	----	<0.0002	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	----	----	----	<0.0002	<0.0002
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	----	----	----	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	----	----	----	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	----	----	----	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	----	----	----	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	----	----	----	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	----	----	----	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	----	----	----	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	----	----	----	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	----	----	----	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.0002	mg/kg	----	----	----	<0.0002	<0.0002



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	IP 02-d 0.0-0.5	IP 84-c 0.0-0.5	IP 71-a 0.0-0.5	IP 88-d 0.0-0.5	IP 88-d 0.0-0.5
Sampling date / time					08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-026	EB2515665-027	EB2515665-028	EB2515665-029	EB2515665-030	
				Result	Result	Result	Result	Result	
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	----	----	----	<0.0005	<0.0005	
EP231_TOP_C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	----	----	----	<0.0002	<0.0002	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	----	----	----	<0.0005	<0.0005	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	----	----	----	<0.0005	<0.0005	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	----	----	----	<0.0005	<0.0005	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	----	----	----	<0.0005	<0.0005	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	----	----	----	<0.0002	<0.0002	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	----	----	----	<0.0002	<0.0002	
EP231_TOP_D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	----	----	----	<0.0005	<0.0005	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	----	----	----	<0.0005	<0.0005	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	----	----	----	<0.0005	<0.0005	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	----	----	----	<0.0005	<0.0005	
EP231_TOP_P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg	----	----	----	<0.0002	<0.0002	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	----	----	----	<0.0002	<0.0002	
Sum of TOP C4 - C14 Carboxylates and C4 - C8 Sulfonates	----	0.0002	mg/kg	----	----	----	<0.0002	<0.0002	
Sum of TOP C4 - C14 as Fluorine	----	0.0002	mg/kg	----	----	----	<0.0002	<0.0002	



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				IP 02-d 0.0-0.5	IP 84-c 0.0-0.5	IP 71-a 0.0-0.5	IP 88-d 0.0-0.5	IP 88-d 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-026	EB2515665-027	EB2515665-028	EB2515665-029	EB2515665-030
				Result	Result	Result	Result	Result
EP231_TOP_P: PFAS Sums - Continued								
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides								
Diuron	330-54-1	0.001	mg/kg	----	----	----	<0.001	<0.001
EP080-SD: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	----	----	82.3	----
Toluene-D8	2037-26-5	0.2	%	----	----	----	79.1	----
4-Bromofluorobenzene	460-00-4	0.2	%	----	----	----	76.8	----
EP090S: Organotin Surrogate								
Tripopyltin	----	0.5	%	94.1	94.8	92.4	94.5	92.8
EP231_TOP_S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	----	----	----	76.1	83.0
13C8-PFOA	----	0.0002	%	----	----	----	118	116
EP132T: Base/Neutral Extractable Surrogates - SD								
2-Fluorobiphenyl	321-60-8	10	%	----	----	----	78.2	----
Anthracene-d10	1719-06-8	10	%	----	----	----	96.4	----
4-Terphenyl-d14	1718-51-0	10	%	----	----	----	91.0	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				IP 88-d 0.0-0.5	IP 74-b 0.0-0.5	IP 77-c 0.0-0.5	IP 78-c 0.0-0.5	D3 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-031	EB2515665-032	EB2515665-033	EB2515665-034	EB2515665-035
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	36.3	25.1	66.3	42.4	41.5
EA150: Particle Sizing								
+75µm	----	1	%	77	78	9	61	60
+150µm	----	1	%	76	78	7	59	59
+300µm	----	1	%	74	76	6	52	52
+425µm	----	1	%	70	72	5	45	45
+600µm	----	1	%	67	68	4	37	36
+1180µm	----	1	%	60	51	3	21	22
+2.36mm	----	1	%	49	32	1	12	10
+4.75mm	----	1	%	35	13	<1	7	5
+9.5mm	----	1	%	<1	<1	<1	5	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	15	13	42	27	26
Silt (2-60 µm)	----	1	%	6	7	48	11	13
Sand (0.06-2.00 mm)	----	1	%	26	42	8	47	47
Gravel (>2mm)	----	1	%	53	38	2	15	14
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.70	2.61	2.41	2.65	2.60
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	5000	2240	12400	3970	3860
Iron	7439-89-6	50	mg/kg	31700	12300	25000	19800	15300
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	IP 88-d 0.0-0.5	IP 74-b 0.0-0.5	IP 77-c 0.0-0.5	IP 78-c 0.0-0.5	D3 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2515665-031	EB2515665-032	EB2515665-033	EB2515665-034	EB2515665-035	
				Result	Result	Result	Result	Result	
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Arsenic	7440-38-2	1.00	mg/kg	27.5	10.6	16.0	18.2	14.0	
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	
Chromium	7440-47-3	1.0	mg/kg	15.2	8.9	28.9	16.7	11.2	
Copper	7440-50-8	1.0	mg/kg	8.2	2.4	19.5	6.1	11.1	
Cobalt	7440-48-4	0.5	mg/kg	7.2	2.8	9.1	4.9	3.9	
Lead	7439-92-1	1.0	mg/kg	13.5	4.6	16.6	11.5	6.6	
Manganese	7439-96-5	10	mg/kg	415	246	354	305	314	
Nickel	7440-02-0	1.0	mg/kg	7.6	2.8	13.0	5.5	4.8	
Selenium	7782-49-2	0.1	mg/kg	0.3	0.2	0.5	0.2	0.2	
Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	
Vanadium	7440-62-2	2.0	mg/kg	32.2	15.6	38.0	22.7	17.9	
Zinc	7440-66-6	1.0	mg/kg	28.3	9.3	54.4	49.1	17.6	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg	<0.01	<0.01	0.03	0.02	<0.01	
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	----	----	----	<0.1	----	
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	----	----	----	2.0	----	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	----	----	----	2.0	----	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg	----	----	----	400	----	
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg	----	----	----	400	----	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg	----	----	----	345	----	
EK255A SD: Ammonium in Sediment									



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	IP 88-d 0.0-0.5	IP 74-b 0.0-0.5	IP 77-c 0.0-0.5	IP 78-c 0.0-0.5	D3 0.0-0.5
Sampling date / time					08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit		EB2515665-031	EB2515665-032	EB2515665-033	EB2515665-034	EB2515665-035
					Result	Result	Result	Result	Result
EK255A SD: Ammonium in Sediment - Continued									
Ammonium as N	14798-03-9_N	0.2	mg/kg		----	----	----	4.7	----
Ammonium as NH4	----	0.2	mg/kg		----	----	----	6.1	----
EP003: Total Organic Carbon (TOC) in Soil									
Total Organic Carbon	----	0.02	%		0.54	0.49	1.89	0.91	0.90
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	3	mg/kg		----	----	----	<3	----
>C16 - C34 Fraction	----	3	mg/kg		----	----	----	65	----
>C34 - C40 Fraction	----	5	mg/kg		----	----	----	22	----
>C10 - C40 Fraction (sum)	----	3	mg/kg		----	----	----	87	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	3	mg/kg		----	----	----	<3	----
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	3	mg/kg		----	----	----	<3	----
C10 - C14 Fraction	----	3	mg/kg		----	----	----	4	----
C15 - C28 Fraction	----	3	mg/kg		----	----	----	34	----
C29 - C36 Fraction	----	5	mg/kg		----	----	----	41	----
^ C10 - C36 Fraction (sum)	----	3	mg/kg		----	----	----	79	----
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons									
C6 - C10 Fraction	C6_C10	3	mg/kg		----	----	----	<3	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	3.0	mg/kg		----	----	----	<3.0	----
EP080-SD: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	----	----	<0.2	----
Toluene	108-88-3	0.2	mg/kg		----	----	----	<0.2	----
Ethylbenzene	100-41-4	0.2	mg/kg		----	----	----	<0.2	----
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg		----	----	----	<0.2	----
ortho-Xylene	95-47-6	0.2	mg/kg		----	----	----	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		----	----	----	<0.5	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				IP 88-d 0.0-0.5	IP 74-b 0.0-0.5	IP 77-c 0.0-0.5	IP 78-c 0.0-0.5	D3 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-031	EB2515665-032	EB2515665-033	EB2515665-034	EB2515665-035
				Result	Result	Result	Result	Result
EP080-SD: BTEXN - Continued								
^ Sum of BTEX	----	0.2	mg/kg	----	----	----	<0.2	----
Naphthalene	91-20-3	0.2	mg/kg	----	----	----	<0.2	----
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	<1	<1	<1
Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	<1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	0.7	0.8	0.8	0.6
EP132B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	5	µg/kg	----	----	----	<5	----
2-Methylnaphthalene	91-57-6	5	µg/kg	----	----	----	<5	----
Acenaphthylene	208-96-8	4	µg/kg	----	----	----	<4	----
Acenaphthene	83-32-9	4	µg/kg	----	----	----	<4	----
Fluorene	86-73-7	4	µg/kg	----	----	----	<4	----
Phenanthrene	85-01-8	4	µg/kg	----	----	----	<4	----
Anthracene	120-12-7	4	µg/kg	----	----	----	<4	----
Fluoranthene	206-44-0	4	µg/kg	----	----	----	8	----
Pyrene	129-00-0	4	µg/kg	----	----	----	9	----
Benz(a)anthracene	56-55-3	4	µg/kg	----	----	----	5	----
Chrysene	218-01-9	4	µg/kg	----	----	----	4	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	4	µg/kg	----	----	----	6	----
Benzo(k)fluoranthene	207-08-9	4	µg/kg	----	----	----	<4	----
Benzo(e)pyrene	192-97-2	4	µg/kg	----	----	----	<4	----
Benzo(a)pyrene	50-32-8	4	µg/kg	----	----	----	5	----
Perylene	198-55-0	4	µg/kg	----	----	----	<4	----
Benzo(g,h,i)perylene	191-24-2	4	µg/kg	----	----	----	5	----
Dibenz(a,h)anthracene	53-70-3	4	µg/kg	----	----	----	<4	----
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	----	----	----	<4	----
Coronene	191-07-1	5	µg/kg	----	----	----	<5	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				IP 88-d 0.0-0.5	IP 74-b 0.0-0.5	IP 77-c 0.0-0.5	IP 78-c 0.0-0.5	D3 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-031	EB2515665-032	EB2515665-033	EB2515665-034	EB2515665-035
				Result	Result	Result	Result	Result
EP132B: Polynuclear Aromatic Hydrocarbons - Continued								
^ Sum of PAHs	----	4	µg/kg	----	----	----	42	----
^ Benzo(a)pyrene TEQ (zero)	----	4	µg/kg	----	----	----	6	----
^ Benzo(a)pyrene TEQ (half LOR)	----	4	µg/kg	----	----	----	8	----
^ Benzo(a)pyrene TEQ (LOR)	----	4	µg/kg	----	----	----	11	----
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	----	----	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	IP 88-d 0.0-0.5	IP 74-b 0.0-0.5	IP 77-c 0.0-0.5	IP 78-c 0.0-0.5	D3 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2515665-031	EB2515665-032	EB2515665-033	EB2515665-034	EB2515665-035	
				Result	Result	Result	Result	Result	
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	----	----	<0.0005	<0.0005	
EP231_TOP_C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	----	----	<0.0005	<0.0005	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	----	----	<0.0005	<0.0005	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	----	----	<0.0005	<0.0005	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	----	----	<0.0005	<0.0005	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002	
EP231_TOP_D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	----	----	<0.0005	<0.0005	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	----	----	<0.0005	<0.0005	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	----	----	<0.0005	<0.0005	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	----	----	<0.0005	<0.0005	
EP231_TOP_P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002	
Sum of TOP C4 - C14 Carboxylates and C4 - C8 Sulfonates	----	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002	
Sum of TOP C4 - C14 as Fluorine	----	0.0002	mg/kg	<0.0002	----	----	<0.0002	<0.0002	



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	IP 88-d 0.0-0.5	IP 74-b 0.0-0.5	IP 77-c 0.0-0.5	IP 78-c 0.0-0.5	D3 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2515665-031	EB2515665-032	EB2515665-033	EB2515665-034	EB2515665-035	
				Result	Result	Result	Result	Result	
EP231_TOP_P: PFAS Sums - Continued									
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides									
Diuron	330-54-1	0.001	mg/kg	<0.001	----	----	<0.001	<0.001	
EP080-SD: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	----	----	68.7	----	
Toluene-D8	2037-26-5	0.2	%	----	----	----	67.0	----	
4-Bromofluorobenzene	460-00-4	0.2	%	----	----	----	66.4	----	
EP090S: Organotin Surrogate									
Tripropyltin	----	0.5	%	116	97.7	93.9	89.9	96.3	
EP231_TOP_S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%	85.0	----	----	78.8	84.5	
13C8-PFOA	----	0.0002	%	118	----	----	116	108	
EP132T: Base/Neutral Extractable Surrogates - SD									
2-Fluorobiphenyl	321-60-8	10	%	----	----	----	88.7	----	
Anthracene-d10	1719-06-8	10	%	----	----	----	88.5	----	
4-Terphenyl-d14	1718-51-0	10	%	----	----	----	82.0	----	



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				IP 97-b 0.0-0.5	IP 81-d 0.0-0.5	IP 90-c 0.0-0.5	IP 90-c 0.0-0.5	IP 90-c 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-036	EB2515665-037	EB2515665-038	EB2515665-039	EB2515665-040
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	27.2	70.2	61.1	64.8	60.4
EA150: Particle Sizing								
+75µm	----	1	%	78	5	26	16	23
+150µm	----	1	%	76	4	23	14	20
+300µm	----	1	%	66	4	14	8	12
+425µm	----	1	%	58	4	9	6	7
+600µm	----	1	%	49	3	6	5	4
+1180µm	----	1	%	33	3	2	3	1
+2.36mm	----	1	%	22	1	1	1	<1
+4.75mm	----	1	%	17	<1	<1	<1	<1
+9.5mm	----	1	%	4	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	13	37	32	43	28
Silt (2-60 µm)	----	1	%	7	56	40	41	47
Sand (0.06-2.00 mm)	----	1	%	55	5	27	14	25
Gravel (>2mm)	----	1	%	25	2	1	2	<1
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.68	2.13	2.13	2.61	2.30
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	2470	12900	11800	11000	11800
Iron	7439-89-6	50	mg/kg	9050	24700	25100	23700	26200
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	IP 97-b 0.0-0.5	IP 81-d 0.0-0.5	IP 90-c 0.0-0.5	IP 90-c 0.0-0.5	IP 90-c 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2515665-036	EB2515665-037	EB2515665-038	EB2515665-039	EB2515665-040	
				Result	Result	Result	Result	Result	
EG020-SD: Total Metals in Sediments by ICPMS - Continued									
Arsenic	7440-38-2	1.00	mg/kg	7.27	16.9	14.8	14.2	17.6	
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	
Chromium	7440-47-3	1.0	mg/kg	6.5	27.7	26.6	24.9	26.0	
Copper	7440-50-8	1.0	mg/kg	3.3	15.7	19.5	18.7	22.0	
Cobalt	7440-48-4	0.5	mg/kg	2.4	8.8	8.7	8.3	8.6	
Lead	7439-92-1	1.0	mg/kg	3.9	16.0	15.9	15.7	15.4	
Manganese	7439-96-5	10	mg/kg	196	670	521	430	483	
Nickel	7440-02-0	1.0	mg/kg	2.8	12.6	12.2	11.6	12.2	
Selenium	7782-49-2	0.1	mg/kg	0.2	0.5	0.5	0.4	0.5	
Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	
Vanadium	7440-62-2	2.0	mg/kg	11.1	35.1	34.3	31.8	34.7	
Zinc	7440-66-6	1.0	mg/kg	10.0	48.6	50.0	48.4	48.7	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.01	mg/kg	<0.01	0.03	0.03	0.03	0.03	
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	----	----	<0.1	----	----	
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N (Sol.)	14797-55-8	0.1	mg/kg	----	----	<0.1	----	----	
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	----	----	<0.1	----	----	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	20	mg/kg	----	----	1410	----	----	
EK062: Total Nitrogen as N (TKN + NOx)									
^ Total Nitrogen as N	----	20	mg/kg	----	----	1410	----	----	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	2	mg/kg	----	----	432	----	----	
EK255A SD: Ammonium in Sediment									



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				IP 97-b 0.0-0.5	IP 81-d 0.0-0.5	IP 90-c 0.0-0.5	IP 90-c 0.0-0.5	IP 90-c 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-036	EB2515665-037	EB2515665-038	EB2515665-039	EB2515665-040
				Result	Result	Result	Result	Result
EK255A SD: Ammonium in Sediment - Continued								
Ammonium as N	14798-03-9_N	0.2	mg/kg	----	----	0.6	----	----
Ammonium as NH4	----	0.2	mg/kg	----	----	0.4	----	----
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	0.66	2.46	1.94	3.04	2.10
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
>C10 - C16 Fraction	----	3	mg/kg	----	----	8	----	----
>C16 - C34 Fraction	----	3	mg/kg	----	----	68	----	----
>C34 - C40 Fraction	----	5	mg/kg	----	----	17	----	----
>C10 - C40 Fraction (sum)	----	3	mg/kg	----	----	93	----	----
>C10 - C16 Fraction minus Naphthalene (F2)	----	3	mg/kg	----	----	8	----	----
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	3	mg/kg	----	----	<3	----	----
C10 - C14 Fraction	----	3	mg/kg	----	----	9	----	----
C15 - C28 Fraction	----	3	mg/kg	----	----	34	----	----
C29 - C36 Fraction	----	5	mg/kg	----	----	44	----	----
^ C10 - C36 Fraction (sum)	----	3	mg/kg	----	----	87	----	----
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	C6_C10	3	mg/kg	----	----	<3	----	----
C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	3.0	mg/kg	----	----	<3.0	----	----
EP080-SD: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	----	<0.2	----	----
Toluene	108-88-3	0.2	mg/kg	----	----	<0.2	----	----
Ethylbenzene	100-41-4	0.2	mg/kg	----	----	<0.2	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.2	mg/kg	----	----	<0.2	----	----
ortho-Xylene	95-47-6	0.2	mg/kg	----	----	<0.2	----	----
^ Total Xylenes	----	0.5	mg/kg	----	----	<0.5	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				IP 97-b 0.0-0.5	IP 81-d 0.0-0.5	IP 90-c 0.0-0.5	IP 90-c 0.0-0.5	IP 90-c 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-036	EB2515665-037	EB2515665-038	EB2515665-039	EB2515665-040
				Result	Result	Result	Result	Result
EP080-SD: BTEXN - Continued								
[^] Sum of BTEX	----	0.2	mg/kg	----	----	<0.2	----	----
Naphthalene	91-20-3	0.2	mg/kg	----	----	<0.2	----	----
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	<1	<1	<1
Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	0.5	2.2	2.5	3.3
EP132B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	5	µg/kg	----	----	8	----	----
2-Methylnaphthalene	91-57-6	5	µg/kg	----	----	6	----	----
Acenaphthylene	208-96-8	4	µg/kg	----	----	<5	----	----
Acenaphthene	83-32-9	4	µg/kg	----	----	<5	----	----
Fluorene	86-73-7	4	µg/kg	----	----	<5	----	----
Phenanthrene	85-01-8	4	µg/kg	----	----	<5	----	----
Anthracene	120-12-7	4	µg/kg	----	----	<5	----	----
Fluoranthene	206-44-0	4	µg/kg	----	----	5	----	----
Pyrene	129-00-0	4	µg/kg	----	----	8	----	----
Benz(a)anthracene	56-55-3	4	µg/kg	----	----	<5	----	----
Chrysene	218-01-9	4	µg/kg	----	----	<5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	4	µg/kg	----	----	<5	----	----
Benzo(k)fluoranthene	207-08-9	4	µg/kg	----	----	<5	----	----
Benzo(e)pyrene	192-97-2	4	µg/kg	----	----	<5	----	----
Benzo(a)pyrene	50-32-8	4	µg/kg	----	----	<5	----	----
Perylene	198-55-0	4	µg/kg	----	----	8	----	----
Benzo(g,h,i)perylene	191-24-2	4	µg/kg	----	----	<5	----	----
Dibenz(a,h)anthracene	53-70-3	4	µg/kg	----	----	<5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	----	----	<5	----	----
Coronene	191-07-1	5	µg/kg	----	----	<5	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				IP 97-b 0.0-0.5	IP 81-d 0.0-0.5	IP 90-c 0.0-0.5	IP 90-c 0.0-0.5	IP 90-c 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-036	EB2515665-037	EB2515665-038	EB2515665-039	EB2515665-040
				Result	Result	Result	Result	Result
EP132B: Polynuclear Aromatic Hydrocarbons - Continued								
^ Sum of PAHs	----	4	µg/kg	----	----	35	----	----
^ Benzo(a)pyrene TEQ (zero)	----	4	µg/kg	----	----	<5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	4	µg/kg	----	----	<5	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	4	µg/kg	----	----	10	----	----
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	----	----	<0.001	<0.001	<0.001
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002
Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	IP 97-b 0.0-0.5	IP 81-d 0.0-0.5	IP 90-c 0.0-0.5	IP 90-c 0.0-0.5	IP 90-c 0.0-0.5
Sampling date / time					08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-036	EB2515665-037	EB2515665-038	EB2515665-039	EB2515665-040	
				Result	Result	Result	Result	Result	
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	----	----	<0.0005	<0.0005	<0.0005	
EP231_TOP_C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	----	----	<0.0005	<0.0005	<0.0005	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	----	----	<0.0005	<0.0005	<0.0005	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	----	----	<0.0005	<0.0005	<0.0005	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	----	----	<0.0005	<0.0005	<0.0005	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002	
EP231_TOP_D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	----	----	<0.0005	<0.0005	<0.0005	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	----	----	<0.0005	<0.0005	<0.0005	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	----	----	<0.0005	<0.0005	<0.0005	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	----	----	<0.0005	<0.0005	<0.0005	
EP231_TOP_P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002	
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002	
Sum of TOP C4 - C14 Carboxylates and C4 - C8 Sulfonates	----	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002	
Sum of TOP C4 - C14 as Fluorine	----	0.0002	mg/kg	----	----	<0.0002	<0.0002	<0.0002	



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				IP 97-b 0.0-0.5	IP 81-d 0.0-0.5	IP 90-c 0.0-0.5	IP 90-c 0.0-0.5	IP 90-c 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-036	EB2515665-037	EB2515665-038	EB2515665-039	EB2515665-040
				Result	Result	Result	Result	Result
EP231_TOP_P: PFAS Sums - Continued								
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides								
Diuron	330-54-1	0.001	mg/kg	----	----	<0.001	<0.001	<0.001
EP080-SD: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	----	78.3	----	----
Toluene-D8	2037-26-5	0.2	%	----	----	76.2	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	----	----	78.4	----	----
EP090S: Organotin Surrogate								
Tripopyltin	----	0.5	%	91.2	81.8	91.4	114	106
EP231_TOP_S: PFAS Surrogate								
13C4-PFOS	----	0.0002	%	----	----	85.6	83.5	85.0
13C8-PFOA	----	0.0002	%	----	----	102	108	111
EP132T: Base/Neutral Extractable Surrogates - SD								
2-Fluorobiphenyl	321-60-8	10	%	----	----	79.1	----	----
Anthracene-d10	1719-06-8	10	%	----	----	93.2	----	----
4-Terphenyl-d14	1718-51-0	10	%	----	----	85.9	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				IP 93-d 0.0-0.5	IP 83-d 0.0-0.5	IP 86-c 0.0-0.5	IP 104-c 0.0-0.5	IP 106-c 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-041	EB2515665-042	EB2515665-043	EB2515665-044	EB2515665-045
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	74.2	63.7	41.2	61.8	68.1
EA150: Particle Sizing								
+75µm	----	1	%	4	3	43	25	14
+150µm	----	1	%	4	2	40	23	12
+300µm	----	1	%	4	2	34	18	7
+425µm	----	1	%	3	2	30	14	6
+600µm	----	1	%	3	2	27	12	5
+1180µm	----	1	%	2	1	22	7	3
+2.36mm	----	1	%	1	<1	16	3	<1
+4.75mm	----	1	%	<1	<1	8	<1	<1
+9.5mm	----	1	%	<1	<1	<1	<1	<1
+19.0mm	----	1	%	<1	<1	<1	<1	<1
+37.5mm	----	1	%	<1	<1	<1	<1	<1
+75.0mm	----	1	%	<1	<1	<1	<1	<1
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	28	23	30	33	33
Silt (2-60 µm)	----	1	%	67	72	27	42	53
Sand (0.06-2.00 mm)	----	1	%	3	4	25	21	13
Gravel (>2mm)	----	1	%	2	1	18	4	1
Cobbles (>6cm)	----	1	%	<1	<1	<1	<1	<1
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	2.43	2.12	2.56	2.56	2.58
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Aluminium	7429-90-5	50	mg/kg	9940	13200	6190	8310	12200
Iron	7439-89-6	50	mg/kg	18200	27000	19200	16900	24800
EG020-SD: Total Metals in Sediments by ICPMS								
Antimony	7440-36-0	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				IP 93-d 0.0-0.5	IP 83-d 0.0-0.5	IP 86-c 0.0-0.5	IP 104-c 0.0-0.5	IP 106-c 0.0-0.5
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit	EB2515665-041	EB2515665-042	EB2515665-043	EB2515665-044	EB2515665-045
				Result	Result	Result	Result	Result
EG020-SD: Total Metals in Sediments by ICPMS - Continued								
Arsenic	7440-38-2	1.00	mg/kg	13.5	18.2	12.9	12.4	18.4
Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	7440-47-3	1.0	mg/kg	22.0	28.6	16.2	18.6	26.2
Copper	7440-50-8	1.0	mg/kg	13.9	15.2	11.8	9.5	13.9
Cobalt	7440-48-4	0.5	mg/kg	6.8	8.9	4.9	6.1	8.7
Lead	7439-92-1	1.0	mg/kg	12.7	16.0	8.2	10.7	14.9
Manganese	7439-96-5	10	mg/kg	492	748	282	232	512
Nickel	7440-02-0	1.0	mg/kg	10.0	13.1	7.0	8.6	12.0
Selenium	7782-49-2	0.1	mg/kg	0.5	0.5	0.2	0.4	0.6
Silver	7440-22-4	0.1	mg/kg	<0.1	0.2	<0.1	0.1	<0.1
Vanadium	7440-62-2	2.0	mg/kg	27.7	35.3	20.4	24.8	34.6
Zinc	7440-66-6	1.0	mg/kg	38.4	49.0	29.9	29.8	42.8
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.01	mg/kg	0.03	0.03	<0.01	0.02	0.03
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	3.37	2.30	0.67	1.53	2.39
EP090: Organotin Compounds								
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	<1	<1	<1
Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	<1	<1	<1
Tributyltin	56573-85-4	0.5	µgSn/kg	1.2	0.7	<0.5	<0.5	<0.5
EP090S: Organotin Surrogate								
Tripropyltin	----	0.5	%	91.6	110	101	86.3	94.6

Sub-Matrix: WATER
(Matrix: WATER)

Sampling date / time

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB1	RB2	TB1	TB2	TB3
Sampling date / time				07-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2515665-046	EB2515665-047	EB2515665-048	EB2515665-049	EB2515665-050	
				Result	Result	Result	Result	Result	
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L	0.05	<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	0.004	<0.001	----	----	----	
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	----	----	----	
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	----	----	----	
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	----	----	----	
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	----	----	----	
Zinc	7440-66-6	0.005	mg/L	0.015	<0.005	----	----	----	
Iron	7439-89-6	0.05	mg/L	0.10	<0.05	----	----	----	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L	----	----	<20	<20	<20	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L	----	----	<20	<20	<20	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	----	<20	<20	<20	
EP080: BTEXN									
Benzene	71-43-2	1	µg/L	----	----	<1	<1	<1	
Toluene	108-88-3	2	µg/L	----	----	<2	<2	<2	
Ethylbenzene	100-41-4	2	µg/L	----	----	<2	<2	<2	
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	----	<2	<2	<2	
ortho-Xylene	95-47-6	2	µg/L	----	----	<2	<2	<2	
^ Total Xylenes	----	2	µg/L	----	----	<2	<2	<2	
^ Sum of BTEX	----	1	µg/L	----	----	<1	<1	<1	
Naphthalene	91-20-3	5	µg/L	----	----	<5	<5	<5	
EP080S: TPH(V)/BTEX Surrogates									



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RB1	RB2	TB1	TB2	TB3
Sampling date / time					07-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00
Compound	CAS Number	LOR	Unit		EB2515665-046	EB2515665-047	EB2515665-048	EB2515665-049	EB2515665-050
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
1,2-Dichloroethane-D4	17060-07-0	2	%		----	----	97.3	96.2	95.5
Toluene-D8	2037-26-5	2	%		----	----	101	102	100
4-Bromofluorobenzene	460-00-4	2	%		----	----	106	106	105



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				TB4	TB5	TB6	TB7	----
Sampling date / time				08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	08-May-2025 00:00	----
Compound	CAS Number	LOR	Unit	EB2515665-051	EB2515665-052	EB2515665-053	EB2515665-054	-----
				Result	Result	Result	Result	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	----
[^] C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	----
[^] Total Xylenes	----	2	µg/L	<2	<2	<2	<2	----
[^] Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	98.2	97.3	97.1	98.3	----
Toluene-D8	2037-26-5	2	%	99.9	102	101	101	----
4-Bromofluorobenzene	460-00-4	2	%	104	106	105	105	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080-SD: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	51	145
Toluene-D8	2037-26-5	42	144
4-Bromofluorobenzene	460-00-4	58	142
EP090S: Organotin Surrogate			
Tripropyltin	----	35	130
EP132T: Base/Neutral Extractable Surrogates - SD			
2-Fluorobiphenyl	321-60-8	55	135
Anthracene-d10	1719-06-8	70	136
4-Terphenyl-d14	1718-51-0	57	127
EP231_TOP_S: PFAS Surrogate			
13C4-PFOS	----	47	129
13C8-PFOA	----	56	128

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	66	138
Toluene-D8	2037-26-5	79	120
4-Bromofluorobenzene	460-00-4	74	118

Inter-Laboratory Testing

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

(SOIL) EP132B: Polynuclear Aromatic Hydrocarbons

(SOIL) EP132T: Base/Neutral Extractable Surrogates - SD

(SOIL) EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides



QUALITY CONTROL REPORT

Work Order : **EB2515665**

Page : 1 of 22

Client : **PORTS NORTH**

Laboratory : Environmental Division Brisbane

Contact : ALEX KOCHNIEFF (SQP Consulting)

Contact : Customer Services EB

Address : C/- WORLEYPARSONS LTD 80 ALBERT ST
BRISBANE QLD, AUSTRALIA 4000

Address : 2 Byth Street Stafford QLD Australia 4053

Telephone : ----

Telephone : +61-7-3552-8685

Project : 311001-00495

Date Samples Received : 08-May-2025

Order number : 311001-00495

Date Analysis Commenced : 09-May-2025

C-O-C number : ----

Issue Date : 20-May-2025

Sampler : ----

Site : ----

Quote number : EB25CAIPOR0001

No. of samples received : 54

No. of samples analysed : 54



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
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Edwandy Fadjjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Soil Preparation, Stafford, QLD
Layla Hafner	Acid Sulphate Soils - Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Morgan Lennox	Senior Organic Chemist	Brisbane Organics, Stafford, QLD
Tatijana Markoska	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC
 * = 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: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QC Lot: 6564060)									
EB2515665-001	OC35-c 0.0-0.5	EG005-SD: Aluminium	7429-90-5	50	mg/kg	14400	13000	10.0	0% - 20%
		EG005-SD: Iron	7439-89-6	50	mg/kg	26200	22600	14.7	0% - 20%
EB2515665-011	OC38-d T3 0.0-0.5	EG005-SD: Aluminium	7429-90-5	50	mg/kg	12700	12600	1.0	0% - 20%
		EG005-SD: Iron	7439-89-6	50	mg/kg	25100	26400	5.0	0% - 20%
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QC Lot: 6564064)									
EB2515665-021	DSDA-2 0.0-0.5	EG005-SD: Aluminium	7429-90-5	50	mg/kg	11100	11800	6.6	0% - 20%
		EG005-SD: Iron	7439-89-6	50	mg/kg	22000	23300	5.8	0% - 20%
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QC Lot: 6564081)									
EB2515665-029	IP 88-d 0.0-0.5	EG005-SD: Aluminium	7429-90-5	50	mg/kg	3470	2900	18.0	0% - 20%
		EG005-SD: Iron	7439-89-6	50	mg/kg	21400	# 16200	27.7	0% - 20%
EB2515665-039	IP 90-c 0.0-0.5	EG005-SD: Aluminium	7429-90-5	50	mg/kg	11000	11000	0.2	0% - 20%
		EG005-SD: Iron	7439-89-6	50	mg/kg	23700	23400	1.3	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QC Lot: 6564062)									
EB2515665-001	OC35-c 0.0-0.5	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	0.03	0.03	0.0	No Limit
EB2515665-011	OC38-d T3 0.0-0.5	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	0.02	0.02	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QC Lot: 6564063)									
EB2515665-021	DSDA-2 0.0-0.5	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	0.02	0.02	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QC Lot: 6564080)									
EB2515665-029	IP 88-d 0.0-0.5	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	0.01	<0.01	0.0	No Limit
EB2515665-039	IP 90-c 0.0-0.5	EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	0.03	0.03	0.0	No Limit

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EK255A SD: Ammonium in Sediment (QC Lot: 6564179)									
EB2515665-021	DSDA-2 0.0-0.5	EK255A: Ammonium as N	14798-03-9_N	0.2	mg/kg	14.4	14.9	3.5	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6564202)									
EB2515665-001	OC35-c 0.0-0.5	EA055: Moisture Content	----	0.1 (1.0)*	%	71.6	72.0	0.5	0% - 20%
EB2515665-011	OC38-d T3 0.0-0.5	EA055: Moisture Content	----	0.1 (1.0)*	%	64.3	64.9	0.9	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6564203)									
EB2515665-021	DSDA-2 0.0-0.5	EA055: Moisture Content	----	0.1 (1.0)*	%	61.2	61.2	0.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6564206)									
EB2515665-029	IP 88-d 0.0-0.5	EA055: Moisture Content	----	0.1 (1.0)*	%	38.3	35.6	7.3	0% - 20%
EB2515665-039	IP 90-c 0.0-0.5	EA055: Moisture Content	----	0.1 (1.0)*	%	64.8	64.9	0.0	0% - 20%
EG020-SD: Total Metals in Sediments by ICPMS (QC Lot: 6564061)									
EB2515665-001	OC35-c 0.0-0.5	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	0.5	0.5	0.0	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	0.2	0.1	0.0	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.0	No Limit
		EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	9.2	8.2	11.5	0% - 50%
		EG020-SD: Arsenic	7440-38-2	1	mg/kg	18.4	16.6	10.2	0% - 50%
		EG020-SD: Chromium	7440-47-3	1	mg/kg	29.0	25.6	12.2	0% - 20%
		EG020-SD: Copper	7440-50-8	1	mg/kg	12.5	10.8	14.3	0% - 50%
		EG020-SD: Lead	7439-92-1	1	mg/kg	16.5	14.8	10.8	0% - 50%
		EG020-SD: Nickel	7440-02-0	1	mg/kg	13.7	12.3	11.1	0% - 50%
		EG020-SD: Zinc	7440-66-6	1	mg/kg	43.1	39.2	9.5	0% - 20%
		EG020-SD: Manganese	7439-96-5	10	mg/kg	758	680	10.9	0% - 20%
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	37.3	33.2	11.6	0% - 50%
		EB2515665-011	OC38-d T3 0.0-0.5	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1
EG020-SD: Selenium	7782-49-2			0.1	mg/kg	0.4	0.4	0.0	No Limit
EG020-SD: Silver	7440-22-4			0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG020-SD: Antimony	7440-36-0			0.5	mg/kg	<0.50	<0.50	0.0	No Limit
EG020-SD: Cobalt	7440-48-4			0.5	mg/kg	8.3	8.3	0.0	0% - 50%
EG020-SD: Arsenic	7440-38-2			1	mg/kg	14.8	15.4	3.9	0% - 50%
EG020-SD: Chromium	7440-47-3			1	mg/kg	25.8	25.8	0.0	0% - 20%
EG020-SD: Copper	7440-50-8			1	mg/kg	10.3	10.1	2.1	0% - 50%
EG020-SD: Lead	7439-92-1			1	mg/kg	14.9	14.5	2.7	0% - 50%
EG020-SD: Nickel	7440-02-0			1	mg/kg	11.9	12.4	3.9	0% - 50%
EG020-SD: Zinc	7440-66-6			1	mg/kg	39.3	38.6	1.7	0% - 20%
EG020-SD: Manganese	7439-96-5			10	mg/kg	420	429	2.1	0% - 20%
EG020-SD: Vanadium	7440-62-2			2	mg/kg	32.8	32.3	1.5	0% - 50%
EG020-SD: Total Metals in Sediments by ICPMS (QC Lot: 6564065)									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020-SD: Total Metals in Sediments by ICPMS (QC Lot: 6564065) - continued									
EB2515665-021	DSDA-2 0.0-0.5	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	0.4	0.4	0.0	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	0.1	<0.1	0.0	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.0	No Limit
		EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	7.8	7.8	0.0	0% - 50%
		EG020-SD: Arsenic	7440-38-2	1	mg/kg	16.2	15.1	7.0	0% - 50%
		EG020-SD: Chromium	7440-47-3	1	mg/kg	22.6	23.9	5.5	0% - 20%
		EG020-SD: Copper	7440-50-8	1	mg/kg	8.9	9.1	2.6	No Limit
		EG020-SD: Lead	7439-92-1	1	mg/kg	13.7	14.0	2.3	0% - 50%
		EG020-SD: Nickel	7440-02-0	1	mg/kg	11.1	11.3	1.9	0% - 50%
		EG020-SD: Zinc	7440-66-6	1	mg/kg	34.2	35.2	2.7	0% - 20%
		EG020-SD: Manganese	7439-96-5	10	mg/kg	454	468	3.0	0% - 20%
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	30.9	31.2	0.8	0% - 50%
EG020-SD: Total Metals in Sediments by ICPMS (QC Lot: 6564083)									
EB2515665-029	IP 88-d 0.0-0.5	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	0.3	0.2	0.0	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	0.1	<0.1	0.0	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.0	No Limit
		EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	9.9	# 4.6	73.0	0% - 50%
		EG020-SD: Arsenic	7440-38-2	1	mg/kg	23.4	# 17.8	26.7	0% - 20%
		EG020-SD: Chromium	7440-47-3	1	mg/kg	16.5	10.7	42.5	0% - 50%
		EG020-SD: Copper	7440-50-8	1	mg/kg	5.9	6.1	2.7	No Limit
		EG020-SD: Lead	7439-92-1	1	mg/kg	6.6	5.1	25.9	No Limit
		EG020-SD: Nickel	7440-02-0	1	mg/kg	7.0	4.7	39.3	No Limit
		EG020-SD: Zinc	7440-66-6	1	mg/kg	25.9	# 17.8	37.3	0% - 20%
		EG020-SD: Manganese	7439-96-5	10	mg/kg	284	# 176	47.0	0% - 20%
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	24.9	24.2	3.2	0% - 50%
EB2515665-039	IP 90-c 0.0-0.5	EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
		EG020-SD: Selenium	7782-49-2	0.1	mg/kg	0.4	0.5	0.0	No Limit
		EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
		EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	<0.50	0.0	No Limit
		EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	8.3	8.1	2.2	0% - 50%
		EG020-SD: Arsenic	7440-38-2	1	mg/kg	14.2	16.2	13.3	0% - 50%
		EG020-SD: Chromium	7440-47-3	1	mg/kg	24.9	24.7	0.8	0% - 20%
		EG020-SD: Copper	7440-50-8	1	mg/kg	18.7	17.2	8.0	0% - 50%
		EG020-SD: Lead	7439-92-1	1	mg/kg	15.7	14.6	7.0	0% - 50%
		EG020-SD: Nickel	7440-02-0	1	mg/kg	11.6	11.6	0.0	0% - 50%
		EG020-SD: Zinc	7440-66-6	1	mg/kg	48.4	46.6	3.8	0% - 20%

Page : 5 of 22
 Work Order : EB2515665
 Client : PORTS NORTH
 Project : 311001-00495



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020-SD: Total Metals in Sediments by ICPMS (QC Lot: 6564083) - continued									
EB2515665-039	IP 90-c 0.0-0.5	EG020-SD: Manganese	7439-96-5	10	mg/kg	430	393	9.2	0% - 20%
		EG020-SD: Vanadium	7440-62-2	2	mg/kg	31.8	32.4	2.1	0% - 50%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6564017)									
EB2515665-021	DSDA-2 0.0-0.5	EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6564018)									
EB2515665-021	DSDA-2 0.0-0.5	EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	0.1	<0.1	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6567326)									
EB2515588-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	16900	16600	1.7	0% - 20%
EB2515665-038	IP 90-c 0.0-0.5	EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	1410	1400	0.7	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6567327)									
EB2515588-001	Anonymous	EK067G: Total Phosphorus as P	----	2	mg/kg	3060	3340	8.7	0% - 20%
EB2515665-038	IP 90-c 0.0-0.5	EK067G: Total Phosphorus as P	----	2	mg/kg	432	428	1.0	0% - 20%
EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 6568725)									
EB2515665-001	OC35-c 0.0-0.5	EP003: Total Organic Carbon	----	0.02	%	2.06	2.07	0.0	0% - 20%
EB2515665-011	OC38-d T3 0.0-0.5	EP003: Total Organic Carbon	----	0.02	%	1.57	1.61	2.5	0% - 20%
EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 6568726)									
EB2515665-021	DSDA-2 0.0-0.5	EP003: Total Organic Carbon	----	0.02	%	1.58	1.54	2.2	0% - 20%
EB2515665-031	IP 88-d 0.0-0.5	EP003: Total Organic Carbon	----	0.02	%	0.54	0.51	4.2	0% - 20%
EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 6568727)									
EB2515665-041	IP 93-d 0.0-0.5	EP003: Total Organic Carbon	----	0.02	%	3.37	3.33	1.2	0% - 20%
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QC Lot: 6564164)									
EB2515665-021	DSDA-2 0.0-0.5	EP080-SD: C6 - C9 Fraction	----	3	mg/kg	<3	<3	0.0	No Limit
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QC Lot: 6569179)									
EB2515665-021	DSDA-2 0.0-0.5	EP071-SD: C10 - C14 Fraction	----	3	mg/kg	18	9	64.8	No Limit
		EP071-SD: C15 - C28 Fraction	----	3	mg/kg	41	31	26.5	0% - 50%
		EP071-SD: C10 - C36 Fraction (sum)	----	3 (27)*	mg/kg	97	72	29.6	No Limit
		EP071-SD: C29 - C36 Fraction	----	5	mg/kg	38	32	15.4	No Limit
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons (QC Lot: 6564164)									
EB2515665-021	DSDA-2 0.0-0.5	EP080-SD: C6 - C10 Fraction	C6_C10	3	mg/kg	<3	<3	0.0	No Limit
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons (QC Lot: 6569179)									
EB2515665-021	DSDA-2 0.0-0.5	EP071-SD: >C10 - C16 Fraction	----	3	mg/kg	15	7	75.4	No Limit
		EP071-SD: >C16 - C34 Fraction	----	3	mg/kg	70	58	18.5	0% - 20%
		EP071-SD: >C10 - C40 Fraction (sum)	----	3 (27)*	mg/kg	91	71	24.7	No Limit
		EP071-SD: >C34 - C40 Fraction	----	5	mg/kg	6	6	0.0	No Limit
EP080-SD: BTEXN (QC Lot: 6564164)									
EB2515665-021	DSDA-2 0.0-0.5	EP080-SD: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080-SD: BTEXN (QC Lot: 6564164) - continued									
EB2515665-021	DSDA-2 0.0-0.5	EP080-SD: Toluene	108-88-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080-SD: Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080-SD: meta- & para-Xylene	108-38-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
			106-42-3						
		EP080-SD: ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080-SD: Total Xylenes	----	0.2 (0.5)*	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080-SD: Naphthalene	91-20-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP090: Organotin Compounds (QC Lot: 6564154)									
EB2515665-001	OC35-c 0.0-0.5	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.0	No Limit
		EP090: Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	0.0	No Limit
		EP090: Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	0.0	No Limit
EB2515665-011	OC38-d T3 0.0-0.5	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.0	No Limit
		EP090: Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	0.0	No Limit
		EP090: Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	0.0	No Limit
EP090: Organotin Compounds (QC Lot: 6564157)									
EB2515665-020	DSDA-1 0.0-0.5	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.0	No Limit
		EP090: Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	0.0	No Limit
		EP090: Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	0.0	No Limit
EB2515665-030	IP 88-d 0.0-0.5	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.0	No Limit
		EP090: Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	0.0	No Limit
		EP090: Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	0.0	No Limit
EP090: Organotin Compounds (QC Lot: 6568496)									
EB2515665-039	IP 90-c 0.0-0.5	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	2.5	1.5	49.5	No Limit
		EP090: Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	0.0	No Limit
		EP090: Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	0.0	No Limit
EB2515694-011	Anonymous	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.0	No Limit
		EP090: Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	0.0	No Limit
		EP090: Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	0.0	No Limit
EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 6571009)									
EB2515665-021	DSDA-2 0.0-0.5	EP132B-SD: Acenaphthylene	208-96-8	4 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP132B-SD: Acenaphthene	83-32-9	4 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP132B-SD: Fluorene	86-73-7	4 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP132B-SD: Phenanthrene	85-01-8	4 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP132B-SD: Anthracene	120-12-7	4 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP132B-SD: Fluoranthene	206-44-0	4 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP132B-SD: Pyrene	129-00-0	4 (5)*	µg/kg	<5	5	0.0	No Limit
		EP132B-SD: Benz(a)anthracene	56-55-3	4 (5)*	µg/kg	<5	<5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP132B: Polynuclear Aromatic Hydrocarbons (QC Lot: 6571009) - continued									
EB2515665-021	DSDA-2 0.0-0.5	EP132B-SD: Chrysene	218-01-9	4 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP132B-SD: Benzo(b+j)fluoranthene	205-99-2	4 (5)*	µg/kg	<5	<5	0.0	No Limit
			205-82-3						
		EP132B-SD: Benzo(k)fluoranthene	207-08-9	4 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP132B-SD: Benzo(e)pyrene	192-97-2	4 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP132B-SD: Benzo(a)pyrene	50-32-8	4 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP132B-SD: Perylene	198-55-0	4 (5)*	µg/kg	10	12	24.6	No Limit
		EP132B-SD: Benzo(g,h,i)perylene	191-24-2	4 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP132B-SD: Dibenz(a,h)anthracene	53-70-3	4 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP132B-SD: Indeno(1.2.3.cd)pyrene	193-39-5	4 (5)*	µg/kg	<5	<5	0.0	No Limit
		EP132B-SD: Sum of PAHs	----	4 (5)*	µg/kg	10	17	51.9	No Limit
		EP132B-SD: Naphthalene	91-20-3	5	µg/kg	<5	<5	0.0	No Limit
		EP132B-SD: 2-Methylnaphthalene	91-57-6	5	µg/kg	<5	<5	0.0	No Limit
		EP132B-SD: Coronene	191-07-1	5	µg/kg	<5	<5	0.0	No Limit
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids (QC Lot: 6564121)									
EB2515665-021	DSDA-2 0.0-0.5	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EB2515665-038	IP 90-c 0.0-0.5	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6564121)									
EB2515665-021	DSDA-2 0.0-0.5	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids (QC Lot: 6564121) - continued									
EB2515665-021	DSDA-2 0.0-0.5	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EB2515665-038	IP 90-c 0.0-0.5	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EP231_TOP_C: Perfluoroalkyl Sulfonamides (QC Lot: 6564121)									
EB2515665-021	DSDA-2 0.0-0.5	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EB2515665-038	IP 90-c 0.0-0.5	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231_TOP_D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6564121)									



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231_TOP_D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 6564121) - continued									
EB2515665-021	DSDA-2 0.0-0.5	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EB2515665-038	IP 90-c 0.0-0.5	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QC Lot: 6570731)									
EB2515665-021	DSDA-2 0.0-0.5	EP234-Diuron: Diuron	330-54-1	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
EB2515665-040	IP 90-c 0.0-0.5	EP234-Diuron: Diuron	330-54-1	0.001	mg/kg	<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: 6566607)									
ET2502536-005	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	0.017	0.018	6.1	0% - 50%
		EG020A-T: Chromium	7440-47-3	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: 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	0.011	0.013	17.2	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.02	0.01	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	5.84	6.26	7.0	0% - 20%
EB2515665-046	RB1	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	0.004	0.004	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: 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	0.015	0.014	9.7	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: 6566607) - continued									
EB2515665-046	RB1	EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.05	0.05	0.0	No Limit
		EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.10	0.09	0.0	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 6568419)									
EB2515665-047	RB2	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: 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: 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: Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EB2515959-013	Anonymous	EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
		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: 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: 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	0.008	0.007	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.01	0.01	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6566666)	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6582522)							
EB2515665-048	TB1	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EB2516686-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6582522)									
EB2515665-048	TB1	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EB2516686-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 6582522)									
EB2515665-048	TB1	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

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 Work Order : EB2515665
 Client : PORTS NORTH
 Project : 311001-00495



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: 6582522) - continued									
EB2515665-048	TB1	EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		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
EB2516686-004	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	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		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: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QCLot: 6564060)								
EG005-SD: Aluminium	7429-90-5	50	mg/kg	<50	7232 mg/kg	102	70.0	130
EG005-SD: Iron	7439-89-6	50	mg/kg	<50	24060 mg/kg	103	70.0	130
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QCLot: 6564064)								
EG005-SD: Aluminium	7429-90-5	50	mg/kg	<50	7232 mg/kg	102	70.0	130
EG005-SD: Iron	7439-89-6	50	mg/kg	<50	24060 mg/kg	105	70.0	130
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES (QCLot: 6564081)								
EG005-SD: Aluminium	7429-90-5	50	mg/kg	<50	7232 mg/kg	99.7	70.0	130
EG005-SD: Iron	7439-89-6	50	mg/kg	<50	24060 mg/kg	103	70.0	130
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 6564062)								
EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	0.087 mg/kg	122	70.0	130
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 6564063)								
EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	0.087 mg/kg	127	70.0	130
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 6564080)								
EG035T-LL: Mercury	7439-97-6	0.01	mg/kg	<0.01	0.087 mg/kg	114	70.0	130
EK255A SD: Ammonium in Sediment (QCLot: 6564179)								
EK255A: Ammonium as N	14798-03-9_N	0.2	mg/kg	<0.2	----	----	----	----
EK255A SD: Ammonium in Sediment (QCLot: 6583327)								
EK255A: Ammonium as N	14798-03-9_N	0.2	mg/kg	<0.2	1 mg/kg	112	80.0	120
EA152: Soil Particle Density (QCLot: 6566438)								
EA152: Soil Particle Density (Clay/Silt/Sand)	----	----	g/cm3	----	2.68 g/cm3	98.5	80.0	120
EA152: Soil Particle Density (QCLot: 6566440)								
EA152: Soil Particle Density (Clay/Silt/Sand)	----	----	g/cm3	----	2.68 g/cm3	98.5	80.0	120
EA152: Soil Particle Density (QCLot: 6566442)								
EA152: Soil Particle Density (Clay/Silt/Sand)	----	----	g/cm3	----	2.68 g/cm3	98.5	80.0	120
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 6564061)								
EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	----	----	----	----
EG020-SD: Arsenic	7440-38-2	1	mg/kg	<1.00	33.25 mg/kg	95.6	80.0	124
EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	0.95 mg/kg	101	87.0	122
EG020-SD: Chromium	7440-47-3	1	mg/kg	<1.0	25.5 mg/kg	118	79.0	129



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 6564061) - continued								
EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	103.55 mg/kg	111	85.0	118
EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	10.1 mg/kg	116	70.0	130
EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	121 mg/kg	107	86.0	119
EG020-SD: Manganese	7439-96-5	10	mg/kg	<10	461.5 mg/kg	102	70.0	130
EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	30.05 mg/kg	116	77.0	123
EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	----	----	----	----
EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	0.55 mg/kg	75.5	70.0	130
EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	23.5 mg/kg	110	70.0	130
EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	209 mg/kg	109	71.0	127
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 6564065)								
EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	----	----	----	----
EG020-SD: Arsenic	7440-38-2	1	mg/kg	<1.00	33.25 mg/kg	95.8	80.0	124
EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	0.95 mg/kg	95.3	87.0	122
EG020-SD: Chromium	7440-47-3	1	mg/kg	<1.0	25.5 mg/kg	108	79.0	129
EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	103.55 mg/kg	107	85.0	118
EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	10.1 mg/kg	113	70.0	130
EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	121 mg/kg	102	86.0	119
EG020-SD: Manganese	7439-96-5	10	mg/kg	<10	461.5 mg/kg	101	70.0	130
EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	30.05 mg/kg	110	77.0	123
EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	----	----	----	----
EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	0.55 mg/kg	76.3	70.0	130
EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	23.5 mg/kg	107	70.0	130
EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	209 mg/kg	103	71.0	127
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 6564083)								
EG020-SD: Antimony	7440-36-0	0.5	mg/kg	<0.50	----	----	----	----
EG020-SD: Arsenic	7440-38-2	1	mg/kg	<1.00	33.25 mg/kg	99.7	80.0	124
EG020-SD: Cadmium	7440-43-9	0.1	mg/kg	<0.1	0.95 mg/kg	95.8	87.0	122
EG020-SD: Chromium	7440-47-3	1	mg/kg	<1.0	25.5 mg/kg	125	79.0	129
EG020-SD: Copper	7440-50-8	1	mg/kg	<1.0	103.55 mg/kg	111	85.0	118
EG020-SD: Cobalt	7440-48-4	0.5	mg/kg	<0.5	10.1 mg/kg	112	70.0	130
EG020-SD: Lead	7439-92-1	1	mg/kg	<1.0	121 mg/kg	102	86.0	119
EG020-SD: Manganese	7439-96-5	10	mg/kg	<10	461.5 mg/kg	95.7	70.0	130
EG020-SD: Nickel	7440-02-0	1	mg/kg	<1.0	30.05 mg/kg	115	77.0	123
EG020-SD: Selenium	7782-49-2	0.1	mg/kg	<0.1	----	----	----	----



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 6564083) - continued								
EG020-SD: Silver	7440-22-4	0.1	mg/kg	<0.1	0.55 mg/kg	81.9	70.0	130
EG020-SD: Vanadium	7440-62-2	2	mg/kg	<2.0	23.5 mg/kg	111	70.0	130
EG020-SD: Zinc	7440-66-6	1	mg/kg	<1.0	209 mg/kg	102	71.0	127
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6564017)								
EK057G: Nitrite as N (Sol.)	14797-65-0	0.1	mg/kg	<0.1	2.5 mg/kg	99.2	83.0	111
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6564018)								
EK059G: Nitrite + Nitrate as N (Sol.)	----	0.1	mg/kg	<0.1	2.5 mg/kg	92.6	83.2	111
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6567326)								
EK061G: Total Kjeldahl Nitrogen as N	----	20	mg/kg	<20	306 mg/kg	104	70.0	130
				<20	2300 mg/kg	105	88.0	112
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6567327)								
EK067G: Total Phosphorus as P	----	2	mg/kg	<2	142 mg/kg	111	70.0	130
				<2	567 mg/kg	103	88.0	112
EP003: Total Organic Carbon (TOC) in Soil (QCLot: 6568725)								
EP003: Total Organic Carbon	----	0.02	%	<0.02	0.55 %	103	80.0	120
				<0.02	32.3 %	102	80.0	120
EP003: Total Organic Carbon (TOC) in Soil (QCLot: 6568726)								
EP003: Total Organic Carbon	----	0.02	%	<0.02	0.55 %	105	80.0	120
				<0.02	32.3 %	98.5	80.0	120
EP003: Total Organic Carbon (TOC) in Soil (QCLot: 6568727)								
EP003: Total Organic Carbon	----	0.02	%	<0.02	0.55 %	103	80.0	120
				<0.02	32.3 %	98.7	80.0	120
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 6564164)								
EP080-SD: C6 - C9 Fraction	----	3	mg/kg	<3	18 mg/kg	87.7	66.0	120
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 6569179)								
EP071-SD: C10 - C14 Fraction	----	3	mg/kg	<3	167 mg/kg	95.6	43.0	126
EP071-SD: C15 - C28 Fraction	----	3	mg/kg	<3	216 mg/kg	90.0	66.0	140
EP071-SD: C29 - C36 Fraction	----	5	mg/kg	<5	----	----	----	----
EP071-SD: C10 - C36 Fraction (sum)	----	3	mg/kg	<15	----	----	----	----
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons (QCLot: 6564164)								
EP080-SD: C6 - C10 Fraction	C6_C10	3	mg/kg	<3	22.5 mg/kg	84.4	66.0	119
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons (QCLot: 6569179)								
EP071-SD: >C10 - C16 Fraction	----	3	mg/kg	<3	223 mg/kg	94.2	40.0	134
EP071-SD: >C16 - C34 Fraction	----	3	mg/kg	<3	150 mg/kg	89.7	66.0	136



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons (QCLot: 6569179) - continued								
EP071-SD: >C34 - C40 Fraction	----	5	mg/kg	<5	----	----	----	----
EP071-SD: >C10 - C40 Fraction (sum)	----	3	mg/kg	<15	----	----	----	----
EP080-SD: BTEXN (QCLot: 6564164)								
EP080-SD: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	81.2	73.0	105
EP080-SD: Toluene	108-88-3	0.2	mg/kg	<0.2	1 mg/kg	85.5	73.0	105
EP080-SD: Ethylbenzene	100-41-4	0.2	mg/kg	<0.2	1 mg/kg	88.2	67.0	104
EP080-SD: meta- & para-Xylene	108-38-3	0.2	mg/kg	<0.2	2 mg/kg	90.5	66.0	106
	106-42-3							
EP080-SD: ortho-Xylene	95-47-6	0.2	mg/kg	<0.2	1 mg/kg	88.0	68.0	105
EP080-SD: Total Xylenes	----	0.2	mg/kg	<0.2	----	----	----	----
EP080-SD: Sum of BTEX	----	0.2	mg/kg	<0.2	----	----	----	----
EP080-SD: Naphthalene	91-20-3	0.2	mg/kg	<0.2	1 mg/kg	80.4	72.0	115
EP090: Organotin Compounds (QCLot: 6564154)								
EP090: Monobutyltin	78763-54-9	1	µgSn/kg	<1	1.25 µgSn/kg	68.1	36.0	128
EP090: Dibutyltin	1002-53-5	1	µgSn/kg	<1	1.25 µgSn/kg	89.6	42.0	132
EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	1.25 µgSn/kg	100	52.0	139
EP090: Organotin Compounds (QCLot: 6564157)								
EP090: Monobutyltin	78763-54-9	1	µgSn/kg	<1	1.25 µgSn/kg	100	36.0	128
EP090: Dibutyltin	1002-53-5	1	µgSn/kg	<1	1.25 µgSn/kg	112	42.0	132
EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	1.25 µgSn/kg	99.2	52.0	139
EP090: Organotin Compounds (QCLot: 6568496)								
EP090: Monobutyltin	78763-54-9	1	µgSn/kg	<1	1.25 µgSn/kg	69.5	36.0	128
EP090: Dibutyltin	1002-53-5	1	µgSn/kg	<1	1.25 µgSn/kg	81.4	42.0	132
EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	1.25 µgSn/kg	101	52.0	139
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 6571009)								
EP132B-SD: Naphthalene	91-20-3	5	µg/kg	<5	25 µg/kg	89.5	63.0	129
EP132B-SD: 2-Methylnaphthalene	91-57-6	5	µg/kg	<5	25 µg/kg	89.1	64.0	128
EP132B-SD: Acenaphthylene	208-96-8	4	µg/kg	<4	25 µg/kg	83.8	65.0	129
EP132B-SD: Acenaphthene	83-32-9	4	µg/kg	<4	25 µg/kg	83.5	68.0	132
EP132B-SD: Fluorene	86-73-7	4	µg/kg	<4	25 µg/kg	89.9	68.0	124
EP132B-SD: Phenanthrene	85-01-8	4	µg/kg	<4	25 µg/kg	85.8	64.0	134
EP132B-SD: Anthracene	120-12-7	4	µg/kg	<4	25 µg/kg	90.1	65.0	131
EP132B-SD: Fluoranthene	206-44-0	4	µg/kg	<4	25 µg/kg	76.0	64.0	130
EP132B-SD: Pyrene	129-00-0	4	µg/kg	<4	25 µg/kg	84.3	67.0	133



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 6571009) - continued								
EP132B-SD: Benz(a)anthracene	56-55-3	4	µg/kg	<4	25 µg/kg	77.6	62.0	130
EP132B-SD: Chrysene	218-01-9	4	µg/kg	<4	25 µg/kg	80.2	65.0	133
EP132B-SD: Benzo(b+j)fluoranthene	205-99-2 205-82-3	4	µg/kg	<4	25 µg/kg	83.2	68.0	120
EP132B-SD: Benzo(k)fluoranthene	207-08-9	4	µg/kg	<4	25 µg/kg	92.5	61.0	133
EP132B-SD: Benzo(e)pyrene	192-97-2	4	µg/kg	<4	25 µg/kg	87.2	63.0	127
EP132B-SD: Benzo(a)pyrene	50-32-8	4	µg/kg	<4	25 µg/kg	77.4	66.0	118
EP132B-SD: Perylene	198-55-0	4	µg/kg	<4	25 µg/kg	85.3	69.0	119
EP132B-SD: Benzo(g,h,i)perylene	191-24-2	4	µg/kg	<4	25 µg/kg	99.4	66.0	120
EP132B-SD: Dibenz(a,h)anthracene	53-70-3	4	µg/kg	<4	25 µg/kg	87.1	64.0	122
EP132B-SD: Indeno(1.2.3.cd)pyrene	193-39-5	4	µg/kg	<4	25 µg/kg	81.2	64.0	120
EP132B-SD: Coronene	191-07-1	5	µg/kg	<5	25 µg/kg	85.2	68.0	136
EP132B-SD: Sum of PAHs	----	4	µg/kg	<4	----	----	----	----
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids (QCLot: 6564121)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00237 mg/kg	78.4	43.5	125
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00232 mg/kg	58.4	36.6	118
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	----	----	----	----
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids (QCLot: 6564121)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	----	----	----	----
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.0025 mg/kg	98.5	41.4	126
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	----	----	----	----
EP231_TOP_C: Perfluoroalkyl Sulfonamides (QCLot: 6564121)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	----	----	----	----



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: <i>Compound</i>	CAS Number	LOR	Unit	Result				
EP231_TOP_C: Perfluoroalkyl Sulfonamides (QCLot: 6564121) - continued								
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	----	----	----	----
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	----	----	----	----
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	----	----	----	----
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	----	----	----	----
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	----	----	----	----
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	----	----	----	----
EP231_TOP_D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 6564121)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	----	----	----	----
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00018 mg/kg	-14.6	0	200
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	----	----	----	----
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	----	----	----	----
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 6570731)								
EP234-Diuron: Diuron	330-54-1	0.001	mg/kg	<0.001	0.004 mg/kg	93.4	80.0	120

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit			Result	LCS	Low
EG020T: Total Metals by ICP-MS (QCLot: 6566607)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	103	80.0	114
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	88.0	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.5	88.0	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100	89.0	115
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.9	88.0	116
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.7	89.0	112
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.6	88.0	116
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	101	79.0	111
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	95.8	84.0	114
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	99.8	82.0	118
EG020T: Total Metals by ICP-MS (QCLot: 6568419)								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	103	80.0	114
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	105	88.0	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.8	88.0	111



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG020T: Total Metals by ICP-MS (QCLot: 6568419) - continued								
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	89.0	115
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.6	88.0	116
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.7	89.0	112
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	88.0	116
EG020A-T: Selenium	7782-49-2	0.01	mg/L	<0.01	0.1 mg/L	104	79.0	111
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	102	84.0	114
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	101	82.0	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6566666)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	97.5	84.0	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6582522)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	180 µg/L	98.6	77.0	122
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6582522)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	225 µg/L	98.2	76.0	121
EP080: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTE X	20	µg/L	<20	----	----	----	----
EP080: BTEXN (QCLot: 6582522)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	87.2	79.8	115
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	91.8	78.6	116
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	92.9	77.3	115
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	20 µg/L	97.8	82.0	118
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	99.5	86.0	119
EP080: Total Xylenes	----	2	µg/L	<2	----	----	----	----
EP080: Sum of BTEX	----	1	µg/L	<1	----	----	----	----
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	109	77.8	116

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 6564062)							
EB2515665-002	OC57-a T1 0.0-0.5	EG035T-LL: Mercury	7439-97-6	0.5 mg/kg	104	70.0	130



Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 6564063)							
EB2515665-022	DSDA-3 0.0-0.5	EG035T-LL: Mercury	7439-97-6	0.5 mg/kg	103	70.0	130
EG035T: Total Recoverable Mercury by FIMS (Low Level) (QCLot: 6564080)							
EB2515665-030	IP 88-d 0.0-0.5	EG035T-LL: Mercury	7439-97-6	0.5 mg/kg	103	70.0	130
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 6564061)							
EB2515665-002	OC57-a T1 0.0-0.5	EG020-SD: Arsenic	7440-38-2	50 mg/kg	90.4	70.0	130
		EG020-SD: Cadmium	7440-43-9	50 mg/kg	88.2	70.0	130
		EG020-SD: Chromium	7440-47-3	50 mg/kg	94.0	70.0	130
		EG020-SD: Copper	7440-50-8	250 mg/kg	89.7	70.0	130
		EG020-SD: Lead	7439-92-1	250 mg/kg	89.8	70.0	130
		EG020-SD: Nickel	7440-02-0	50 mg/kg	93.7	70.0	130
		EG020-SD: Selenium	7782-49-2	50 mg/kg	89.2	70.0	130
		EG020-SD: Zinc	7440-66-6	250 mg/kg	91.7	70.0	130
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 6564065)							
EB2515665-022	DSDA-3 0.0-0.5	EG020-SD: Arsenic	7440-38-2	50 mg/kg	84.2	70.0	130
		EG020-SD: Cadmium	7440-43-9	50 mg/kg	85.1	70.0	130
		EG020-SD: Chromium	7440-47-3	50 mg/kg	85.9	70.0	130
		EG020-SD: Copper	7440-50-8	250 mg/kg	83.9	70.0	130
		EG020-SD: Lead	7439-92-1	250 mg/kg	86.3	70.0	130
		EG020-SD: Nickel	7440-02-0	50 mg/kg	87.7	70.0	130
		EG020-SD: Selenium	7782-49-2	50 mg/kg	86.2	70.0	130
		EG020-SD: Zinc	7440-66-6	250 mg/kg	84.6	70.0	130
EG020-SD: Total Metals in Sediments by ICPMS (QCLot: 6564083)							
EB2515665-030	IP 88-d 0.0-0.5	EG020-SD: Arsenic	7440-38-2	50 mg/kg	88.4	70.0	130
		EG020-SD: Cadmium	7440-43-9	50 mg/kg	78.4	70.0	130
		EG020-SD: Chromium	7440-47-3	50 mg/kg	95.0	70.0	130
		EG020-SD: Copper	7440-50-8	250 mg/kg	83.8	70.0	130
		EG020-SD: Lead	7439-92-1	250 mg/kg	79.4	70.0	130
		EG020-SD: Nickel	7440-02-0	50 mg/kg	88.4	70.0	130
		EG020-SD: Selenium	7782-49-2	50 mg/kg	80.2	70.0	130
		EG020-SD: Zinc	7440-66-6	250 mg/kg	82.3	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 6564017)							
EB2515665-022	DSDA-3 0.0-0.5	EK057G: Nitrite as N (Sol.)	14797-65-0	2.5 mg/kg	93.2	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6564018)							
EB2515665-022	DSDA-3 0.0-0.5	EK059G: Nitrite + Nitrate as N (Sol.)	----	2.5 mg/kg	100	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6567326)							
EB2515648-005	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	500 mg/kg	98.8	70.0	130



Sub-Matrix: SOIL				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: 6567327)							
EB2515648-005	Anonymous	EK067G: Total Phosphorus as P	----	100 mg/kg	# 135	70.0	130
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 6564164)							
EB2515665-022	DSDA-3 0.0-0.5	EP080-SD: C6 - C9 Fraction	----	8 mg/kg	72.8	70.0	130
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons (QCLot: 6569179)							
EB2515665-022	DSDA-3 0.0-0.5	EP071-SD: C10 - C14 Fraction	----	167 mg/kg	84.3	70.0	130
		EP071-SD: C15 - C28 Fraction	----	216 mg/kg	82.9	70.0	130
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons (QCLot: 6564164)							
EB2515665-022	DSDA-3 0.0-0.5	EP080-SD: C6 - C10 Fraction	C6_C10	8 mg/kg	72.6	70.0	130
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons (QCLot: 6569179)							
EB2515665-022	DSDA-3 0.0-0.5	EP071-SD: >C10 - C16 Fraction	----	223 mg/kg	84.2	70.0	130
		EP071-SD: >C16 - C34 Fraction	----	150 mg/kg	81.2	70.0	130
EP080-SD: BTEXN (QCLot: 6564164)							
EB2515665-022	DSDA-3 0.0-0.5	EP080-SD: Benzene	71-43-2	2 mg/kg	72.4	70.0	130
		EP080-SD: Toluene	108-88-3	2 mg/kg	72.9	70.0	130
EP090: Organotin Compounds (QCLot: 6564154)							
EB2515665-002	OC57-a T1 0.0-0.5	EP090: Monobutyltin	78763-54-9	1.25 µgSn/kg	# 3.8	20.0	130
		EP090: Dibutyltin	1002-53-5	1.25 µgSn/kg	24.4	20.0	130
		EP090: Tributyltin	56573-85-4	1.25 µgSn/kg	91.3	20.0	130
EP090: Organotin Compounds (QCLot: 6564157)							
EB2515665-021	DSDA-2 0.0-0.5	EP090: Monobutyltin	78763-54-9	1.25 µgSn/kg	# 10.6	20.0	130
		EP090: Dibutyltin	1002-53-5	1.25 µgSn/kg	49.4	20.0	130
		EP090: Tributyltin	56573-85-4	1.25 µgSn/kg	77.6	20.0	130
EP090: Organotin Compounds (QCLot: 6568496)							
EB2515665-040	IP 90-c 0.0-0.5	EP090: Monobutyltin	78763-54-9	1.25 µgSn/kg	# 9.1	20.0	130
		EP090: Dibutyltin	1002-53-5	1.25 µgSn/kg	38.2	20.0	130
		EP090: Tributyltin	56573-85-4	1.25 µgSn/kg	43.5	20.0	130
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 6571009)							
EB2515665-021	DSDA-2 0.0-0.5	EP132B-SD: Naphthalene	91-20-3	25 µg/kg	111	70.0	130
		EP132B-SD: 2-Methylnaphthalene	91-57-6	25 µg/kg	105	70.0	130
		EP132B-SD: Acenaphthylene	208-96-8	25 µg/kg	104	70.0	130
		EP132B-SD: Acenaphthene	83-32-9	25 µg/kg	100.0	70.0	130
		EP132B-SD: Fluorene	86-73-7	25 µg/kg	112	70.0	130
		EP132B-SD: Phenanthrene	85-01-8	25 µg/kg	113	70.0	130
		EP132B-SD: Anthracene	120-12-7	25 µg/kg	116	70.0	130
		EP132B-SD: Fluoranthene	206-44-0	25 µg/kg	112	70.0	130
		EP132B-SD: Pyrene	129-00-0	25 µg/kg	107	70.0	130

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 Work Order : EB2515665
 Client : PORTS NORTH
 Project : 311001-00495



Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 6571009) - continued							
EB2515665-021	DSDA-2 0.0-0.5	EP132B-SD: Benz(a)anthracene	56-55-3	25 µg/kg	104	70.0	130
		EP132B-SD: Chrysene	218-01-9	25 µg/kg	105	70.0	130
		EP132B-SD: Benzo(b+j)fluoranthene	205-99-2	25 µg/kg	110	70.0	130
			205-82-3				
		EP132B-SD: Benzo(k)fluoranthene	207-08-9	25 µg/kg	96.7	70.0	130
		EP132B-SD: Benzo(e)pyrene	192-97-2	25 µg/kg	102	70.0	130
		EP132B-SD: Benzo(a)pyrene	50-32-8	25 µg/kg	113	70.0	130
		EP132B-SD: Perylene	198-55-0	25 µg/kg	117	70.0	130
		EP132B-SD: Benzo(g,h,i)perylene	191-24-2	25 µg/kg	113	70.0	130
		EP132B-SD: Dibenz(a,h)anthracene	53-70-3	25 µg/kg	112	70.0	130
		EP132B-SD: Indeno(1.2.3.cd)pyrene	193-39-5	25 µg/kg	112	70.0	130
		EP132B-SD: Coronene	191-07-1	25 µg/kg	99.1	70.0	130
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides (QCLot: 6570731)							
EB2515665-022	DSDA-3 0.0-0.5	EP234-Diuron: Diuron	330-54-1	0.004 mg/kg	90.1	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: 6566607)							
ET2502536-014	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	115	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	102	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	111	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	109	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	104	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	104	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	102	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 6568419)							
EB2515959-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	102	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	98.6	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	105	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	104	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	101	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	100	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6566666)							
ET2502557-002	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	83.2	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 6582522)							
EB2515665-049	TB2	EP080: C6 - C9 Fraction	----	40 µg/L	98.4	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
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6582522)							
EB2515665-049	TB2	EP080: C6 - C10 Fraction	C6_C10	40 µg/L	95.3	70.0	130
EP080: BTEXN (QCLot: 6582522)							
EB2515665-049	TB2	EP080: Benzene	71-43-2	10 µg/L	88.3	70.0	130
		EP080: Toluene	108-88-3	10 µg/L	91.5	70.0	130



QA/QC Compliance Assessment to assist with Quality Review

Work Order : **EB2515665**

Page : 1 of 22

Client : **PORTS NORTH**
Contact : ALEX KOCHNIEFF (SQP Consulting)
Project : 311001-00495
Site : ----
Sampler : ----
Order number : 311001-00495

Laboratory : Environmental Division Brisbane
Telephone : +61-7-3552-8685
Date Samples Received : 08-May-2025
Issue Date : 20-May-2025
No. of samples received : 54
No. of samples analysed : 54

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** Laboratory Control outliers occur.
- Duplicate 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, where applicable to the methodology, **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.

Page : 2 of 22
 Work Order : EB2515665
 Client : PORTS NORTH
 Project : 311001-00495



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005(ED093)-SD: Total Metals in Sediments by ICP-A	EB2515665--029	IP 88-d 0.0-0.5	Iron	7439-89-6	27.7 %	0% - 20%	RPD exceeds LOR based limits
EG020-SD: Total Metals in Sediments by ICPMS	EB2515665--029	IP 88-d 0.0-0.5	Arsenic	7440-38-2	26.7 %	0% - 20%	RPD exceeds LOR based limits
EG020-SD: Total Metals in Sediments by ICPMS	EB2515665--029	IP 88-d 0.0-0.5	Cobalt	7440-48-4	73.0 %	0% - 50%	RPD exceeds LOR based limits
EG020-SD: Total Metals in Sediments by ICPMS	EB2515665--029	IP 88-d 0.0-0.5	Manganese	7439-96-5	47.0 %	0% - 20%	RPD exceeds LOR based limits
EG020-SD: Total Metals in Sediments by ICPMS	EB2515665--029	IP 88-d 0.0-0.5	Zinc	7440-66-6	37.3 %	0% - 20%	RPD exceeds LOR based limits
Matrix Spike (MS) Recoveries							
EK067G: Total Phosphorus as P by Discrete Analyser	EB2515648--005	Anonymous	Total Phosphorus as P	----	135 %	70.0-130%	Recovery greater than upper data quality objective
EP090: Organotin Compounds	EB2515665--002	OC57-a T1 0.0-0.5	Monobutyltin	78763-54-9	3.8 %	20.0-130%	Recovery less than lower data quality objective
EP090: Organotin Compounds	EB2515665--021	DSDA-2 0.0-0.5	Monobutyltin	78763-54-9	10.6 %	20.0-130%	Recovery less than lower data quality objective
EP090: Organotin Compounds	EB2515665--040	IP 90-c 0.0-0.5	Monobutyltin	78763-54-9	9.1 %	20.0-130%	Recovery less than lower data quality objective

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
Soil Particle Density	EA152	0	45	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)						
Ammonium in Sediments	EK255A SD	0	6	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: **SOIL**

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



Matrix: SOIL

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) OC35-c - 0.0-0.5, OC57-a T2 - 0.0-0.5, OC1-b - 0.0-0.5, OC15-c - 0.0-0.5, OC38-d T1 - 0.0-0.5, OC38-d T3 - 0.0-0.5, OC49-a - 0.0-0.5, OC7-b - 0.0-0.5, OC28-d - 0.0-0.5, OC53-d - 0.0-0.5, DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5, DSDA-6 - 0.0-0.5	07-May-2025	----	----	----	09-May-2025	21-May-2025	✓
Soil Glass Jar - Unpreserved (EA055) IP 02-d - 0.0-0.5, IP 71-a - 0.0-0.5, IP 88-d - 0.0-0.5, IP 74-b - 0.0-0.5, IP 78-c - 0.0-0.5, IP 97-b - 0.0-0.5, IP 90-c - 0.0-0.5, IP 90-c - 0.0-0.5, IP 83-d - 0.0-0.5, IP 104-c - 0.0-0.5,	08-May-2025	----	----	----	09-May-2025	22-May-2025	✓



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA150: Particle Sizing								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA150H) OC35-c - 0.0-0.5, OC57-a T2 - 0.0-0.5, OC1-b - 0.0-0.5, OC15-c - 0.0-0.5, OC38-d T2 - 0.0-0.5, OC19-b - 0.0-0.5, OC10-d - 0.0-0.5, OC60-d - 0.0-0.5, OC45-b - 0.0-0.5, DSDA-1 - 0.0-0.5, DSDA-3 - 0.0-0.5, DSDA-5 - 0.0-0.5, OC57-a T1 - 0.0-0.5, OC57-a T3 - 0.0-0.5, OC25-d - 0.0-0.5, OC38-d T1 - 0.0-0.5, OC38-d T3 - 0.0-0.5, OC49-a - 0.0-0.5, OC7-b - 0.0-0.5, OC28-d - 0.0-0.5, OC53-d - 0.0-0.5, DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5, DSDA-6 - 0.0-0.5	07-May-2025	----	----	----	20-May-2025	03-Nov-2025	✔	
Snap Lock Bag - Friable Asbestos/PSD Bag (EA150H) IP 02-d - 0.0-0.5, IP 71-a - 0.0-0.5, IP 88-d - 0.0-0.5, IP 74-b - 0.0-0.5, IP 78-c - 0.0-0.5, IP 81-d - 0.0-0.5, IP 90-c - 0.0-0.5, IP 93-d - 0.0-0.5, IP 86-c - 0.0-0.5, IP 106-c - 0.0-0.5 IP 84-c - 0.0-0.5, IP 88-d - 0.0-0.5, IP 88-d - 0.0-0.5, IP 77-c - 0.0-0.5, IP 97-b - 0.0-0.5, IP 90-c - 0.0-0.5, IP 90-c - 0.0-0.5, IP 83-d - 0.0-0.5, IP 104-c - 0.0-0.5	08-May-2025	----	----	----	20-May-2025	04-Nov-2025	✔	
Soil Glass Jar - Unpreserved (EA150H) D1 - 0.0-0.5	07-May-2025	----	----	----	20-May-2025	03-Nov-2025	✔	
Soil Glass Jar - Unpreserved (EA150H) D3 - 0.0-0.5	08-May-2025	----	----	----	20-May-2025	04-Nov-2025	✔	



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA150: Soil Classification based on Particle Size								
Snap Lock Bag - Friable Asbestos/PSD Bag (EA150H) OC35-c - 0.0-0.5, OC57-a T2 - 0.0-0.5, OC1-b - 0.0-0.5, OC15-c - 0.0-0.5, OC38-d T2 - 0.0-0.5, OC19-b - 0.0-0.5, OC10-d - 0.0-0.5, OC60-d - 0.0-0.5, OC45-b - 0.0-0.5, DSDA-1 - 0.0-0.5, DSDA-3 - 0.0-0.5, DSDA-5 - 0.0-0.5, OC57-a T1 - 0.0-0.5, OC57-a T3 - 0.0-0.5, OC25-d - 0.0-0.5, OC38-d T1 - 0.0-0.5, OC38-d T3 - 0.0-0.5, OC49-a - 0.0-0.5, OC7-b - 0.0-0.5, OC28-d - 0.0-0.5, OC53-d - 0.0-0.5, DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5, DSDA-6 - 0.0-0.5	07-May-2025	----	----	----	20-May-2025	03-Nov-2025	✔	
Snap Lock Bag - Friable Asbestos/PSD Bag (EA150H) IP 02-d - 0.0-0.5, IP 71-a - 0.0-0.5, IP 88-d - 0.0-0.5, IP 74-b - 0.0-0.5, IP 78-c - 0.0-0.5, IP 81-d - 0.0-0.5, IP 90-c - 0.0-0.5, IP 93-d - 0.0-0.5, IP 86-c - 0.0-0.5, IP 106-c - 0.0-0.5 IP 84-c - 0.0-0.5, IP 88-d - 0.0-0.5, IP 88-d - 0.0-0.5, IP 77-c - 0.0-0.5, IP 97-b - 0.0-0.5, IP 90-c - 0.0-0.5, IP 90-c - 0.0-0.5, IP 83-d - 0.0-0.5, IP 104-c - 0.0-0.5	08-May-2025	----	----	----	20-May-2025	04-Nov-2025	✔	
Soil Glass Jar - Unpreserved (EA150H) D1 - 0.0-0.5	07-May-2025	----	----	----	20-May-2025	03-Nov-2025	✔	
Soil Glass Jar - Unpreserved (EA150H) D3 - 0.0-0.5	08-May-2025	----	----	----	20-May-2025	04-Nov-2025	✔	



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA152: Soil Particle Density							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA152) OC35-c - 0.0-0.5, OC57-a T2 - 0.0-0.5, OC1-b - 0.0-0.5, OC15-c - 0.0-0.5, OC38-d T2 - 0.0-0.5, OC19-b - 0.0-0.5, OC10-d - 0.0-0.5, OC60-d - 0.0-0.5, OC45-b - 0.0-0.5, DSDA-1 - 0.0-0.5, DSDA-3 - 0.0-0.5, DSDA-5 - 0.0-0.5, OC57-a T1 - 0.0-0.5, OC57-a T3 - 0.0-0.5, OC25-d - 0.0-0.5, OC38-d T1 - 0.0-0.5, OC38-d T3 - 0.0-0.5, OC49-a - 0.0-0.5, OC7-b - 0.0-0.5, OC28-d - 0.0-0.5, OC53-d - 0.0-0.5, DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5, DSDA-6 - 0.0-0.5	07-May-2025	----	----	----	20-May-2025	03-Nov-2025	✔
Snap Lock Bag - Friable Asbestos/PSD Bag (EA152) IP 02-d - 0.0-0.5, IP 71-a - 0.0-0.5, IP 88-d - 0.0-0.5, IP 74-b - 0.0-0.5, IP 78-c - 0.0-0.5, IP 81-d - 0.0-0.5, IP 90-c - 0.0-0.5, IP 93-d - 0.0-0.5, IP 86-c - 0.0-0.5, IP 106-c - 0.0-0.5 IP 84-c - 0.0-0.5, IP 88-d - 0.0-0.5, IP 88-d - 0.0-0.5, IP 77-c - 0.0-0.5, IP 97-b - 0.0-0.5, IP 90-c - 0.0-0.5, IP 90-c - 0.0-0.5, IP 83-d - 0.0-0.5, IP 104-c - 0.0-0.5	08-May-2025	----	----	----	20-May-2025	04-Nov-2025	✔
Soil Glass Jar - Unpreserved (EA152) D1 - 0.0-0.5	07-May-2025	----	----	----	20-May-2025	03-Nov-2025	✔
Soil Glass Jar - Unpreserved (EA152) D3 - 0.0-0.5	08-May-2025	----	----	----	20-May-2025	04-Nov-2025	✔



Matrix: SOIL Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EG005(ED093)-SD: Total Metals in Sediments by ICP-AES								
Soil Glass Jar - Unpreserved (EG005-SD) OC35-c - 0.0-0.5, OC57-a T2 - 0.0-0.5, OC1-b - 0.0-0.5, OC15-c - 0.0-0.5, OC38-d T1 - 0.0-0.5, OC38-d T3 - 0.0-0.5, OC49-a - 0.0-0.5, OC7-b - 0.0-0.5, OC28-d - 0.0-0.5, OC53-d - 0.0-0.5, DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5, DSDA-6 - 0.0-0.5	07-May-2025	09-May-2025	03-Nov-2025	✔	16-May-2025	03-Nov-2025	✔	
Soil Glass Jar - Unpreserved (EG005-SD) IP 02-d - 0.0-0.5, IP 71-a - 0.0-0.5	08-May-2025	09-May-2025	04-Nov-2025	✔	16-May-2025	04-Nov-2025	✔	
Soil Glass Jar - Unpreserved (EG005-SD) IP 88-d - 0.0-0.5, IP 88-d - 0.0-0.5, IP 77-c - 0.0-0.5, D3 - 0.0-0.5, IP 81-d - 0.0-0.5, IP 90-c - 0.0-0.5, IP 93-d - 0.0-0.5, IP 86-c - 0.0-0.5, IP 106-c - 0.0-0.5	08-May-2025	10-May-2025	04-Nov-2025	✔	14-May-2025	04-Nov-2025	✔	



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EG020-SD: Total Metals in Sediments by ICPMS								
Soil Glass Jar - Unpreserved (EG020-SD) OC35-c - 0.0-0.5, OC57-a T2 - 0.0-0.5, OC1-b - 0.0-0.5, OC15-c - 0.0-0.5, OC38-d T1 - 0.0-0.5, OC38-d T3 - 0.0-0.5, OC49-a - 0.0-0.5, OC7-b - 0.0-0.5, OC28-d - 0.0-0.5, OC53-d - 0.0-0.5, DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5, DSDA-6 - 0.0-0.5	OC57-a T1 - 0.0-0.5, OC57-a T3 - 0.0-0.5, OC25-d - 0.0-0.5, D1 - 0.0-0.5, OC38-d T2 - 0.0-0.5, OC19-b - 0.0-0.5, OC10-d - 0.0-0.5, OC60-d - 0.0-0.5, OC45-b - 0.0-0.5, DSDA-1 - 0.0-0.5, DSDA-3 - 0.0-0.5, DSDA-5 - 0.0-0.5,	07-May-2025	09-May-2025	03-Nov-2025	✔	16-May-2025	03-Nov-2025	✔
Soil Glass Jar - Unpreserved (EG020-SD) IP 02-d - 0.0-0.5, IP 71-a - 0.0-0.5	IP 84-c - 0.0-0.5,	08-May-2025	09-May-2025	04-Nov-2025	✔	16-May-2025	04-Nov-2025	✔
Soil Glass Jar - Unpreserved (EG020-SD) IP 88-d - 0.0-0.5, IP 88-d - 0.0-0.5, IP 77-c - 0.0-0.5, D3 - 0.0-0.5, IP 81-d - 0.0-0.5, IP 90-c - 0.0-0.5, IP 93-d - 0.0-0.5, IP 86-c - 0.0-0.5, IP 106-c - 0.0-0.5	IP 88-d - 0.0-0.5, IP 74-b - 0.0-0.5, IP 78-c - 0.0-0.5, IP 97-b - 0.0-0.5, IP 90-c - 0.0-0.5, IP 90-c - 0.0-0.5, IP 83-d - 0.0-0.5, IP 104-c - 0.0-0.5,	08-May-2025	10-May-2025	04-Nov-2025	✔	15-May-2025	04-Nov-2025	✔



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date		Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T-LL) OC35-c - 0.0-0.5, OC57-a T2 - 0.0-0.5, OC1-b - 0.0-0.5, OC15-c - 0.0-0.5, OC38-d T1 - 0.0-0.5, OC38-d T3 - 0.0-0.5, OC49-a - 0.0-0.5, OC7-b - 0.0-0.5, OC28-d - 0.0-0.5, OC53-d - 0.0-0.5, DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5, DSDA-6 - 0.0-0.5	OC57-a T1 - 0.0-0.5, OC57-a T3 - 0.0-0.5, OC25-d - 0.0-0.5, D1 - 0.0-0.5, OC38-d T2 - 0.0-0.5, OC19-b - 0.0-0.5, OC10-d - 0.0-0.5, OC60-d - 0.0-0.5, OC45-b - 0.0-0.5, DSDA-1 - 0.0-0.5, DSDA-3 - 0.0-0.5, DSDA-5 - 0.0-0.5,	07-May-2025	09-May-2025	04-Jun-2025	✔	16-May-2025	04-Jun-2025	✔
Soil Glass Jar - Unpreserved (EG035T-LL) IP 02-d - 0.0-0.5, IP 71-a - 0.0-0.5	IP 84-c - 0.0-0.5,	08-May-2025	09-May-2025	05-Jun-2025	✔	16-May-2025	05-Jun-2025	✔
Soil Glass Jar - Unpreserved (EG035T-LL) IP 88-d - 0.0-0.5, IP 88-d - 0.0-0.5, IP 77-c - 0.0-0.5, D3 - 0.0-0.5, IP 81-d - 0.0-0.5, IP 90-c - 0.0-0.5, IP 93-d - 0.0-0.5, IP 86-c - 0.0-0.5, IP 106-c - 0.0-0.5	IP 88-d - 0.0-0.5, IP 74-b - 0.0-0.5, IP 78-c - 0.0-0.5, IP 97-b - 0.0-0.5, IP 90-c - 0.0-0.5, IP 90-c - 0.0-0.5, IP 83-d - 0.0-0.5, IP 104-c - 0.0-0.5,	08-May-2025	10-May-2025	05-Jun-2025	✔	14-May-2025	05-Jun-2025	✔
EK057G: Nitrite as N by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK057G) DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5	DSDA-3 - 0.0-0.5,	07-May-2025	12-May-2025	14-May-2025	✔	13-May-2025	14-May-2025	✔
Soil Glass Jar - Unpreserved (EK057G) IP 88-d - 0.0-0.5, IP 90-c - 0.0-0.5	IP 78-c - 0.0-0.5,	08-May-2025	12-May-2025	15-May-2025	✔	13-May-2025	14-May-2025	✔
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK059G) DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5	DSDA-3 - 0.0-0.5,	07-May-2025	12-May-2025	04-Jun-2025	✔	13-May-2025	14-May-2025	✔
Soil Glass Jar - Unpreserved (EK059G) IP 88-d - 0.0-0.5, IP 90-c - 0.0-0.5	IP 78-c - 0.0-0.5,	08-May-2025	12-May-2025	05-Jun-2025	✔	13-May-2025	14-May-2025	✔



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Soil Glass Jar - Unpreserved (EK061G) DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5	DSDA-3 - 0.0-0.5,	07-May-2025	12-May-2025	04-Jun-2025	✔	16-May-2025	09-Jun-2025	✔
Soil Glass Jar - Unpreserved (EK061G) IP 88-d - 0.0-0.5, IP 90-c - 0.0-0.5	IP 78-c - 0.0-0.5,	08-May-2025	12-May-2025	05-Jun-2025	✔	16-May-2025	09-Jun-2025	✔
EK067G: Total Phosphorus as P by Discrete Analyser								
Soil Glass Jar - Unpreserved (EK067G) DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5	DSDA-3 - 0.0-0.5,	07-May-2025	12-May-2025	04-Jun-2025	✔	16-May-2025	09-Jun-2025	✔
Soil Glass Jar - Unpreserved (EK067G) IP 88-d - 0.0-0.5, IP 90-c - 0.0-0.5	IP 78-c - 0.0-0.5,	08-May-2025	12-May-2025	05-Jun-2025	✔	16-May-2025	09-Jun-2025	✔
EK255A SD: Ammonium in Sediment								
Soil Glass Jar - Unpreserved (EK255A SD) DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5	DSDA-3 - 0.0-0.5,	07-May-2025	12-May-2025	04-Jun-2025	✔	14-May-2025	09-Jun-2025	✔
Soil Glass Jar - Unpreserved (EK255A SD) IP 88-d - 0.0-0.5, IP 90-c - 0.0-0.5	IP 78-c - 0.0-0.5,	08-May-2025	12-May-2025	05-Jun-2025	✔	14-May-2025	09-Jun-2025	✔



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP003: Total Organic Carbon (TOC) in Soil									
Pulp Bag (EP003) OC35-c - 0.0-0.5, OC57-a T2 - 0.0-0.5, OC1-b - 0.0-0.5, OC15-c - 0.0-0.5, OC38-d T1 - 0.0-0.5, OC38-d T3 - 0.0-0.5, OC49-a - 0.0-0.5, OC7-b - 0.0-0.5, OC28-d - 0.0-0.5, OC53-d - 0.0-0.5, DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5, DSDA-6 - 0.0-0.5		OC57-a T1 - 0.0-0.5, OC57-a T3 - 0.0-0.5, OC25-d - 0.0-0.5, D1 - 0.0-0.5, OC38-d T2 - 0.0-0.5, OC19-b - 0.0-0.5, OC10-d - 0.0-0.5, OC60-d - 0.0-0.5, OC45-b - 0.0-0.5, DSDA-1 - 0.0-0.5, DSDA-3 - 0.0-0.5, DSDA-5 - 0.0-0.5,	07-May-2025	13-May-2025	04-Jun-2025	✔	13-May-2025	04-Jun-2025	✔
Pulp Bag (EP003) IP 02-d - 0.0-0.5, IP 71-a - 0.0-0.5, IP 88-d - 0.0-0.5, IP 74-b - 0.0-0.5, IP 78-c - 0.0-0.5, IP 97-b - 0.0-0.5, IP 90-c - 0.0-0.5, IP 90-c - 0.0-0.5, IP 83-d - 0.0-0.5, IP 104-c - 0.0-0.5,		IP 84-c - 0.0-0.5, IP 88-d - 0.0-0.5, IP 88-d - 0.0-0.5, IP 77-c - 0.0-0.5, D3 - 0.0-0.5, IP 81-d - 0.0-0.5, IP 90-c - 0.0-0.5, IP 93-d - 0.0-0.5, IP 86-c - 0.0-0.5, IP 106-c - 0.0-0.5	08-May-2025	13-May-2025	05-Jun-2025	✔	13-May-2025	05-Jun-2025	✔
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
Soil Glass Jar - Unpreserved (EP071-SD) DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5		DSDA-3 - 0.0-0.5,	07-May-2025	15-May-2025	21-May-2025	✔	19-May-2025	24-Jun-2025	✔
Soil Glass Jar - Unpreserved (EP071-SD) IP 88-d - 0.0-0.5, IP 90-c - 0.0-0.5		IP 78-c - 0.0-0.5,	08-May-2025	15-May-2025	22-May-2025	✔	19-May-2025	24-Jun-2025	✔



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP080-SD / EP071-SD: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080-SD) DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5	DSDA-3 - 0.0-0.5,	07-May-2025	09-May-2025	21-May-2025	✔	13-May-2025	21-May-2025	✔
Soil Glass Jar - Unpreserved (EP071-SD) DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5	DSDA-3 - 0.0-0.5,	07-May-2025	15-May-2025	21-May-2025	✔	19-May-2025	24-Jun-2025	✔
Soil Glass Jar - Unpreserved (EP080-SD) IP 88-d - 0.0-0.5, IP 90-c - 0.0-0.5	IP 78-c - 0.0-0.5,	08-May-2025	09-May-2025	22-May-2025	✔	13-May-2025	22-May-2025	✔
Soil Glass Jar - Unpreserved (EP071-SD) IP 88-d - 0.0-0.5, IP 90-c - 0.0-0.5	IP 78-c - 0.0-0.5,	08-May-2025	15-May-2025	22-May-2025	✔	19-May-2025	24-Jun-2025	✔
EP080-SD / EP071-SD: Total Recoverable Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080-SD) DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5	DSDA-3 - 0.0-0.5,	07-May-2025	09-May-2025	21-May-2025	✔	13-May-2025	21-May-2025	✔
Soil Glass Jar - Unpreserved (EP080-SD) IP 88-d - 0.0-0.5, IP 90-c - 0.0-0.5	IP 78-c - 0.0-0.5,	08-May-2025	09-May-2025	22-May-2025	✔	13-May-2025	22-May-2025	✔
EP080-SD: BTEXN								
Soil Glass Jar - Unpreserved (EP080-SD) DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5	DSDA-3 - 0.0-0.5,	07-May-2025	09-May-2025	21-May-2025	✔	13-May-2025	21-May-2025	✔
Soil Glass Jar - Unpreserved (EP080-SD) IP 88-d - 0.0-0.5, IP 90-c - 0.0-0.5	IP 78-c - 0.0-0.5,	08-May-2025	09-May-2025	22-May-2025	✔	13-May-2025	22-May-2025	✔



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP090: Organotin Compounds								
Soil Glass Jar - Frozen (EP090) OC35-c - 0.0-0.5, OC57-a T2 - 0.0-0.5, OC25-d - 0.0-0.5, D1 - 0.0-0.5, OC38-d T3 - 0.0-0.5, OC49-a - 0.0-0.5, OC7-b - 0.0-0.5, OC28-d - 0.0-0.5, OC53-d - 0.0-0.5	OC57-a T1 - 0.0-0.5, OC1-b - 0.0-0.5, OC15-c - 0.0-0.5, OC38-d T1 - 0.0-0.5, OC19-b - 0.0-0.5, OC10-d - 0.0-0.5, OC60-d - 0.0-0.5, OC45-b - 0.0-0.5,	07-May-2025	15-May-2025	02-Jul-2025	✔	18-May-2025	24-Jun-2025	✔
Soil Glass Jar - Frozen (EP090) OC38-d T2 - 0.0-0.5, DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5, DSDA-6 - 0.0-0.5	DSDA-1 - 0.0-0.5, DSDA-3 - 0.0-0.5, DSDA-5 - 0.0-0.5,	07-May-2025	15-May-2025	02-Jul-2025	✔	19-May-2025	24-Jun-2025	✔
Soil Glass Jar - Frozen (EP090) IP 02-d - 0.0-0.5, IP 71-a - 0.0-0.5, IP 88-d - 0.0-0.5, IP 74-b - 0.0-0.5, IP 78-c - 0.0-0.5, IP 97-b - 0.0-0.5, IP 90-c - 0.0-0.5	IP 84-c - 0.0-0.5, IP 88-d - 0.0-0.5, IP 88-d - 0.0-0.5, IP 77-c - 0.0-0.5, D3 - 0.0-0.5, IP 81-d - 0.0-0.5,	08-May-2025	15-May-2025	03-Jul-2025	✔	19-May-2025	24-Jun-2025	✔
Soil Glass Jar - Frozen (EP090) IP 90-c - 0.0-0.5, IP 93-d - 0.0-0.5, IP 86-c - 0.0-0.5, IP 106-c - 0.0-0.5	IP 90-c - 0.0-0.5, IP 83-d - 0.0-0.5, IP 104-c - 0.0-0.5,	08-May-2025	16-May-2025	03-Jul-2025	✔	20-May-2025	25-Jun-2025	✔
Soil Glass Jar - Unpreserved (EP090) OC57-a T3 - 0.0-0.5		07-May-2025	15-May-2025	21-May-2025	✔	18-May-2025	24-Jun-2025	✔
EP132B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP132B-SD) DSDA-2 - 0.0-0.5		07-May-2025	14-May-2025	21-May-2025	✔	16-May-2025	23-Jun-2025	✔
Soil Glass Jar - Unpreserved (EP132B-SD) DSDA-3 - 0.0-0.5,	DSDA-4 - 0.0-0.5	07-May-2025	14-May-2025	21-May-2025	✔	17-May-2025	23-Jun-2025	✔
Soil Glass Jar - Unpreserved (EP132B-SD) IP 88-d - 0.0-0.5, IP 90-c - 0.0-0.5	IP 78-c - 0.0-0.5,	08-May-2025	14-May-2025	22-May-2025	✔	17-May-2025	23-Jun-2025	✔



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP231_TOP_A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X (TOP)) DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5	DSDA-3 - 0.0-0.5,	07-May-2025	12-May-2025	03-Nov-2025	✔	17-May-2025	21-Jun-2025	✔
HDPE Soil Jar (EP231X (TOP)) IP 88-d - 0.0-0.5, IP 88-d - 0.0-0.5, D3 - 0.0-0.5, IP 90-c - 0.0-0.5,	IP 88-d - 0.0-0.5, IP 78-c - 0.0-0.5, IP 90-c - 0.0-0.5, IP 90-c - 0.0-0.5	08-May-2025	12-May-2025	04-Nov-2025	✔	17-May-2025	21-Jun-2025	✔
EP231_TOP_B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X (TOP)) DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5	DSDA-3 - 0.0-0.5,	07-May-2025	12-May-2025	03-Nov-2025	✔	17-May-2025	21-Jun-2025	✔
HDPE Soil Jar (EP231X (TOP)) IP 88-d - 0.0-0.5, IP 88-d - 0.0-0.5, D3 - 0.0-0.5, IP 90-c - 0.0-0.5,	IP 88-d - 0.0-0.5, IP 78-c - 0.0-0.5, IP 90-c - 0.0-0.5, IP 90-c - 0.0-0.5	08-May-2025	12-May-2025	04-Nov-2025	✔	17-May-2025	21-Jun-2025	✔
EP231_TOP_C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X (TOP)) DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5	DSDA-3 - 0.0-0.5,	07-May-2025	12-May-2025	03-Nov-2025	✔	17-May-2025	21-Jun-2025	✔
HDPE Soil Jar (EP231X (TOP)) IP 88-d - 0.0-0.5, IP 88-d - 0.0-0.5, D3 - 0.0-0.5, IP 90-c - 0.0-0.5,	IP 88-d - 0.0-0.5, IP 78-c - 0.0-0.5, IP 90-c - 0.0-0.5, IP 90-c - 0.0-0.5	08-May-2025	12-May-2025	04-Nov-2025	✔	17-May-2025	21-Jun-2025	✔
EP231_TOP_D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X (TOP)) DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5	DSDA-3 - 0.0-0.5,	07-May-2025	12-May-2025	03-Nov-2025	✔	17-May-2025	21-Jun-2025	✔
HDPE Soil Jar (EP231X (TOP)) IP 88-d - 0.0-0.5, IP 88-d - 0.0-0.5, D3 - 0.0-0.5, IP 90-c - 0.0-0.5,	IP 88-d - 0.0-0.5, IP 78-c - 0.0-0.5, IP 90-c - 0.0-0.5, IP 90-c - 0.0-0.5	08-May-2025	12-May-2025	04-Nov-2025	✔	17-May-2025	21-Jun-2025	✔



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP231_TOP_P: PFAS Sums									
HDPE Soil Jar (EP231X (TOP)) DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5		DSDA-3 - 0.0-0.5,	07-May-2025	12-May-2025	03-Nov-2025	✔	17-May-2025	21-Jun-2025	✔
HDPE Soil Jar (EP231X (TOP)) IP 88-d - 0.0-0.5, IP 88-d - 0.0-0.5, D3 - 0.0-0.5, IP 90-c - 0.0-0.5,		IP 88-d - 0.0-0.5, IP 78-c - 0.0-0.5, IP 90-c - 0.0-0.5, IP 90-c - 0.0-0.5	08-May-2025	12-May-2025	04-Nov-2025	✔	17-May-2025	21-Jun-2025	✔
EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides									
Soil Glass Jar - Unpreserved (EP234-Diuron) DSDA-2 - 0.0-0.5, DSDA-4 - 0.0-0.5		DSDA-3 - 0.0-0.5,	07-May-2025	14-May-2025	21-May-2025	✔	15-May-2025	23-Jun-2025	✔
Soil Glass Jar - Unpreserved (EP234-Diuron) IP 88-d - 0.0-0.5, IP 88-d - 0.0-0.5, D3 - 0.0-0.5, IP 90-c - 0.0-0.5,		IP 88-d - 0.0-0.5, IP 78-c - 0.0-0.5, IP 90-c - 0.0-0.5, IP 90-c - 0.0-0.5	08-May-2025	14-May-2025	22-May-2025	✔	15-May-2025	23-Jun-2025	✔

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)			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) RB1		07-May-2025	12-May-2025	03-Nov-2025	✓	13-May-2025	03-Nov-2025	✓	
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) RB2		08-May-2025	12-May-2025	04-Nov-2025	✓	14-May-2025	04-Nov-2025	✓	
EG035T: Total Recoverable Mercury by FIMS									
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) RB1		07-May-2025	----	----	----	12-May-2025	04-Jun-2025	✓	
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) RB2		08-May-2025	----	----	----	12-May-2025	05-Jun-2025	✓	
EP080/071: Total Petroleum Hydrocarbons									
Amber VOC Vial - Sulfuric Acid (EP080) TB1, TB3, TB5, TB7		TB2, TB4, TB6,	08-May-2025	19-May-2025	22-May-2025	✓	20-May-2025	22-May-2025	✓

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)		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)	08-May-2025	19-May-2025	22-May-2025	✓	20-May-2025	22-May-2025	✓	
TB1,								TB2,
TB3,								TB4,
TB5,								TB6,
TB7								
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)	08-May-2025	19-May-2025	22-May-2025	✓	20-May-2025	22-May-2025	✓	
TB1,								TB2,
TB3,								TB4,
TB5,								TB6,
TB7								



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: **SOIL**

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)							
Ammonium in Sediments	EK255A SD	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Diuron by LCMSMS	EP234-Diuron	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	5	48	10.42	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Organotin Analysis	EP090	6	57	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAHs in Sediments by GCMS(SIM)	EP132B-SD	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PFAS by LCMSMS after oxidation (TOP)	EP231X (TOP)	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Soil Particle Density	EA152	0	45	0.00	10.00	✗	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Fe and Al in Sediments by ICPAES	EG005-SD	5	45	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Low Level)	EG035T-LL	5	45	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals in Sediments by ICPMS	EG020-SD	5	45	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP003	5	45	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TPH - Semivolatile Fraction	EP071-SD	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX in Sediments	EP080-SD	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Ammonium in Sediments	EK255A SD	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Diuron by LCMSMS	EP234-Diuron	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Organotin Analysis	EP090	3	57	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAHs in Sediments by GCMS(SIM)	EP132B-SD	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PFAS by LCMSMS after oxidation (TOP)	EP231X (TOP)	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Soil Particle Density	EA152	3	45	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Fe and Al in Sediments by ICPAES	EG005-SD	3	45	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Low Level)	EG035T-LL	3	45	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals in Sediments by ICPMS	EG020-SD	3	45	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP003	6	45	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TPH - Semivolatile Fraction	EP071-SD	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX in Sediments	EP080-SD	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **SOIL**

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)							
Ammonium in Sediments	EK255A SD	2	6	33.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Diuron by LCMSMS	EP234-Diuron	1	11	9.09	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Organotin Analysis	EP090	3	57	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
PAHs in Sediments by GCMS(SIM)	EP132B-SD	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
PFAS by LCMSMS after oxidation (TOP)	EP231X (TOP)	1	14	7.14	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	1	11	9.09	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Fe and Al in Sediments by ICPAES	EG005-SD	3	45	6.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Low Level)	EG035T-LL	3	45	6.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals in Sediments by ICPMS	EG020-SD	3	45	6.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP003	3	45	6.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	1	11	9.09	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TPH - Semivolatile Fraction	EP071-SD	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX in Sediments	EP080-SD	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonium in Sediments	EK255A SD	0	6	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Diuron by LCMSMS	EP234-Diuron	1	11	9.09	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx)- Soluble by Discrete Analyser	EK059G	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Nitrite as N - Soluble by Discrete Analyser	EK057G	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Organotin Analysis	EP090	3	57	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
PAHs in Sediments by GCMS(SIM)	EP132B-SD	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TKN as N By Discrete Analyser	EK061G	1	11	9.09	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Low Level)	EG035T-LL	3	45	6.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals in Sediments by ICPMS	EG020-SD	3	45	6.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus By Discrete Analyser	EK067G	1	11	9.09	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TPH - Semivolatile Fraction	EP071-SD	1	6	16.67	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX in Sediments	EP080-SD	1	6	16.67	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 Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	4	40	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	12	16.67	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	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 Metals by ICP-MS - Suite A	EG020A-T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Particle Size Analysis by Hydrometer	EA150H	SOIL	Particle Size Analysis by Hydrometer according to AS1289.3.6.3
Soil Particle Density	EA152	SOIL	Soil Particle Density by AS 1289.3.5.1: Methods of testing soils for engineering purposes - Soil classification tests - Determination of the soil particle density of a soil - Standard method
Total Fe and Al in Sediments by ICPAES	EG005-SD	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3). LORs per NODG
Total Metals in Sediments by ICPMS	EG020-SD	SOIL	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. Analyte list and LORs per NODG.
Total Mercury by FIMS (Low Level)	EG035T-LL	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ 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)
Nitrite as N - Soluble by Discrete Analyser	EK057G	SOIL	In house: Referenced to APHA 4500-NO ₃ - B. Nitrite in a water extract is determined by direct colourimetry by Discrete Analyser.
Nitrate as N - Soluble by Discrete Analyser	EK058G	SOIL	In house: Referenced to APHA 4500-NO ₃ - F. Nitrate in the 1:5 soil:water extract is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colourimetry and result for Nitrate calculated as the difference between the two results.
Nitrite and Nitrate as N (NO _x)- Soluble by Discrete Analyser	EK059G	SOIL	In house: Thermo Scientific Method D08727 and NEMI (National Environmental Method Index) Method ID: 9171. This method covers the determination of total oxidised nitrogen (NO _x -N) and nitrate (NO ₃ -N) by calculation, Combined oxidised Nitrogen (NO ₂ +NO ₃) in a water extract is determined by direct colourimetry by Discrete Analyser.
TKN as N By Discrete Analyser	EK061G	SOIL	In house: Referenced to APHA 4500-Norg-D Soil samples are digested using Kjeldahl digestion followed by determination by Discrete Analyser.
Total Nitrogen as N (TKN + NO _x) By Discrete Analyser	EK062G	SOIL	In house: Referenced to APHA 4500 Norg/NO ₃ - Total Nitrogen is determined as the sum of TKN and Oxidised Nitrogen, each determined separately as N.
Total Phosphorus By Discrete Analyser	EK067G	SOIL	In house: Referenced to APHA 4500 P-B&F This procedure involves sulfuric acid digestion and quantification using Discrete Analyser.
Ammonium in Sediments	EK255A SD	SOIL	In house: Referenced to Rayment and Lyons Method 7C1 and 7C2. This method measures exchangeable ammonium which is defined by the amount of ammonium released by shaking sediment with an un-buffered 2M potassium chloride solution.



Analytical Methods	Method	Matrix	Method Descriptions
Total Organic Carbon	EP003	SOIL	In house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO ₂) is automatically measured by infra-red detector.
TPH - Semivolatile Fraction	EP071-SD	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX in Sediments	EP080-SD	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.
Organotin Analysis	EP090	SOIL	In house: Referenced to USEPA SW 846 - 8270 Prepared sample extracts are analysed by GC/MS coupled with high volume injection, and quantified against an established calibration curve.
PAHs in Sediments by GCMS(SIM)	EP132B-SD	SOIL	In house: Referenced to USEPA 8270 GCMS Capillary column, SIM mode using large volume programmed temperature vaporisation injection.
PFAS by LCMSMS after oxidation (TOP)	EP231X (TOP)	SOIL	In house, following oxidation per Houtz,Erika F.; Sedlak,David L. (2012): Oxidative Conversion as a Means of Detecting Precursors to Perfluoroalkyl Acids in Urban Runoff. In Environmental Science & Technology 46 (17), pp. 9342;9349.: A portion of the oxidised sample is mixed with methanol (1:1) prior to analysis by LC-Electrospray-MS-MS,Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers.
Diuron by LCMSMS	EP234-Diuron	SOIL	In-House variation on EP234. 5 g of sample is extracted into 20 mL of an ACN mix. A 250 µL aliquot of sample extract is made up to 1 mL final volume.
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.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ 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).
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	SOIL	In house: Referenced to APHA 4500 Norg- D; APHA 4500 P - H. Macro Kjeldahl digestion.
Sample Preparation for Ammonium in Sediments	EK255ASD-PR	SOIL	In house: Referenced to Rayment and Lyons Method 7C1 and 7C2. Ammonium is extracted into a un-buffered 2M potassium chloride solution at a 1:10 ratio.



Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Sample preparation for Pesticides by LCMSMS	EP234-PR	SOIL	In house
Dry and Pulverise (up to 100g)	GEO30	SOIL	#
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option A - Concentrating)	ORG17A	SOIL	In house: Mechanical agitation (tumbler). 20g of sample, Na ₂ SO ₄ and surrogate are extracted with 150mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Tumbler Extraction of Solids for LVI (Non-concentrating)	ORG17D	SOIL	In house: 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 50mL 1:1 DCM/Acetone by end over end tumbling. An aliquot is concentrated by nitrogen blowdown to a reduced volume for analysis if required.
Organotin Sample Preparation	ORG35	SOIL	In house: 20g sample is spiked with surrogate and leached in a methanol:acetic acid:UHP water mix and vacuum filtered. Reagents and solvents are added to the sample and the mixture tumbled. The butyltin compounds are simultaneously derivatised and extracted. The extract is further extracted with petroleum ether. The resultant extracts are combined and concentrated for analysis.
TOP Digest for PFAS on soil extract.	ORG70-S	SOIL	In-House Extraction followed by digestion with oxidation per Houtz, Erika F.; Sedlak, David L. (2012): Oxidative Conversion as a Means of Detecting Precursors to Perfluoroalkyl Acids in Urban Runoff. In Environmental Science & Technology 46 (17), pp. 9342-9349. A soil extract is taken to near dryness and made up to 5 mL with reagents. The sample is digested with persulfate under alkaline conditions, neutralised and prepared for analysis per EP231.
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.



SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2515665**

Client	: PORTS NORTH	Laboratory	: Environmental Division Brisbane
Contact	: ALEX KOCHNIEFF (SQP Consulting)	Contact	: Customer Services EB
Address	: C/- WORLEYPARSONS LTD 80 ALBERT ST BRISBANE QLD, AUSTRALIA 4000	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: alex@sqpconsulting.com	E-mail	: ALSEnviro.Brisbane@alsglobal.com
Telephone	: ----	Telephone	: +61-7-3552-8685
Facsimile	: ----	Facsimile	: +61-7-3243 7218
Project	: 311001-00495	Page	: 1 of 5
Order number	: 311001-00495	Quote number	: EB2025CAIPOR0001 (EB25CAIPOR0001)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 08-May-2025 20:50	Issue Date	: 09-May-2025
Client Requested Due Date	: 20-May-2025	Scheduled Reporting Date	: 20-May-2025

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Intact.
No. of coolers/boxes	: 8	Temperature	: 0.6°C, 10.3°C, 6.8°C - Ice Bricks present
Receipt Detail	: MEDIUM ESKY	No. of samples received / analysed	: 54 / 54

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
- **Diurons and UT-PAH conducted by ALS Sydney, NATA accreditation no. 825, site no 10911.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Please be advised; Sample "OC57-1 T3"(ALS#4), the TBT jar was not packed in the TBT esky and was not frozen with the other samples. Please keep this in mind when reviewing results. If you have any questions please contact client services at ALSEnviro.Brisbane@alsglobal.com**
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Unless otherwise stated, analytical work for this work order will be conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818.
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**



Sample Container(s)/Preservation Non-Compliances

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

- No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EA150H/EA152 Particle Sizing with Hydrometer + Soil Particle	SOIL - EG005-SD Total Iron and Aluminium in Sediments by	SOIL - EP003 Total Organic Carbon (TOC) in Soil	SOIL - EP090 (solids) Organotins	SOIL - SD-03 Metals by ICPMS (15 metals + low level Hg)	SOIL - TPH-SD Low Level TRH/BTEXN for Sediments
EB2515665-001	07-May-2025 00:00	OC35-c 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-002	07-May-2025 00:00	OC57-a T1 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-003	07-May-2025 00:00	OC57-a T2 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-004	07-May-2025 00:00	OC57-a T3 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-005	07-May-2025 00:00	OC1-b 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-006	07-May-2025 00:00	OC25-d 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-007	07-May-2025 00:00	OC15-c 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-008	07-May-2025 00:00	D1 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-009	07-May-2025 00:00	OC38-d T1 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-010	07-May-2025 00:00	OC38-d T2 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-011	07-May-2025 00:00	OC38-d T3 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-012	07-May-2025 00:00	OC19-b 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-013	07-May-2025 00:00	OC49-a 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-014	07-May-2025 00:00	OC10-d 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-015	07-May-2025 00:00	OC7-b 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-016	07-May-2025 00:00	OC60-d 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-017	07-May-2025 00:00	OC28-d 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-018	07-May-2025 00:00	OC45-b 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-019	07-May-2025 00:00	OC53-d 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-020	07-May-2025 00:00	DSDA-1 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-021	07-May-2025 00:00	DSDA-2 0.0-0.5	✓	✓	✓	✓	✓	✓	✓
EB2515665-022	07-May-2025 00:00	DSDA-3 0.0-0.5	✓	✓	✓	✓	✓	✓	✓
EB2515665-023	07-May-2025 00:00	DSDA-4 0.0-0.5	✓	✓	✓	✓	✓	✓	✓
EB2515665-024	07-May-2025 00:00	DSDA-5 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-025	07-May-2025 00:00	DSDA-6 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-026	08-May-2025 00:00	IP 02-d 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-027	08-May-2025 00:00	IP 84-c 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-028	08-May-2025 00:00	IP 71-a 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-029	08-May-2025 00:00	IP 88-d 0.0-0.5	✓	✓	✓	✓	✓	✓	✓
EB2515665-030	08-May-2025 00:00	IP 88-d 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-031	08-May-2025 00:00	IP 88-d 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-032	08-May-2025 00:00	IP 74-b 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-033	08-May-2025 00:00	IP 77-c 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-034	08-May-2025 00:00	IP 78-c 0.0-0.5	✓	✓	✓	✓	✓	✓	✓
EB2515665-035	08-May-2025 00:00	D3 0.0-0.5	✓	✓	✓	✓	✓	✓	



			SOIL - EA055-103 Moisture Content	SOIL - EA150H/EA152 Particle Sizing with Hydrometer + Soil Particle	SOIL - EG005-SD Total Iron and Aluminium in Sediments by	SOIL - EP003 Total Organic Carbon (TOC) in Soil	SOIL - EP090 (solids) Organotins	SOIL - SD-03 Metals by ICPMS (15 metals + low level Hg)	SOIL - TPH-SD Low Level TRH/BTEXN for Sediments
EB2515665-036	08-May-2025 00:00	IP 97-b 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-037	08-May-2025 00:00	IP 81-d 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-038	08-May-2025 00:00	IP 90-c 0.0-0.5	✓	✓	✓	✓	✓	✓	✓
EB2515665-039	08-May-2025 00:00	IP 90-c 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-040	08-May-2025 00:00	IP 90-c 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-041	08-May-2025 00:00	IP 93-d 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-042	08-May-2025 00:00	IP 83-d 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-043	08-May-2025 00:00	IP 86-c 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-044	08-May-2025 00:00	IP 104-c 0.0-0.5	✓	✓	✓	✓	✓	✓	
EB2515665-045	08-May-2025 00:00	IP 106-c 0.0-0.5	✓	✓	✓	✓	✓	✓	

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EK058G (solids) Nitrate as N - soluble by Discrete Analyser	SOIL - EK255A-SD Ammonium in Sediment by FIA	SOIL - EP132B-SD Ultra-trace PAHs in Sediments	SOIL - EP231X (TOP) (solids) PFAS - Total Oxidisable Precursor (TOP) Assay	SOIL - EP234-Diuron Low Level Diuron in Soil	SOIL - NT-11S Total N + Total P
EB2515665-021	07-May-2025 00:00	DSDA-2 0.0-0.5	✓	✓	✓	✓	✓	✓
EB2515665-022	07-May-2025 00:00	DSDA-3 0.0-0.5	✓	✓	✓	✓	✓	✓
EB2515665-023	07-May-2025 00:00	DSDA-4 0.0-0.5	✓	✓	✓	✓	✓	✓
EB2515665-029	08-May-2025 00:00	IP 88-d 0.0-0.5	✓	✓	✓	✓	✓	✓
EB2515665-030	08-May-2025 00:00	IP 88-d 0.0-0.5				✓	✓	
EB2515665-031	08-May-2025 00:00	IP 88-d 0.0-0.5				✓	✓	
EB2515665-034	08-May-2025 00:00	IP 78-c 0.0-0.5	✓	✓	✓	✓	✓	✓
EB2515665-035	08-May-2025 00:00	D3 0.0-0.5				✓	✓	
EB2515665-038	08-May-2025 00:00	IP 90-c 0.0-0.5	✓	✓	✓	✓	✓	✓
EB2515665-039	08-May-2025 00:00	IP 90-c 0.0-0.5				✓	✓	
EB2515665-040	08-May-2025 00:00	IP 90-c 0.0-0.5				✓	✓	



Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-30T 11 Metals (Total)
EB2515665-046	07-May-2025 00:00	RB1	✓
EB2515665-047	08-May-2025 00:00	RB2	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - W-18 TPH(C6 - C9)/BTEXN
EB2515665-048	08-May-2025 00:00	TB1	✓
EB2515665-049	08-May-2025 00:00	TB2	✓
EB2515665-050	08-May-2025 00:00	TB3	✓
EB2515665-051	08-May-2025 00:00	TB4	✓
EB2515665-052	08-May-2025 00:00	TB5	✓
EB2515665-053	08-May-2025 00:00	TB6	✓
EB2515665-054	08-May-2025 00:00	TB7	✓

Proactive Holding Time Report

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



Requested Deliverables

ADAM FLETCHER

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

ALEX KOCHNIEFF (SQP Consulting)

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

INVOICES

- A4 - AU Tax Invoice (INV)	Email	invoicesspayable@portsnorth.com.au
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Inter-Laboratory Testing

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

(SOIL) EP132B: Polynuclear Aromatic Hydrocarbons

(SOIL) EP234F: Phenylurea, Thizdiazolurea, Uracil and Sulfonylurea Herbicides

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 comments:			

CHAIN OF CUSTODY

Project code:	311001-00495	Email invoice to:	alex.ficht@spqosquilling.com	Sample(s):	Alex Koehnoff	Shipping:	Direct delivery	Required Turnaround time (TAT)			
Purchase Order:	311001-00495	Email results to:	alex@spqosquilling.com	Phone #:	0458 669 331	Shipping date:	8/05/2025	☐	1 Day	☐	2 Day
Quote ID:	5B5CAIPOR0001	Format:	Excel / Estdat	Handled over by:	Nick Banton	Signature:		☐	3 Day	☒	Standard

[illegible]

Appendix C. SGS Laboratory certificates

CLIENT DETAILS

Contact Alex Kochnieff
Client PORTS NORTH
Address PO BOX 594
QLD 4870

Telephone 0468 660 301
Facsimile 07 4052 1493
Email alex@sqpconsulting.com

Project **311001-00495**
Order Number **311001-00495**
Samples 2

LABORATORY DETAILS

Manager Jon Dicker
Laboratory SGS Cairns Environmental
Address Unit 2, 58 Comport St
Portsmith QLD 4870

Telephone +61 07 4035 5111
Facsimile +61 07 4035 5122
Email AU.Environmental.Cairns@sgs.com

SGS Reference **CE181932 R0**
Date Received 12 May 2025
Date Reported 28 May 2025

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(3146)

Organotins, TBT, PFAS, Pesticides subcontracted to SGS Melbourne, 10/585 Blackburn Road, Notting Hill, VIC, NATA Accreditation Number 2562/14420, Report number ME372601.

SIGNATORIES



Alyson BERGAMO
Senior Laboratory Technician



Jon Dicker
Manager Northern QLD



Maristela GANZAN
Quality Manager



Mitsuko BALDWIN
Metals Team Leader

		Sample Number	CE181932.001	CE181932.002
		Sample Matrix	Soil	Soil
		Sample Date	07 May 2025	08 May 2025
		Sample Name	D2	D4
Parameter	Units	LOR		

Moisture Content Method: AN002 Tested: 14/5/2025

% Moisture	%w/w	1	58.7	25.6
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Total Organic Carbon by Heanes Oxidation Method: AN273 Tested: 19/5/2025

Total Organic Carbon	%w/w	0.05	1.7	1.0
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Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 20/5/2025

Silver, Ag	mg/kg	0.1	0.7	0.1
Aluminium, Al	mg/kg	50	18000	8100
Arsenic, As	mg/kg	0.5	16	21
Cadmium, Cd	mg/kg	0.1	0.1	0.1
Cobalt, Co	mg/kg	0.5	9.3	6.0
Chromium, Cr	mg/kg	0.5	33	21
Copper, Cu	mg/kg	0.5	11	11
Iron, Fe	mg/kg	50	27000	22000
Manganese, Mn	mg/kg	2	570	590
Nickel, Ni	mg/kg	0.5	16	8.1
Lead, Pb	mg/kg	0.5	16	13
Antimony, Sb	mg/kg	0.5	1.8	1.6
Selenium, Se	mg/kg	0.1	0.1	0.6
Vanadium, V	mg/kg	0.5	40	28
Zinc, Zn	mg/kg	0.5	48	29

Mercury in Soil Method: AN312 Tested: 20/5/2025

Mercury	mg/kg	0.01	0.05	<0.01
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Particle sizing of soils by sieving Method: AN005 Tested: 21/5/2025

Passing 2.00mm	%w/w	1	-	91
Retained 2.00mm	%w/w	1	-	10
Passing 600µm	%w/w	1	-	61
Retained 600µm	%w/w	1	-	30
Passing 300µm	%w/w	1	-	43
Retained 300µm	%w/w	1	-	18
Passing 212µm	%w/w	1	-	37
Retained 212µm	%w/w	1	-	6
Passing 63µm	%w/w	1	-	32
Retained 63µm	%w/w	1	-	5

		Sample Number	CE181932.001	CE181932.002
		Sample Matrix	Soil	Soil
		Sample Date	07 May 2025	08 May 2025
		Sample Name	D2	D4
Parameter	Units	LOR		

Particle sizing of soils <75µm by hydrometer Method: AN005 Tested: 21/5/2025

Sedimentation Diameter 1	mm	0.0001	-	0.0592
Passing Sedimentation Diameter 1	%w/w	1	-	26
Retained Sedimentation Diameter 1	%w/w	1	-	5
Sedimentation Diameter 2	mm	0.0001	-	0.0420
Passing Sedimentation Diameter 2	%w/w	1	-	25
Retained Sedimentation Diameter 2	%w/w	1	-	1
Sedimentation Diameter 3	mm	0.0001	-	0.0297
Passing Sedimentation Diameter 3	%w/w	1	-	25
Retained Sedimentation Diameter 3	%w/w	1	-	<1
Sedimentation Diameter 4	mm	0.0001	-	0.0210
Passing Sedimentation Diameter 4	%w/w	1	-	24
Retained Sedimentation Diameter 4	%w/w	1	-	1
Sedimentation Diameter 5	mm	0.0001	-	0.0154
Passing Sedimentation Diameter 5	%w/w	1	-	21
Retained Sedimentation Diameter 5	%w/w	1	-	2
Sedimentation Diameter 6	mm	0.0001	-	0.0110
Passing Sedimentation Diameter 6	%w/w	1	-	20
Retained Sedimentation Diameter 6	%w/w	1	-	1
Sedimentation Diameter 7	mm	0.0001	-	0.0078
Passing Sedimentation Diameter 7	%w/w	1	-	19
Retained Sedimentation Diameter 7	%w/w	1	-	1
Sedimentation Diameter 8	mm	0.0001	-	0.0055
Passing Sedimentation Diameter 8	%w/w	1	-	18
Retained Sedimentation Diameter 8	%w/w	1	-	1
Sedimentation Diameter 9	mm	0.0001	-	0.0039
Passing Sedimentation Diameter 9	%w/w	1	-	18
Retained Sedimentation Diameter 9	%w/w	1	-	<1
Sedimentation Diameter 10	mm	0.0001	-	0.0016
Passing Sedimentation Diameter 10	%w/w	1	-	16
Retained Sedimentation Diameter 10	%w/w	1	-	1
Sedimentation Diameter 11	mm	0.0001	-	0.0011
Passing Sedimentation Diameter 11	%w/w	1	-	15
Retained Sedimentation Diameter 11	%w/w	1	-	1
Clay (<0.002mm)	%w/w	0.1	-	16
Silt and Clay (<0.005mm)	%w/w	0.1	-	26
Silt (0.002mm to 0.06mm)	%w/w	0.1	-	17
Fine Sand (0.06mm to 0.20mm)	%w/w	0.1	-	5.3
Medium and Coarse Sand (0.20mm to 2.0mm)	%w/w	0.1	-	6.1
Gravels (>2.0mm)	%w/w	0.1	-	9.4

Tributyltin in Solids by LC-QQQ Method: MA1427-02 Tested: 28/5/2025

Tributyltin (TBT)	µg Sn/kg	1	<1	<1
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Organotins in Solids Method: MA 1427 Tested: 28/5/2025

Monobutyltin*	µg Sn/kg	1	<1	<1
Dibutyltin*	µg Sn/kg	1	<1	<1

Pesticides / Herbicides in Soils by LC-MS/MS MA-1569.SL.01 Method: MA1569 Tested: 28/5/2025

Diuron*	µg/kg	1	-	<1
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		Sample Number	CE181932.001	CE181932.002
		Sample Matrix	Soil	Soil
		Sample Date	07 May 2025	08 May 2025
		Sample Name	D2	D4
Parameter	Units	LOR		

Per- and Polyfluoroalkyl Substances (PFAS) in Solid Samples- Low level Method: MA-1523 Tested: 28/5/2025

Perfluorobutanoic acid (PFBA)	mg/kg	0.0001	-	<0.0001
Perfluoropentanoic acid (PFPeA)	mg/kg	0.0005	-	<0.0005
Perfluorohexanoic acid (PFHxA)	mg/kg	0.0001	-	<0.0001
Perfluoroheptanoic acid (PFHpA)	mg/kg	0.0001	-	<0.0001
Perfluorooctanoic Acid (PFOA)	mg/kg	0.0001	-	<0.0001
Perfluorononanoic acid (PFNA)	mg/kg	0.0001	-	<0.0001
Perfluorodecanoic acid (PFDA)	mg/kg	0.0001	-	<0.0001
Perfluoroundecanoic acid (PFUnA)	mg/kg	0.0001	-	<0.0001
Perfluorododecanoic acid (PFDoA)	mg/kg	0.0001	-	<0.0001
Perfluorotridecanoic acid (PFTriDA)	mg/kg	0.0001	-	<0.0001
Perfluorotetradecanoic acid (PFTeDA)	mg/kg	0.0001	-	<0.0001
Perfluorohexadecanoic acid (PFHxDA)	mg/kg	0.0001	-	<0.0001
Perfluorobutane sulfonate (PFBS)	mg/kg	0.0001	-	<0.0001
Perfluoropentane sulfonate (PFPeS)	mg/kg	0.0001	-	<0.0001
Perfluorohexane sulfonate (PFHxS)	mg/kg	0.0001	-	<0.0001
Perfluoroheptane sulfonate (PFHpS)	mg/kg	0.0001	-	<0.0001
Perfluorooctane sulfonate (PFOS)	mg/kg	0.0001	-	<0.0001
Sum PFOS and PFHXS	mg/kg	0.0001	-	<0.0001
Sum of US EPA PFAS (PFOS+PFOA)	mg/kg	0.0001	-	<0.0001
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	mg/kg	0.0001	-	<0.0001
Perfluorononane sulfonate (PFNS)	mg/kg	0.0001	-	<0.0001
Perfluorodecane sulfonate (PFDS)	mg/kg	0.0001	-	<0.0001
Perfluorododecane sulfonate (PFDoS)	mg/kg	0.0001	-	<0.0001
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	mg/kg	0.001	-	<0.001
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	mg/kg	0.001	-	<0.001
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	mg/kg	0.001	-	<0.001
1H,1H,2H,2H-Perfluorododecanesulfonic acid (10:2) (10:2)	mg/kg	0.001	-	<0.001
Perfluorooctane sulfonamide (PFOSA)	mg/kg	0.001	-	<0.001
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	mg/kg	0.001	-	<0.001
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	mg/kg	0.001	-	<0.001
2-(N-Methylperfluorooctane sulfonamido)-ethanol	mg/kg	0.002	-	<0.002
2-(N-Ethylperfluorooctane sulfonamido)-ethanol	mg/kg	0.002	-	<0.002
N-Methylperfluorooctanesulfonamidoacetic acid	mg/kg	0.001	-	<0.001
N-Ethylperfluorooctanesulfonamidoacetic Acid	mg/kg	0.001	-	<0.001
Total PFAS (n=30)	mg/kg	0.001	-	<0.001
(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	-	100
(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	-	101
(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	-	117
(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	-	107
(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	-	112
(13C9-PFNA) Isotopically Labelled Internal Recovery	%	-	-	95
(13C6-PFDA) Isotopically Labelled Internal Recovery	%	-	-	106
(13C7-PFUDa) Isotopically Labelled Internal Recovery	%	-	-	97
(13C2-PFDoA) Isotopically Labelled Internal Recovery	%	-	-	77
(13C2_PFTeDA) Isotopically Labelled Internal Recovery	%	-	-	43
(13C2-PFHxDA) Isotopically Labelled Internal Recovery	%	-	-	24
(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	-	117
(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	-	96
(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	-	87
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	-	84
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	-	67
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	-	71
(13C8-PFOSA) Isotopically Labelled Internal Recovery	%	-	-	65
(D3-N-MeFOSA) Isotopically Labelled Internal Recovery	%	-	-	51
(D5-N-EtFOSA) Isotopically Labelled Internal Recovery	%	-	-	45
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery	%	-	-	62
(D9-N-EtFOSE) Isotopically Labelled Internal Recovery	%	-	-	68
(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery	%	-	-	54
(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery	%	-	-	98

		Sample Number	CE181932.001	CE181932.002
		Sample Matrix	Soil	Soil
		Sample Date	07 May 2025	08 May 2025
		Sample Name	D2	D4
Parameter	Units	LOR		

Per- and Polyfluoroalkyl Substances (PFAS) in Solid Samples- Low level Method: MA-1523 Tested: 28/5/2025 (continued)

Perfluoronated Surfactants in Soil - TOPA Method: MA_1523_TOPA Tested: 28/5/2025

Post-Perfluorobutanoic acid (PFBA)*	mg/kg	0.0032	-	<0.0032
Post-Perfluoropentanoic acid (PFPeA)*	mg/kg	0.0032	-	<0.0032
Post-Perfluorohexanoic acid (PFHxA)*	mg/kg	0.0032	-	<0.0032
Post-Perfluoroheptanoic acid (PFHpA)*	mg/kg	0.0032	-	<0.0032
Post-Perfluorooctanoic acid (PFOA)*	mg/kg	0.0016	-	0.022
Post-Perfluorononanoic acid (PFNA)*	mg/kg	0.0032	-	<0.0032
Post-Perfluorodecanoic acid (PFDA)*	mg/kg	0.0032	-	<0.0032
Post-Perfluoroundecanoic acid (PFUnA)*	mg/kg	0.0032	-	<0.0032
Post-Perfluorododecanoic acid (PFDoA)*	mg/kg	0.0032	-	<0.0032
Post-Perfluorotridecanoic acid (PFTrDA)*	mg/kg	0.0032	-	<0.0032
Post-Perfluorotetradecanoic acid (PFTeDA)*	mg/kg	0.0032	-	<0.0032
Post-Perfluorohexadecanoic acid (PFHxDA)*	mg/kg	0.0064	-	<0.0064
Post-Perfluorobutane sulfonate (PFBS)*	mg/kg	0.0032	-	<0.0032
Post-Perfluoropentane sulfonate (PFPeS)*	mg/kg	0.0032	-	<0.0032
Post-Perfluorohexane sulfonate (PFHxS)*	mg/kg	0.0032	-	<0.0032
Post-Perfluoroheptane sulfonate (PFHpS)*	mg/kg	0.0032	-	<0.0032
Post-Perfluorooctane sulfonate (PFOS)	mg/kg	0.0032	-	<0.0032
Post-Sum PFOS and PFHXS	mg/kg	0.0032	-	<0.0032
Post-Perfluorononane sulfonate (PFNS)*	mg/kg	0.0032	-	<0.0032
Post-Perfluorodecane sulfonate (PFDS)*	mg/kg	0.0032	-	<0.0032
Post-Perfluorododecane sulfonate (PFDoS)*	mg/kg	0.0032	-	<0.0032
Post-1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2)	mg/kg	0.0032	-	<0.0032
Post-1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2)	mg/kg	0.0032	-	<0.0032
Post-1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2)	mg/kg	0.0032	-	<0.0032
Post-Perfluorooctane sulfonamide (PFOSA)*	mg/kg	0.0032	-	<0.0032
Post-N-Methylperfluorooctane sulfonamide (N-MeFOSA)*	mg/kg	0.016	-	<0.016
Post-N-Ethylperfluorooctane sulfonamide (N-EtFOSA)*	mg/kg	0.016	-	<0.016
Post-2-(N-Methylperfluorooctane sulfonamido)-ethanol	mg/kg	0.032	-	<0.032
Post-2-(N-Ethylperfluorooctane sulfonamido)-ethanol	mg/kg	0.032	-	<0.032
Post-N-Methylperfluorooctanesulfonamidoacetic acid	mg/kg	0.016	-	<0.016
Post-N-Ethylperfluorooctanesulfonamidoacetic Acid	mg/kg	0.016	-	<0.016
Total (Post) PFASs (n=30)*	mg/kg	0.063	-	<0.063
Sum of Post PFAA precursors*	mg/kg	0.07	-	<0.07
Sum of Post PFAA precursors/Sum of Post PFAS*	%	0.1	-	<0.1
Post-(13C2-PFHxA) Reaction Monitoring Standard*	%	-	-	438
Post-(13C8-PFOSA) Reaction Monitoring Standard*	%	-	-	0
Post-(13C8-PFOA) Reaction Monitoring Standard*	%	-	-	304
Post-(13C4-PFBA) Surrogate*	%	-	-	97
Post-(13C5-PFPeA) Surrogate*	%	-	-	95
Post-(13C5-PFHxA) Surrogate*	%	-	-	101
Post-(13C4-PFHpA) Surrogate*	%	-	-	106
Post-(13C4-PFOA) Surrogate*	%	-	-	96
Post-(13C9-PFNA) Surrogate*	%	-	-	103
Post-(13C6-PFDA) Surrogate*	%	-	-	92
Post-(13C7-PFUDa) Surrogate*	%	-	-	80
Post-(13C2-PFDoA) Surrogate*	%	-	-	101
Post-(13C2-PFTeDA) Surrogate*	%	-	-	96
Post-(13C2-PFHxDA) Surrogate*	%	-	-	87
Post-(13C3-PFBS) Surrogate*	%	-	-	80
Post-(13C3-PFHxS) Surrogate*	%	-	-	91
Post-(13C8-PFOS) Surrogate*	%	-	-	107

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Mercury in Soil Method: ME-(AU)-[ENV]AN312

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Mercury	LB140452	mg/kg	0.01	<0.01	0 - 4%	107 - 109%

Total Organic Carbon by Heanes Oxidation Method: ME-(AU)-[ENV]AN273

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Total Organic Carbon	LB140555	%w/w	0.05	<0.05	5%	96%	88%

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: ME-(AU)-[ENV]AN040/AN320

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Silver, Ag	LB140599	mg/kg	0.1	<0.1	85%
Aluminium, Al	LB140599	mg/kg	50	<50	101%
Arsenic, As	LB140599	mg/kg	0.5	<0.5	103%
Cadmium, Cd	LB140599	mg/kg	0.1	<0.1	103%
Cobalt, Co	LB140599	mg/kg	0.5	<0.5	102%
Chromium, Cr	LB140599	mg/kg	0.5	<0.5	105%
Copper, Cu	LB140599	mg/kg	0.5	<0.5	102%
Iron, Fe	LB140599	mg/kg	50	<50	105%
Manganese, Mn	LB140599	mg/kg	2	<2	101%
Nickel, Ni	LB140599	mg/kg	0.5	<0.5	102%
Lead, Pb	LB140599	mg/kg	0.5	<0.5	102%
Antimony, Sb	LB140599	mg/kg	0.5	<0.5	116%
Selenium, Se	LB140599	mg/kg	0.1	0.5	100%
Vanadium, V	LB140599	mg/kg	0.5	<0.5	104%
Zinc, Zn	LB140599	mg/kg	0.5	<0.5	102%

METHOD

METHODOLOGY SUMMARY

AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN005	The particle size distribution of a soil is determined by wet sieving, using a maximum of 900 mL of deionised water to sieve all fractions down to 75 µm. Referenced to AS1289.3.6.1 and AS1141.11.
AN005	Following wet sieving of the sample,(particles smaller than 75 µm) a dispersing solution is added and a hydrometer is used to measure sedimentation. Soil density is determined and the percentage of each size fraction calculated. Referenced to AS1289.3.6.3.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN273	The sample is digested in Dichromate / Sulfuric Acid to oxidise the organic carbon . The determination is completed colourimetrically by Discrete Analyser at 600 nm. Based on Rayment & Higginson 6B1.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
MA1427	This method is intended for the trace analysis of organotin compounds by high performance liquid chromatography-mass spectrometry (HPLC-MS). This method is based on USEPA Method 8323.
MA-1427-02	This method is intended for the trace analysis of tributyltin (TBT) in soils and sediments by liquid chromatography-triple quadrupole mass spectrometry (LC-MSMS).
MA-1523	This method covers the analysis of per- and polyfluoroalkyl substances (PFAS) in aqueous, solid and biosolid samples and solvent extracts, determined as the total of linear and branched isomers. After spiking with isotopically labelled quantification surrogates and clean-up via SPE cartridges sample extracts are analysed by liquid chromatography/mass spectrometry (LC-MS/MS). PFAS concentrations are determined by isotope dilution quantification.
MA-1569	This method is intended for the analysis of a diverse range of pesticides and herbicides by Liquid Chromatography using a Tandem Mass Spectrometry detector (LC-MS/MS). Due to the diverse nature of the analytes covered in this method each analyte requires its own analytical acquisition method thus the sample is run multiple times according to the analyte list requested. Soil and solid samples are extracted with ACN and extracts are filtered then directly injected onto LC -MS/MS using selective ion monitoring.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
**	Indicative data, theoretical holding time exceeded.	QFL	QC result is below the lower tolerance
***	Indicates that both * and ** apply.	-	The sample was not analysed for this analyte
		NVL	Not Validated

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the "Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.

Note that in terms of units of radioactivity:

- 1 Bq is equivalent to 27 pCi
- 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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SAMPLE RECEIPT ADVICE

CE181932

CLIENT DETAILS

Contact Alex Kochnieff
Client PORTS NORTH
Address PO BOX 594
QLD 4870

Telephone 0468 660 301
Facsimile 07 4052 1493
Email alex@sqpconsulting.com

Project **311001-00495**
Order Number **311001-00495**
Samples 2

LABORATORY DETAILS

Manager Jon Dicker
Laboratory SGS Cairns Environmental
Address Unit 2, 58 Comport St
Portsmith QLD 4870

Telephone +61 07 4035 5111
Facsimile +61 07 4035 5122
Email AU.Environmental.Cairns@sgs.com

Samples Received Mon 12/5/2025
Report Due Wed 21/5/2025
SGS Reference **CE181932**

SUBMISSION DETAILS

This is to confirm that 2 samples were received on Monday 12/5/2025. Results are expected to be ready by COB Wednesday 21/5/2025. Please quote SGS reference CE181932 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	2 Soil	Type of documentation received	COC
Date documentation received	13052025	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	None
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

Due to the high volume of samples we are currently processing through the lab, your TAT may be longer than anticipated. If you have any concerns please contact us.

Minimal sample provided for PSD sample #2.

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SAMPLE RECEIPT ADVICE

CE181932

CLIENT DETAILS

Client **PORTS NORTH**

Project **311001-00495**

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury in Soil	Moisture Content	Organotins in Solids	Particle sizing of soils <75µm by hydrometer	Particle sizing of soils by sieving	Total Organic Carbon by Heanes Oxidation	Total Recoverable Elements in Soil/Waste	Tributyltin in Solids by LC-QQQ
001	D2	1	1	2	-	-	1	15	1
002	D4	1	1	2	44	10	1	15	1

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .



SAMPLE RECEIPT ADVICE

CE181932

CLIENT DETAILS

Client PORTS NORTH

Project 311001-00495

SUMMARY OF ANALYSIS

No.	Sample ID	Per- and Polyfluoroalkyl Substances (PFAS) in	Perfluorinated Surfactants in Soil - TOPA	Pesticides / Herbicides in Soils by LC-MS/MS
002	D4	59	51	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .



Appendix D. Introduced marine pest survey logs

General Location of Sampling	Outer Channel
Site Number	OCP-01
Date/Sample Time	7/5/25
Water Depth at Site	Not recorded
Type of Core Sampler	100m Towed Sled
Weather Conditions	Fine
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Seagrass
- Snails
- Shell Fragments
- Blind Mud Goby
- Jelly
- 3 Prawns
- NO Marine pests



General Location of Sampling	Outer Channel
Site Number	OCP-02
Date/Sample Time	7/5/25
Water Depth at Site	Not recorded
Type of Core Sampler	100m Towed Sled
Weather Conditions	Fine
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Seagrass
- Snails
- Prawns
- Jelly Bivalve
- NO Marine pests



General Location of Sampling	Outer Channel
Site Number	OCP-03
Date/Sample Time	7/5/25
Water Depth at Site	Not recorded
Type of Core Sampler	100m Towed Sled
Weather Conditions	Fine
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Seagrass
- Clay clumps
- Shell fragments
- Starfish
- Snails
- Jelly prawns
- NO Marine pests



General Location of Sampling	Outer Channel
Site Number	OCP-04
Date/Sample Time	7/5/25
Water Depth at Site	Not recorded
Type of Core Sampler	100m Towed Sled
Weather Conditions	Fine
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Seagrass
- Snails
- Shell fragments
- Hairtail
- Goby
- NO Marine pests



General Location of Sampling	Outer Channel
Site Number	OCP-05
Date/Sample Time	7/5/25
Water Depth at Site	Not recorded
Type of Core Sampler	100m Towed Sled
Weather Conditions	Fine
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Seagrass
- 10+ crabs
- Prawns
- Spider crab
- Snail
- NO Marine pests



General Location of Sampling	Outer Channel
Site Number	OCP-06
Date/Sample Time	7/5/25
Water Depth at Site	Not recorded
Type of Core Sampler	100m Towed Sled
Weather Conditions	Fine
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Seagrass
- 10+ prawns
- Crab
- 2 x Blind mud goby
- Snails
- Minor shell grit
- NO Marine pests



General Location of Sampling	Outer Channel
Site Number	OCP-07
Date/Sample Time	7/5/25
Water Depth at Site	Not recorded
Type of Core Sampler	100m Towed Sled
Weather Conditions	Fine
Comments	Marine traffic low
Marine Pest Survey	
- Mangrove detritus - Seagrass - Coral - Sea urchin - Snails	- Prawns - Mantis Shrimp - Jellyfish - Bivalve - NO Marine pests

General Location of Sampling	Outer Channel
Site Number	OCP-08
Date/Sample Time	7/5/25
Water Depth at Site	Not recorded
Type of Core Sampler	100m Towed Sled
Weather Conditions	Fine
Comments	Marine traffic low
Marine Pest Survey	
- Mangrove detritus - Seagrass 10+ prawns	- Blind mud goby - Snails - NO Marine pests



General Location of Sampling	Outer Channel
Site Number	OCP-09
Date/Sample Time	7/5/25
Water Depth at Site	Not recorded
Type of Core Sampler	100m Towed Sled
Weather Conditions	Fine
Comments	Marine traffic low

Marine Pest Survey

- | | |
|--|--|
| <ul style="list-style-type: none"> ▪ Mangrove detritus ▪ Seagrass ▪ 10+ prawns ▪ Snails ▪ Trace waste (plastic) | <ul style="list-style-type: none"> ▪ Spider crap ▪ Amphipod ▪ Bivalve shells ▪ NO Marine pests |
|--|--|



General Location of Sampling	Outer Channel
Site Number	OCP-10
Date/Sample Time	7/5/25
Water Depth at Site	Not recorded
Type of Core Sampler	100m Towed Sled
Weather Conditions	Fine
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Seagrass
- Snails
- Hermit crab
- Bivalve shell
- Shell grit
- Prawns
- Trace waste (plastic)
- NO Marine pests



General Location of Sampling	Outer Channel
Site Number	OCP-11
Date/Sample Time	7/5/25
Water Depth at Site	Not recorded
Type of Core Sampler	100m Towed Sled
Weather Conditions	Fine
Comments	Marine traffic low

Marine Pest Survey

- | | |
|---|---|
| <ul style="list-style-type: none"> ▪ Mangrove detritus ▪ Seagrass ▪ 10+ snails ▪ Prawns | <ul style="list-style-type: none"> ▪ Blind mud goby ▪ Bivalve shells ▪ Shell grit ▪ NO Marine Pests |
|---|---|



General Location of Sampling	Outer Channel
Site Number	OCP-12
Date/Sample Time	7/5/25
Water Depth at Site	Not recorded
Type of Core Sampler	100m Towed Sled
Weather Conditions	Fine
Comments	Marine traffic low

Marine Pest Survey

- | | |
|--|---|
| <ul style="list-style-type: none"> ▪ Coral ▪ Shells ▪ Rock ▪ Gravel ▪ Tube Worms ▪ Sea urchin ▪ Crabs | <ul style="list-style-type: none"> ▪ Mangrove detritus ▪ Petrified crab shell ▪ Seagrass ▪ Hard Clay Clumps ▪ Trace Waste ▪ NO Marine pests |
|--|---|



General Location of Sampling	Inner Port
Site Number	02-d
Date/Sample Time	8/5/25
Water Depth at Site	9.3m
Type of Core Sampler	Grab
Weather Conditions	Fine
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Shell fragments
- Clay lumps
- NO Marine pests



General Location of Sampling	Inner Port
Site Number	84-c
Date/Sample Time	8/5/25
Water Depth at Site	11.5m
Type of Core Sampler	Grab
Weather Conditions	Fine with strong run out tide
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Horse mussels
- Shell fragments
- Clay lumps
- NO Marine pests



General Location of Sampling	Inner Port
Site Number	71-a
Date/Sample Time	8/5/25
Water Depth at Site	3.2m
Type of Core Sampler	Grab
Weather Conditions	Fine with strong run out tide
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Shell fragments
- 3 x bivalve shells
- NO Marine pests



General Location of Sampling	Inner Port
Site Number	88-d
Date/Sample Time	8/5/25
Water Depth at Site	11m
Type of Core Sampler	Grab
Weather Conditions	Fine with strong run out tide
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Shell fragments
- Crab
- Coarse gravel
- Clay lumps
- NO Marine pests



General Location of Sampling	Inner Port
Site Number	74-b
Date/Sample Time	8/5/25
Water Depth at Site	10.2m
Type of Core Sampler	Grab
Weather Conditions	Fine with strong run out tide
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Shell fragments
- Gravel
- Shell clumps
- NO Marine pests



General Location of Sampling	Inner Port
Site Number	77-c
Date/Sample Time	8/5/25
Water Depth at Site	5.4m
Type of Core Sampler	Grab
Weather Conditions	Fine with strong run out tide
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Shell fragments
- Barnacles
- 2 suspected bivalve shells
- NO Marine pests



General Location of Sampling	Inner Port
------------------------------	------------

Site Number	78-c
Date/Sample Time	8/5/25
Water Depth at Site	10.2m
Type of Core Sampler	Grab
Weather Conditions	Fine with strong run out tide
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Shell fragments
- Gravel
- Shell clumps
- NO Marine pests



General Location of Sampling	Inner Port
Site Number	97-b
Date/Sample Time	8/5/25
Water Depth at Site	10.7m
Type of Core Sampler	Grab
Weather Conditions	Fine with strong run out tide
Comments	Marine traffic low

Marine Pest Survey

- Shell fragments
- Clay lumps
- NO Marine pests



General Location of Sampling	Inner Port
Site Number	81-d
Date/Sample Time	8/5/25
Water Depth at Site	11.3
Type of Core Sampler	Grab
Weather Conditions	Fine with strong run out tide
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Shell fragments
- NO Marine pests



General Location of Sampling	Inner Port
Site Number	90-c
Date/Sample Time	8/5/25
Water Depth at Site	Approximately 10m
Type of Core Sampler	Grab
Weather Conditions	Fine with strong run out tide
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Shell fragments
- Bivalve shells
- Clay lumps
- NO Marine pests



General Location of Sampling	Inner Port
Site Number	93-d
Date/Sample Time	8/5/25
Water Depth at Site	Approximately 10m
Type of Core Sampler	Grab
Weather Conditions	Fine with strong run out tide
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Shell fragments
- Bivalve shells
- Fine gravel
- NO Marine pests



General Location of Sampling	Inner Port
Site Number	83-d
Date/Sample Time	8/5/25
Water Depth at Site	11m
Type of Core Sampler	Grab
Weather Conditions	Fine with strong run out tide
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Shell fragments
- Oyster barnacles
- NO Marine pests



General Location of Sampling	Inner Port
Site Number	86-c
Date/Sample Time	8/5/25
Water Depth at Site	Approximately 10m
Type of Core Sampler	Grab
Weather Conditions	Fine with strong run out tide
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Shell fragments
- Sea urchin
- Shell
- Clay lumps
- Bivalve shells
- Corroded steel
- NO Marine pests



General Location of Sampling	Inner Port
Site Number	104-c
Date/Sample Time	8/5/25
Water Depth at Site	9.1m
Type of Core Sampler	Grab
Weather Conditions	Fine with strong run out tide
Comments	Marine traffic low

Marine Pest Survey

- Mangrove detritus
- Shell fragments
- Clay lumps
- NO Marine pests



General Location of Sampling	Inner Port
Site Number	106-c
Date/Sample Time	8/5/25
Water Depth at Site	9.1m
Type of Core Sampler	Grab
Weather Conditions	Fine with strong run out tide
Comments	Marine traffic low
Marine Pest Survey	
▪ Shell fragments ▪ Clay lumps ▪ NO Marine pests	



General Location of Sampling	Inner Port
Site Number	Wharf 10
Date/Sample Time	8/5/25
Water Depth at Site	Approximately 10m
Type of Core Sampler	100m Towed Sled
Weather Conditions	SE 20-30Kts
Comments	Marine traffic low
Marine Pest Survey	
▪ Mangrove detritus ▪ Shell fragments ▪ Crabs ▪ Trace waste ▪ Timber, steel & irrigation pipe ▪ Horse mussels on rock ▪ NO Marine pests	
General Location of Sampling	Inner Port
Site Number	Wharf 7
Date/Sample Time	8/5/25
Water Depth at Site	11.5m
Type of Core Sampler	100m Towed Sled
Weather Conditions	SE 20-30Kts
Comments	Marine traffic low
Marine Pest Survey	
▪ Mangrove detritus ▪ Boulders ▪ Shell fragments ▪ Sea urchin ▪ Crabs ▪ Starfish ▪ Trace waste including plastic ▪ NO Marine pests	



General Location of Sampling	Dredge Spoil Disposal Area
Site Number	DSDA 1
Date/Sample Time	7/5/25
Water Depth at Site	Not recorded
Type of Core Sampler	100m Towed Sled
Weather Conditions	Fine
Comments	Marine traffic low
Marine Pest Survey	
▪ Mangrove detritus ▪ Seagrass ▪ Shell fragments ▪ NO Marine pests	

General Location of Sampling	Dredge Spoil Disposal Area
Site Number	DSDA 2
Date/Sample Time	7/5/25
Water Depth at Site	Not recorded
Type of Core Sampler	100m Towed Sled
Weather Conditions	Fine
Comments	Marine traffic low
Marine Pest Survey	
▪ Mangrove detritus ▪ Shell fragments ▪ Coral ▪ Crab ▪ Snails ▪ Silt ▪ NO Marine pests	



General Location of Sampling	Dredge Spoil Disposal Area	
Site Number	DSDA 3	
Date/Sample Time	7/5/25	
Water Depth at Site	Not recorded	
Type of Core Sampler	100m Towed Sled	
Weather Conditions	Fine	
Comments	Marine traffic low	
Marine Pest Survey		
▪ Mangrove detritus ▪ Prawn ▪ Snails ▪ Shell fragments ▪ Jellyfish ▪ Sea pen ▪ NO Marine pests		

General Location of Sampling	Dredge Spoil Disposal Area	
Site Number	DSDA 4	
Date/Sample Time	7/5/25	
Water Depth at Site	Not recorded	
Type of Core Sampler	100m Towed Sled	
Weather Conditions	Fine	
Comments	Marine traffic low	
Marine Pest Survey		
▪ Mangrove detritus ▪ Shell fragments ▪ Seagrass ▪ Snails ▪ NO Marine pests		

Appendix E. Benthic Australia marine pest report

Taxonomic Report

Project No: 2025-0864
Date: 11 June 2025

ABN 70 135 374 122

Attention: Worley Pty Ltd
Level 23, 123 Albert Street
Brisbane
Queensland 4000

Unit 4, Aston Park
82 Callemondah Drive
PO Box 353
Gladstone, QLD 4680
Australia

Mob: 0439 690 550
Email: shona@benthicaustralia.com
www.benthicaustralia.com

To: Nick Bainton
Subject: Ports North 2025 Sediment Characterisation and Marine Pest Survey.

Benthic Australia Pty Ltd is providing you with a taxonomic report for four field-collected macro-invertebrate samples. Unfortunately, specimens were crushed and damaged during courier transport to Benthic Australia’s laboratory. Identifications are provisional. The following table summarises the fauna collected:

Site	Family	Species	Specimens collected	Comments
	Plant Seed Pod	-	1	Not infauna, damaged
IP77c	Mytilidae	Brachidontes c.f. maritimus	2	Specimens are both damaged; tentative identification



IP78c	Mytilidae	<i>Brachidontes sp1</i>	~3	Specimens are badly broken, similar to IP77c	
IP71	Mytilidae	<i>Brachidontes sp1</i>	~3	Specimens are badly broken, similar to IP77c	
PSDA	Caryophylliidae	<i>Heterocyathus aequicostatus</i>	3	Solitary free-living with a small hole allows the commensal worm to move the coral. With prominent costal ribs	

Regards,

Shona Menzies

Shona Menzies MPhil (Marine Ecology)
Director/ Principal Aquatic Ecologist