

Operational Compliance Report

Tomago Resource Recovery Facility and Truck Parking Depot

REMONDIS Australia Pty Ltd

Reporting period: 15 August 2024 – 14 August 2025

Application number: SSD 10447

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Revision	Authors	Approved for issue	Date
A	R.Mulholland	R.Mulholland	November 29 2025

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Executive Summary

This Operational Compliance Report relates to activities undertaken at REMONDIS' Resource Recovery Facility and Truck Parking Depot at 21D and 21F School Drive, Tomago (Lot 11, DP 270328 and Lot 8, DP 270328) and a small amount of land north of 21D School Drive, referred to as Lot 2 / DP 1278541 (the Facility).

This report has been developed in order to satisfy condition C14 of the NSW Government Department of Planning, Industry and Environment Compliance Reporting Post Approval Requirements (2020) for SSD 10447.

The project is currently in its operational phase. The compliance report declaration has been signed by Rachael Mulholland Environment and Sustainability Advisor, and can be found in Appendix C – Compliance Report Declaration Form.

This is the third compliance report submitted under SSD 10447, however no Independent Environmental Audit (IEA) has been undertaken in this reporting period. The next IEA will be undertaken in 2026.

This Operational Compliance Report period relates to the operational period between August 15, 2024, and August 15, 2025. The development has been assessed to be generally compliant with the conditions of Development Consent SSD 10447. No Non compliances were identified during the assessment.

1.0 Introduction

1.1 Site address

REMONDIS Resource Recovery Facility and Truck Parking Depot (Lot 11, DP 270328 and Lot 8, DP 270328) 21D and 21F School Drive, Tomago, NSW 2322.

1.2 Project activities

The Facility commenced operation on 15 August 2022 and has been fully operational since. Activities undertaken throughout the reporting period include:

- Continuation of operations in accordance with Development Consent for SSD 10447
- Standard site operations, including:
 - A fully integrated Materials Recovery Facility for sorting and processing:
 - General solid waste (non-putrescible) (60%); and
 - Construction and demolition waste (non-putrescible) (40%);
 - A Cardboard Baling Facility for source separated cardboard collected from businesses;
 - A Packaged Food Recycling Plant, which accepts packaged foods and drinks, separating the food contents and packaging for recycling;
 - A Garden Organics Primary Processing plant, which receives, decontaminates, and shreds woody garden organics for off-site composting;
 - A Hazardous Waste Recycling Facility, for sorting and aggregating a range of spent solid materials and liquids containing oils and chemicals;
 - A Copper Processing area; and
 - A Metals Recycling Facility.
- Submission of SSD-10447-Mod-1: Additional waste types and increase in processing limits
- Commenced the process of gaining an Occupancy Certificate in Building 2
- Preparation of this Operational Compliance Report

1.3 Project footprint

Figure 1 Project footprint outlines the extent of the project footprint. Approximate site boundaries are shown in yellow for 21D School Drive and in blue for 21F School Drive.

Figure 1 Project footprint



1.4 Key personnel

The names and contact details of the key personnel responsible for the environmental and compliance management of the Facility are listed below in Table 1.

Table 1 Key personnel responsible for the environmental/compliance management of the development

Name	Organisation	Position	Contact Details
Ben Hope	REMONDIS Australia Pty Ltd	General Manager – NSW	Ben.Hope@remondis.com.au
Steven Hassett	REMONDIS Australia Pty Ltd	Senior HSEQ Advisor NSW/ACT	Steven.Hassett@remondis.com.au
Rachael Mulholland	REMONDIS Australia Pty Ltd	Environment and Sustainability Advisor	Rachael.Mulholland@remondis.com.au
Meagan Haidley	REMONDIS Australia Pty Ltd	Branch Manager Tomago	meagan.haidley@remondis.com.au

2.0 Compliance Status Summary

2.1 Descriptors

The following descriptors were used to record the status of each compliance requirement.

Status	Description
Compliant	The proponent has collected sufficient verifiable evidence to demonstrate that all elements of the requirement have been complied with.
Non-compliant	The proponent has identified a non-compliance with one or more elements of the requirement.
Not triggered	A requirement has an activation or timing trigger that has not been met at the phase of the development when the compliance assessment is undertaken, therefore an assessment of compliance is not relevant.

2.2 Total Number of Non-Compliances

Compliance performance was determined from a review of documentation, observations and interviews with site representatives. Table 2 outlines a summary of the status findings. Full details of the findings are documented within Appendix A – Compliance Table.

Table 2 Compliance status findings

Status	Findings
Compliant	85
Non-compliant	0
Not triggered	42
Total requirements	129

3.0 Non-Compliances

Refer to Appendix A – Compliance Table and Table 3 for details of non-compliances identified during the reporting period, including:

- Relevant compliance requirement and its ID;
- Details of the non-compliance, the date/s it occurred and the date/s it was identified;
- The agency, or agencies to whom the non-compliance was reported;
- Any formal enforcement action that has been taken by regulators; and
- The proponent’s response that has been implemented, or is proposed to be, to address the non-compliance, including details of timing for undertaking such actions.

The development has been assessed to be generally compliant with the conditions of Development Consent SSD 10447. No non-compliances were identified.

Table 3 Summary of non-compliances

ID	Current Status	Condition of Consent & Requirement	Details of non-compliance	Actions
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4.0 Previous Report Actions

Actions noted within the previous Operational Compliance Report for the project are summarised below.

Table 4 Summary of previous report actions

ID	Condition of Consent & Requirement	Non-Compliance	Recommendation	Progress	Outcome
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5.0 Incidents

There were no notifiable incidents in the reporting period.

6.0 Complaints

There were no complaints within the reporting period. The Facility's complaint register is available online at the following website:
<https://www.remondis-australia.com.au/locations/nsw/remondis-tomago-rrf>.

7.0 Improvements

REMONDIS seeks to implement the following measures over the next year to improve environmental performance of the development:

Area Action Relates To	Action	Timeline for Completion
Water Monitoring	Review of trigger values in Water Monitoring program.	End of 2026

8.0 Monitoring Data

REMONDIS commissions a monitoring report annually for a period of 12 months from March 24 – March 23. This aligns with the reporting requirements for the Annual Return required by the EPA. The 2025 monitoring report has been attached to this report as an appendix. The results show multiple exceedances of Zinc above the ANZECC guideline trigger values. REMONDIS' external monitoring consultant considers it likely that the zinc contamination is historical contamination and therefore recommends continuing monitoring.

9.0 Impacts of the development

There have been no identified discrepancies between the predicted and actual impacts of the development. The development has generally been carried out in accordance with the approval, with no unforeseen impacts having been identified.

10.0 Appendices

10.1 Appendix A – Compliance Table

Table 5 Compliance Table

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
A1	In addition to meeting the specific performance measures and criteria in this consent, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction and operation of the development, and any rehabilitation required under this consent.	Construction and operational	Individual findings are reported in each condition below.	Compliant
A2	The development may only be carried out: (a) in compliance with the conditions of this consent;	Construction and operational	The development is carried out in compliance with conditions of consent.	Compliant
	(b) in accordance with all written directions of the Planning Secretary;		There is no written direction from the Planning Secretary.	
	(c) in accordance with the EIS and RTS;		The development is carried out in general accordance with the SSD, EIS, and RTS.	
	(d) in accordance with the Development Layout in Appendix 1; and		Development was conducted in general accordance with the Development Layout in Appendix 1.	
	(e) in accordance with the management and mitigation measures in Appendix 2 and		Assessed below as compliant.	
	(f) in accordance with the Modification instruments		Assessed below as compliant	
A3	Consistent with the requirements in this consent, the Planning Secretary may make written directions to the Applicant in relation to:		There is no other written direction from the Planning Secretary than items covered in this SSD consent.	Not triggered

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	(a) the content of any strategy, study, system, plan, program, review, audit, notification, report, or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary; and	Construction and operational		
	(b) the implementation of any actions or measures contained in any such document referred to in condition A3(a).		There is no other written direction from the Planning Secretary than items covered in this SSD consent.	
A4	The conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document listed in condition A2(c) or A2(e). In the event of an inconsistency, ambiguity, or conflict between any of the documents listed in condition A2(c), or A2(e), the most recent document prevails to the extent of the inconsistency, ambiguity, or conflict.	Construction and operational	No inconsistencies, ambiguities or conflicts exist between them, and a document listed in condition A2(c) or A2(e).	Not triggered
A5	This consent lapses five years after the date from which it operates unless the development has physically commenced on the land to which the consent applies before that date.	Operational	The consent is still current.	Not triggered
A6	The Applicant shall not receive more than a total of 132,701 tonnes per year of wastes on site for waste processing.	Operational	Record sighted: Tomago weighbridge record for FY24/25 notes that total tonnage received in this period is 45, 365.01 tonnes.	Compliant
A7	The Applicant must only receive the types of wastes detailed in the Waste Minimisation and Management Plan.	Operational	Weighbridge record indicated wastes received in FY24/25 were in line with WMMP.	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
A7	The date of commencement of each of the following phases of the development must be notified to the Planning Secretary in writing, at least one month before that date, or as otherwise agreed with the Planning Secretary: (a) construction;	Construction	DPE letter (5 November 2021) states “The Department acknowledges receipt of the notification and the intention to commence construction on 2 December 2021.”	Compliant
	(b) operation;	Operational	DPE letter (7 February 2022) states “The Department has reviewed the document and acknowledges that REMONDIS intends to commence operations at the Tomago Resource Recovery Facility on 2 March 2022.” <ul style="list-style-type: none"> Newcert (1 June 2022) Occupation Certificate 21-057-OC1 Newcert (3 August 2022) Occupation Certificate 21-057-OC2 	
	(c) cessation of operations; and	Operational	N/A – still operational	
	(d) decommissioning.	Post-operational	N/A – still operational	
A8	If the construction or operation or decommissioning of the development is to be staged, the Planning Secretary must be notified in writing, at least one month before the commencement of each stage (or other timeframe agreed with the Planning Secretary), of the date of commencement and the development to be carried out in that stage.	All	Notification of construction (Construction Staging Plan dated August 25, 2025) submitted to DPI August 25, 2025. Noting this is not relevant for this compliance report.	Compliant
A9	Within 12 months of the date of commencement of development to which this consent applies, or within another timeframe agreed by the Planning Secretary, the Applicant must surrender the development consent MP 10_0039 for an aluminium and rod conductor manufacturing plant on the site in accordance with the EP&A Regulation.	Construction	<ul style="list-style-type: none"> SSD (12 October 2022) DPE (15 November 2022) Surrender Letter (REMONDIS Resource Recovery Facility Tomago – (SSD-10447). Surrender of Development Consent MP10-0039 – Condition A10. The letter 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
			states that the surrender of MP10-0039 is effective from 26 September 2022.	
A10	<p>Upon the commencement of development to which this consent applies, and before the surrender of existing development consents or project approvals required under condition A10, the conditions of this consent prevail to the extent of any inconsistency with the conditions of those consents or approvals.</p> <p><i>Note: This requirement does not extend to the surrender of construction and occupation certificates for existing and proposed building works under Part 6 of the EP&A Act. The surrender should not be understood as implying that works legally constructed under a valid consent or approval can no longer be legally maintained or used.</i></p>	Construction	Condition noted, noting that the conditions of this consent prevails.	Compliant
A11	<p>Where conditions of this consent require consultation with an identified party, the Applicant must:</p> <p>(a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and</p>	All	<p>Conditions of this consent that require consultation with an identified party are Conditions B8, B26, B35, and B50. The following documents were prepared in consultation with the relevant agencies:</p> <ul style="list-style-type: none"> • Condition B8 – Energy from Waste Management Plan (EfWMP) document and the proof of consultation with EPA. Energy from waste has not commenced. <ul style="list-style-type: none"> ○ Current EfWMP dated 2023-07-17 was submitted to DPI on December 21, 2023 ○ EPA Consultation evidence documented in RE_EPA Letter dated 7 December 2023 submitted to DPI on December 21, 2023 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
			<ul style="list-style-type: none"> Condition B26 – Tomago Resource Recovery Facility and Truck Parking Depot Water Management Plan and the document considers EPL 21636 and Council’s DCP (PSC,2014) requirements. <ul style="list-style-type: none"> Water Management Plan dated 2024-11-07 Submitted to DPI on 2024-12-19. Condition B35 is not triggered in the operational phase as this is a requirement prior to commencement of construction. Condition B50 – Fire engineering brief consultation with FRNSW (email from FRNSW dated 7 April 2020 with a list of concerns, this was addressed and acknowledged by FRNSW on 15 April 2020). 	
	(b) provide details of the consultation undertaken including:			
	(i) the outcome of that consultation, matters resolved and unresolved; and	All	Details of consultation discussed in the review of the above conditions.	
	(ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.	All	No outstanding disagreements noted.	
A12	<p>With the approval of the Planning Secretary, the Applicant may:</p> <p>(a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan, or program);</p> <p>(b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the</p>	All	N/A	Not triggered
			N/A	

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	strategies, plans or programs that are proposed to be combined); and (c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development).		N/A	
A13	If the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.	All	N/A	Not triggered
A14	If approved by the Planning Secretary, updated strategies, plans, or programs supersede the previous versions of them and must be implemented in accordance with the condition that requires the strategy, plan or program.	All	N/A	Not triggered
A15	Before the commencement of construction of the development, the Applicant must: (a) consult with the relevant owner and provider of services that are likely to be affected by the development to make suitable arrangements for access to, diversion, protection, and support of the affected infrastructure; (b) prepare a dilapidation report identifying the condition of all public infrastructure in the vicinity of the site (including roads, gutters, and footpaths);	Construction	SSD-10447 Tomago Resource Recovery Facility Condition A16 letter Dated 25 November 2021 submitted to DPI GCE-DR-1074-1 - DILAPIDATION REPORT - Civil & Remediation Works Lot 21F School Dr Tomago Dated 26 November 2021	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	(c) submit a copy of the dilapidation report to the Planning Secretary and Council.		SSD-10447 Tomago Resource Recovery Facility Condition A16 letter Dated 25 November 2021 submitted to DPI Email to Port Stephens Council- Dilapidation Dated 24 November 2021	
A16	<p>Unless the Applicant and the applicable authority agree otherwise, the Applicant must:</p> <p>(a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the development; and</p> <p>(b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.</p>	Construction and operational	<p>REMONDIS Dilapidation Report to Port Stephens Council and DPE (25 November 2021).</p> <p>No repairs required.</p>	Compliant
A17	<p>All new buildings and structures, and any alterations or additions to existing buildings and structures, that are part of the development, must be constructed in accordance with the relevant requirements of the BCA.</p> <p>Note:</p> <ul style="list-style-type: none"> Under Part 6 of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works. Part 8 of the EP&A Regulation sets out the requirements for the certification of the development. 	Construction and operational	<ul style="list-style-type: none"> Newcert (1 June 2022) Occupation Certificate 21-057-OC1 Newcert (3 August 2022) Occupation Certificate 21-057-OC2 	Compliant
A18	The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.	Construction and operational	<ul style="list-style-type: none"> Tomago Site induction program, which also includes SSD Consent 10447 and EPL. 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
A19	Before the issuing of a construction certificate for any part of the development, a payment of a levy of 1% of the proposed cost of carrying out the development must be paid to Council under section 7.12 of the EP&A Act.	Construction	A20- Payment receipt 29 November 2021 Record of Payment to Port Stephans Council.	Compliant
A20	All plant and equipment used on site, or to monitor the performance of the development, must be: (a) maintained in a proper and efficient condition; and (b) operated in a proper and efficient manner.	Operational	Asset register record for <ul style="list-style-type: none"> Weekly Australian Bale Press Monthly Australian Bale Press 3-monthly Bale Conveyance Baler operated as per manufacturer's requirements 	Compliant
A21	The external walls of all buildings including additions to existing buildings must comply with the relevant requirements of the BCA.	Construction	Newcert (3 August 2022) Occupation Certificate 21-057-OC2 record saved.	Compliant
A22	Prior to the issuing of: (a) any Construction Certificate relating to the construction of external walls (including the installation of finishes and claddings such as synthetic or aluminium composite panels); and (b) an Occupation Certificate, the Applicant must provide the Certifier with documented evidence that the products and systems proposed for use or used in the construction of external walls (including finishes and claddings such as synthetic or aluminium composite panels) comply with the requirements of the BCA.	Construction Construction	No external walls constructed during the project. No external walls constructed during the project.	Not Triggered

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
A23	The Applicant must provide a copy of the documentation given to the Certifier to the Planning Secretary within seven days after the Certifier accepts it.	Construction	N/A	Not Triggered
A24	Before the construction of any utility works associated with the development, the Applicant must obtain relevant approvals from service providers.	Construction	Letter submitted to Department (SSD-10447 Tomago Resource Recovery Facility, Condition A25) Dated 19 November 2021. No construction of Utility works.	Not Triggered
A25	<p>Before the issuing of a Subdivision Works or Construction Certificate for any stage of the development, the Applicant (whether or not a constitutional corporation) is to provide evidence, satisfactory to the Certifier, that arrangements have been made for:</p> <p>(a) the installation of fibre-ready facilities to all individual lots and/or premises in the development to enable fibre to be readily connected to any premises that is being or may be constructed on those lots; and</p> <p>(b) the provision of fixed-line telecommunications infrastructure in the fibre-ready facilities to all individual lots and/or premises in the development demonstrated through an agreement with a carrier.</p>	Construction	<p>No fibre or telecommunications will be required for 21F so not relevant for CC1</p> <p>Existing Fibre connection and telecommunications will be used for services on 21D with no new connections required. Email provided to Certifier to advise that Telstra have been engaged by Secure Agility.</p> <p>CC1 Issued by newcert</p> <p>CC2 Issued by newcert 19 April 2022</p>	Compliant
A26	Before the issuing of the Occupation Certificate for the development the Applicant must demonstrate that the carrier has confirmed in writing it is satisfied that the fibre ready facilities are fit for purpose.	Construction	Telstra confirmation email (24 August 2022) that states “order 2-32350574882 has now been completed and your services are ready for	Non-compliant (Reported in 2023)

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
A27	Before the issuing of the Occupation Certificate for the development, work-as-executed drawings signed by a registered surveyor demonstrating that the stormwater drainage and finished ground levels have been constructed as approved, must be submitted to the Principal Certifier.	Construction	<p>use". The product provided is noted to be "Business IP Ethernet" with effective billing date from 22 August 2022.</p> <ul style="list-style-type: none"> • Newcert (1 June 2022) Occupation Certificate 21-057-OC1 • Newcert (3 August 2022) Occupation Certificate 21-057-OC2 • AIVD PM email to the Certifier (2 December 2021) provides the Northrop (2 December 2021) 21F School Drive, Tomago – Hardstand and Capping Civil Design. • Nearmap images showed that the site layout, ground, and buildings has been on site prior to SSD issuance. • Northrop (2 December 2021) 21F School Drive, Tomago – Hardstand and Capping Civil Design. Letter states that: • Northrop Consulting Engineers Pty Ltd, being professional engineers, certify the civil drawings noted in the attached document transmittal were prepared: <ol style="list-style-type: none"> a) Under the supervision of a professional civil engineer register under NER. b) The design intent documented in these drawings is generally in accordance with the relevant civil requirements of the National Construction Code. c) In accordance with the relevant requirements of the National Construction code, the relevant requirements of AS2890.1, AS2890.2, and 3500 Part 3 'Stormwater Drainage' and relevant Austroads Guidelines; d) To ensure that swept path of the longest vehicle expected to enter and exit the site, as well as manoeuvrability through the site is in accordance with the relevant Austroads Guidelines. 	<p>Compliance Report and Audit)</p> <p>Compliant</p>

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
			<ul style="list-style-type: none"> • Work as Construction drawings (1 April 2022) by David Cant registered surveyor. • Northrop (5 April 2022) letter Re: 21F School Drive, Tomago Hardstand and Capping Civil Construction Certificate. The letter states that “Northrop Consulting Engineers Pty Ltd, being professional engineers, certify that: <ul style="list-style-type: none"> a) Northrop Engineers have undertaken periodic site inspections during the construction phase of the project. b) We have reviewed the WAE drawings supplied and signed by David Cant Surveyors relating to the capping works (dated 28 March 2022). c) Based on the WAE survey and periodic inspections, the stormwater design and levels for the hardstand generally conform with the design plans and instructions given by Northrop Engineers during the construction process.” 	
A28	References in the conditions of this consent to any guideline, protocol, Australian Standard, or policy are to such guidelines, protocols, Standards, or policies in the form they are in as at the date of this consent.	All	Noted	Compliant
A29	However, consistent with the conditions of this consent and without altering any limits or criteria in this consent, the Planning Secretary may, when issuing directions under this consent in respect of ongoing monitoring and management obligations, require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them.	Operational	There has not been any direction from planning.	Not triggered

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
AN1	All licences, permits, approvals and consents as required by law must be obtained and maintained as required for the development. No condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consents.	Operational	<p>All licenses, approvals etc. have been obtained. Licences are tracked and Saved in Internal HSEQ Management System (Donesafe). Key approvals below:</p> <ul style="list-style-type: none"> Environmental Protection Licence NSW EPA 21636 ACMA Apparatus Licence 1935706/2 ARC Refrigerant Trading Authorisation AU065236 	Compliant
B1	The Applicant must assess and classify all liquid and non-liquid wastes to be taken off site in accordance with the latest version of EPA's Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014) and dispose of all wastes to a facility that may lawfully accept the waste.	Operational	<p>All incoming waste is classified in accordance with EPA's Waste Classification Guidelines. Where required REMONDIS requests classification or testing reports to justify classification.</p> <p>Regular testing done onsite before transferring waste to landfill where required.</p> <p>022-HSEQ-PG-001 Tomago RRF - Waste Monitoring Program</p>	Compliant
B2	The Applicant must retain all sampling and waste classification data for 6 years in accordance with the requirements of the EPA.	Operational	<p>Records of sampling and waste classification will be retained for six (6) years. Classification records are saved as the waste is accepted over the weighbridge.</p> <p>022-HSEQ-PG-001 Tomago RRF - Waste Monitoring Program</p>	Compliant
B3	The Applicant must:	Operational	Weighbridge report for FY 2024/2025 shows that only waste authorised by the site Environmental Licence is accepted.	Compliant
	(a) only receive waste on site that is authorised for receipt by an EPL;			
	(b) ensure incoming waste complies with the resource recovery criteria specified in Table 4 of the EPA's Energy from Waste Policy Statement 2020 for each waste stream;		REMONDIS has not sold waste to energy recovery yet as this is still in R&D stage.	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	(c) for construction waste, comply with the requirements of the EPA's Standards for managing construction waste in NSW, or its latest version;		No construction waste has been received.	Compliant
	(d) ensure that any waste received that is not permitted under this consent or the EPL is removed from the site within 48 hours of receipt, or as soon as practicable;		No waste that is not licensed has been received to date.	Compliant
	(e) maintain and operate a calibrated weighbridge to record the volume of all waste brought into the site.		Weighbridge Calibration records	Compliant
B4	The Applicant must not receive or store any asbestos waste on the site.	Operational	Asbestos waste has not been received onsite 022-HSEQ-PG-001 Tomago RRF - Waste Monitoring Program	Compliant
B5	Any waste for processing, storage or resource recovery at the site must be assessed and classified in accordance with the EPA's Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014), or its latest version.	Operational	Waste classified in accordance with requirements 022-HSEQ-PG-001 Tomago RRF - Waste Monitoring Program	Compliant
B6	All waste processing, including storage and materials handling activities must be undertaken inside buildings. All truck loading and unloading and storage of waste materials must only be carried out within the areas designated for these activities, as described in the EIS and RTS.	Operational	Waste processing and storage inside buildings only. No trucks were observed to arrive onsite. 022-HSEQ-PG-001 Tomago RRF - Waste Monitoring Program	Compliant
B7	The Applicant must ensure the height of baled material does not exceed four metres in total.	Operational	Baled material observed to be below four metres in height. 022-HSEQ-PG-001 Tomago RRF - Waste Monitoring Program	Compliant
B8	Prior to the commencement of operation, the Applicant must prepare an Energy from Waste Management Plan (EfWMP) for the handling and distribution of eligible waste fuels, to the satisfaction of the Planning Secretary. The EfWMP must	Operational	022-HSEQ-MP-005 Tomago RRF - Energy from Waste Management Plan	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	<p>form part of the OEMP and be prepared in accordance with condition C5. The EfWMP must:</p> <p>(a) be prepared by a suitably qualified and experience person(s), in consultation with the EPA</p>			
	<p>(b) detail procedures for the handling and management of eligible waste fuels for energy recovery, including:</p> <p>(i) procedures to ensure full and ongoing compliance with Table 4 the NSW Energy from Waste Policy Statement 2020;</p>		<ul style="list-style-type: none"> 022-HSEQ-MP-005 Tomago RRF - Energy from Waste Management Plan. Section 5, 6, and 7 address this condition. 	Compliant
	<p>(ii) how the Applicant will compile and calculate percentages of incoming waste streams every three months and retain this information for submission to the EPA on request;</p>		<ul style="list-style-type: none"> 022-HSEQ-MP-005 Tomago RRF - Energy from Waste Management Plan Section 7 addresses this condition. 	Compliant
	<p>(iii) a procedure for providing evidence to the EPA that incoming material was previously going to landfill; and</p>		<ul style="list-style-type: none"> 022-HSEQ-MP-005 Tomago RRF - Energy from Waste Management Plan Section 1.1 addresses this condition. 	Compliant - 78
	<p>(iv) a procedure for the management of out of specification waste.</p>		<ul style="list-style-type: none"> 022-HSEQ-MP-005 Tomago RRF - Energy from Waste Management Plan. Section 6.1 addresses this condition. it is stated that "Where the load is identified as containing, or is reasonably suspected to contain, any asbestos waste, reject the entire load of waste by directing the driver to immediately leave the facility and record the information required in Rejected Load Register" 	
B9	<p>The Applicant must:</p> <p>(a) not commence operation until the EfWMP is approved by the Planning Secretary;</p>	Operational	<ul style="list-style-type: none"> DPE (2 August 2022) Operational Environmental Management Plan for REMONDIS Resource Recovery Facility Tomago (Condition C5 of SSD-10447). The letter acknowledged OEMP and its subplans (Energy from Waste Management Plan, Water Management Plan, 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	(b) implement the most recent version of the EfWMP approved by the Planning Secretary for the operational life of the development.		<p>and Air Quality Management Plan). DPE letter also states that the document contains the information required by the conditions of approval, documents were prepared in consultation with the EPA and Council, where required.</p> <ul style="list-style-type: none"> Newcert (1 June 2022) Occupation Certificate 21-057-OC1 Newcert (3 August 2022) Occupation Certificate 21-057-OC2 	
	From the commencement of operation, the Applicant must implement a Waste Monitoring Program for the development. The program must:		<ul style="list-style-type: none"> REMONDIS (20 April 2022 DRAFT) Tomago Resource Recovery Facility, Waste Monitoring Program. Prepared by E. Leahy (REMONDIS Project Manager at the time, who holds a Bachelor of Science degree in Environmental Science and has worked in environmental consulting prior joining REMONDIS) and approved by H. McCarthy (REMONDIS former National Environment and Sustainability Manager) at time of publication. 	Compliant
B10	(a) be prepared by a suitably qualified and experienced person(s) prior to the commencement of operation;			
	(b) include suitable provisions to monitor the:	Operational		
	(i) quantity, type, and source of waste received on site;		022-HSEQ-PG-001 Tomago RRF - Waste Monitoring Program	Compliant
(ii) quantity, type, and quality of the outputs produced on site; and	022-HSEQ-PG-001 Tomago RRF - Waste Monitoring Program		Compliant	
	(c) ensure that staff receive adequate training in order to be able to recognise and handle any prohibited waste including asbestos.		022-HSEQ-PG-001 Tomago RRF - Waste Monitoring Program	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
B11	Prior to the commencement of any earthworks or remediation works for the development on site, the Applicant must engage a Site Auditor accredited under the Contaminated Land Management Act 1997 NSW Site Auditor Scheme.	Construction	<ul style="list-style-type: none"> GHD (20 May 2022) Site Audit Report prepared for REMONDIS Tomago by Mr Ian Gregson of GHD, an NSW EPA accredited site auditor. 	Compliant
B12	Upon completion of the remediation works and prior to the commencement of operation, the Applicant must submit to the Planning Secretary, a Site Audit Report, and a Site Audit Statement, prepared in accordance with the NSW Contaminated Land Management - Guidelines for the NSW Site Auditor Scheme 2017, which demonstrates the site is suitable for its intended commercial/industrial land use with the implementation of a long term environmental management plan.	Construction	<ul style="list-style-type: none"> GHD (20 May 2022) Site Audit Report prepared for REMONDIS Tomago by Mr Ian Gregson of GHD, a NSW EPA accredited site auditor. DPE (27 June 2022) REMONDIS Resource Recovery Facility Tomago (SSD10447) Approval of Site Audit Report and Statement and Long Term Environmental Management Plan – Conditions B12 and B17. The letter states that the conditions are satisfied. 	Compliant
B13	Prior to the commencement of remediation works, the Applicant must prepare a detailed design for the capping layer for zinc impacted soils. The detailed design must:	Construction	<ul style="list-style-type: none"> GHD (20 May 2022) Site Audit Report prepared for REMONDIS Tomago by Mr Ian Gregson of GHD, an NSW EPA accredited site auditor, include review of design of capping later for zinc impacted soil. 	Compliant
	(a) be prepared by a suitably qualified and experienced engineer;		<ul style="list-style-type: none"> GHD (20 May 2022) Site Audit Report prepared for REMONDIS Tomago by Mr Ian Gregson of GHD, an NSW EPA accredited site auditor. 	
	(b) be reviewed and approved by the Site Auditor;		<ul style="list-style-type: none"> GHD (20 May 2022) Site Audit Report prepared for REMONDIS Tomago by Mr Ian Gregson of GHD, an NSW EPA accredited site auditor. 	
	(c) include details of earthworks quantities, site design levels, grading and drainage, selection of an appropriate impermeable geotextile layer and a material movement plan;		<ul style="list-style-type: none"> GHD (20 May 2022) Site Audit Report prepared for REMONDIS Tomago by Mr Ian Gregson of GHD, an NSW EPA accredited site auditor. 	

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	(d) include procedures for verifying that capping layer construction is completed in accordance with the approved RAP; and		<ul style="list-style-type: none"> GHD (20 May 2022) Site Audit Report prepared for REMONDIS Tomago by Mr Ian Gregson of GHD, an NSW EPA accredited site auditor, which includes compliance with RAP. 	
	(e) detail alternative measures, such as extending the area of capping, if the required volumes from the remediation area cannot be accommodated under the proposed truck parking area.		<ul style="list-style-type: none"> GHD (20 May 2022) Site Audit Report prepared for REMONDIS Tomago by Mr Ian Gregson of GHD, an NSW EPA accredited site auditor. 	
B14	Prior to the commencement of remediation works, the Applicant must provide written evidence from the Site Auditor, confirming the detailed design of the capping layer has been prepared in accordance with Condition B13.	Construction	<ul style="list-style-type: none"> GHD (20 May 2022) Site Audit Report prepared for REMONDIS Tomago by Mr Ian Gregson of GHD, an NSW EPA accredited site auditor. 	Compliant
B15	The Applicant must remediate the site in accordance with the Remedial Action Plan (RAP) prepared by JM Environments dated 17 July 2021 and relevant guidelines produced or approved under the Contaminated Land Management Act 1997. Remediation works must include the pre-remediation groundwater monitoring detailed in the RAP and must be undertaken by a suitably qualified and experienced consultant(s).	Construction	<ul style="list-style-type: none"> GHD (20 May 2022) Site Audit Report prepared for REMONDIS Tomago by Mr Ian Gregson of GHD, an NSW EPA accredited site auditor. 	Compliant
B16	Within two months of completion of the remediation works, the Applicant must submit a Remediation and Validation Report to the satisfaction of the Planning Secretary, which has been prepared, or reviewed and approved, by a consultant certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) Scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme.	Construction	<ul style="list-style-type: none"> REMONDIS (16 May 2022) Long Term Environmental Management Plan, Tomago Resource Recovery Facility. James McMahon - Director - JM Environments with CEnvP SC41110 qualification 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
B17	Prior to the completion of the Site Audit Report and Site Audit Statement for the remediation works, the Applicant must prepare a Long-Term Environmental Management Plan (LTEMP) for the site. The LTEMP must:	Operational	<ul style="list-style-type: none"> REMONDIS (16 May 2022) Long Term Environmental Management Plan, Tomago Resource Recovery Facility. James McMahon - Director - JM Environments with CEnvP SC41110 qualification GHD (20 May 2022) Site Audit Report prepared for REMONDIS Tomago by Mr Ian Gregson of GHD, an NSW EPA accredited site auditor. 	Compliant
	(a) be prepared by a suitably qualified and experienced consultant;			
	(b) be reviewed and approved by the Site Auditor;			
	(c) detail measures to identify and monitor contamination remaining on site;			
	(d) detail the post-remediation groundwater monitoring program;			
	(e) include a program for ongoing review to ensure that the LTEMP remains contemporary with relevant environmental standards;			
	(f) include mechanisms to report results to Council and EPA.		Provided in Section 9	
			Provided in Section 11.1	
			Provided in Section 2.2	
			Provided in Section 11.1	
B18	Upon completion of the Site Audit Statement and Site Audit Report, the Applicant must:	Operational	LTEMP being implemented. Groundwater Monitoring conducted Monthly <ul style="list-style-type: none"> Port Stephens Council (31 August 2023) PLANNING CERTIFICATE PURSUANT TO SECTION 10.7 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979 for Parcel No. 38076 LOT: 8 DP: 270328 and Parcel No: 45464 LOT: 11 DP: 270328. Both 	Compliant
	(a) implement the approved LTEMP;			
	(b) provide evidence to the Planning Secretary the LTEMP is listed on the relevant planning certificate for the land, issued under section 10.7 of the EP&A Act, for the development.			

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
			documents for both parcels of land states "Council has been notified a Long Term Environmental Management Plan applies to the land".	
B19	Prior to the commencement of any construction for the development, the Applicant must install and maintain suitable erosion and sediment control measures on-site, in accordance with the relevant requirements of the Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book (Landcom, 2004) guideline and the Erosion and Sediment Control Plan included in the CEMP required by condition C2.	Construction	This is outside the scope of the operational stage, noting that this could not be observed during the operational stage.	Not triggered
B20	Prior to the commencement of remediation works and construction at 21F School Drive, the Applicant must install bunding to contain runoff for a 24-hour rainfall event at 1% AEP for remediation works and construction.	Construction	This is outside the scope of the operational stage, noting that this could not be observed during the operational stage.	Not triggered
B21	The development must comply with section 120 of the POEO Act, which prohibits the pollution of waters, except as expressly provided for in an EPL.	Operational	No waste discharge is conducted from the site. Water for vehicle wash is collected into an oil water separator. The treated water is collected in a tank for collection and offsite disposal. The oil is collected and placed into the oil tank for offsite disposal.	Compliant
B22	The Applicant must obtain relevant water access licence/s in accordance with the Water Management Act 2000, if the development will intercept groundwater	Operational	Do not currently intend to extract groundwater or surface waste, therefore do not seek a water licence for this Site.	Not triggered
B23	The Applicant must monitor groundwater on a monthly basis during remediation and post-remediation in accordance with, and for the duration detailed in, the RAP.	Operational	Monthly Groundwater Monitoring Summary Report prepared annually in March.	Compliant
B24	The Applicant must design, construct, and operate a stormwater management system for the development that:	Operational		Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	<p>(a) is designed by a suitably qualified and experienced person(s), in accordance with the conceptual design in the EIS;</p> <hr/> <p>(b) be in accordance with applicable Australian Standards;</p> <hr/> <p>(c) designed in accordance with Australian Rainfall and Runoff (Engineers Australia, 2016) and Managing Urban Stormwater: Council Handbook (EPA, 1997) guidelines;</p> <hr/> <p>(d) designed to:</p> <p style="padding-left: 40px;">(i) divert existing clean surface water around operational areas of the site;</p> <hr/> <p style="padding-left: 40px;">(ii) prevent discharge of leachate from the buildings into the stormwater system; and</p> <hr/> <p style="padding-left: 40px;">(iii) capture all wastewater from the truck wash.</p> <hr/> <p>(e) designed to ensure peak stormwater flows from the site do not exceed pre-development flows in any downstream areas for 24-hour rainfall events up to and including the 1% AEP;</p> <hr/> <p>(f) achieves the pollutant reduction targets in Port Stephens Development Control Plan 2014.</p>		<ul style="list-style-type: none"> Northrop (23 February 2024) Re: 21F School Drive, Tomago – Hardstand and Capping Civil Design Construction Certificate No. 2. Letter states that: “We, Northrop Engineers Pty Ltd, being professional engineers, certify that... based on the WAE survey and periodic inspections, the stormwater design and levels for the hardstand generally conform with the design plans and has been installed and is operating in accordance with the requirements of the Development Consent (10447).” Photographs of the completed OSD system dated May 2023. Document in the document list include Civil Notes, Site Plan, Concept sediment and erosion control, Sediment and erosion control details, Bulk earthworks plan, Long sections, Civil works plan, Civil detail sheet 1, Materials movement and remediation staging plan. 	
B25	<p>Prior to the commencement of operation, the Applicant must obtain approval from Council under Section 68 of the Local Government Act 1993 for use of the on-site sewage management system for the development. The Applicant must provide a report from a suitably qualified consultant demonstrating the existing on-site sewage management</p>	Operational	<ul style="list-style-type: none"> Northrop (27 August 2020) Soil and Water Management Plan for 21D and 21F School Drive, Tomago. Port Stephens Council, Renewal of Approval to Operate a System of Sewage Management. “Date from which approval operates: 1 September 2021. Date on which approval lapses: 31 August 2022. 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	system complies with the requirements of Port Stephens Development Assessment Framework.		<p><i>This approval is to operate a system of sewage management in the Port Stephens Council Local Government area, required under the Local government Act 1993 (Section 68)."</i></p> <ul style="list-style-type: none"> • Envirocycle/AWTS (23 June 2023), AWTS Service Status. In this letter, the NSW Sales and Operation Manager of AWTS Maintenance Services Pty Ltd states that: <ol style="list-style-type: none"> 1. Treatment System is Operational and Satisfactory ("System meets standards set in council approval. Operating as designed"). 2. Ongoing Management is Active and "System is serviced every 3 months as per LGA standards/requirements. Copy of service report is provided to both client and council." 	
B26	<p>Prior to the commencement of operation of the development, the Applicant must prepare a Water Management Plan to the satisfaction of the Planning Secretary. The Water Management Plan must form part of the OEMP required by condition C5 and must:</p> <p>(a) be prepared by a suitably qualified and experienced person(s);</p> <p>(b) be prepared in consultation with Council and EPA;</p>	Operational	<ul style="list-style-type: none"> • REMONDIS (14 July 2022) Tomago Resource Recovery Facility and Truck Parking Depot Water Management Plan Document was prepared by Eric Wingate, SMEC • DPE (2 August 2022) Operational Environmental Management Plan for REMONDIS Resource Recovery Facility Tomago (Condition C5 of SSD-10447). The letter acknowledged OEMP and its subplans (Energy from Waste Management Plan, Water Management Plan, and Air Quality Management Plan) submitted on 2 June 2022. DPE letter also states that the document contains the information required by the conditions of approval, documents were prepared in consultation with the EPA and Council, where required. <p>EPL 21636 is referred to.</p> <p>Council's DCP requirements were referred to and a MUSIC model (version 6) was produced as part of the SWMP (Northrop, 2020), to assess the</p>	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
			performance of the additional stormwater treatment infrastructure to be installed as part of the proposed development. Approval from EPA and Council provided for plan. Current Council approval dated 28 August 2025 Current EPA approval dated September 9 2025	
	(c) provide details of:			
	(i) water use, metering, disposal, and management on-site;		Provided in Section 3.2	
	(ii) the number and location of piezometers on-site;		Provided in Section 5.1	
	(iii) the water licence requirements for the development;		Provided in Section 2.3	
	(iv) the management of wastewater streams on-site including leachate and fire water;		Provided in Section 3.2.1	
	(d) contain a Surface Water Management Plan, including:			
	(i) a program to monitor:			
	• surface water flows and quality;		Provided in Section 4.0, 4.2, 6.0	
	• surface water storage and use; and			
	• detention basin operation;			
	(e) contain a Groundwater Management Plan, including:			
	(i) baseline data on groundwater levels and quality;		Provided in Section 5.0, 5.1	
	(ii) a program to monitor groundwater levels and quality on a monthly basis;		Provided in Section 5.2, 5.3	

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	(iii) groundwater impact assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts; and		Provided in Section 5.3.1	
	(iv) a protocol for the investigation and mitigation of identified exceedances of the groundwater impact assessment criteria.		Provided in Section 5.3.1	
B27	<p>The Applicant must:</p> <p>(a) not commence operation until the Water Management Plan required by condition B26 is approved by the Planning Secretary; and</p>	Operational	<ul style="list-style-type: none"> DPE (2 August 2022) Operational Environmental Management Plan for REMONDIS Resource Recovery Facility Tomago (Condition C5 of SSD-10447). The letter acknowledged OEMP and its subplans (Energy from Waste Management Plan, Water Management Plan, and Air Quality Management Plan). DPE letter also states that the document contains the information required by the conditions of approval, documents were prepared in consultation with the EPA and Council, where required. Newcert (1 June 2022) Occupation Certificate 21-057-OC1 Newcert (3 August 2022) Occupation Certificate 21-057-OC2 	Compliant
	(b) implement the most recent version of the Water Management Plan approved by the Planning Secretary for the duration of the development.		Current approved version implemented. 022-HSEQ-MP-006 Tomago RRF - Water Management Plan September 29 2025	
B28	The Applicant must install and operate equipment in line with best practice to ensure that the development complies with all load limits, air quality criteria/air emission limits and air quality monitoring requirements as specified in the EPL applicable to the site.	Operational	<ul style="list-style-type: none"> DPE (8 July 2022) Odour control installation letter. REMONDIS (27 May 2022) SSD-10447 Tomago Resource Recovery Facility Condition B33 for your approval 	Compliant
B29	The Applicant must ensure the development does not cause or permit the emission of any offensive odour (as defined in the POEO Act).	Operational	No complaints have been received since commencement of operations.	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
B30	The Applicant must take all reasonable steps to minimise dust and odour generated during all works authorised by this consent.	Operational	No odour and dust issues at the site.	Compliant
B31	The Applicant must ensure that: (a) all material handling, processing, storage surfaces and truck routes are sealed;	Operational	All surfaces accessible for truck routes, handling, processing, and storage areas are sealed.	Compliant
	(b) truck routes are regularly cleaned to remove dirt; water sprays are used on road surfaces to reduce visible dust plumes and trucks do not track dirt onto the public road network;		Truck routes observed to be in clean condition.	
	(c) all trucks entering or leaving the site with loads have their loads covered, except during material inspection, unloading and loading; and		Trucks are required to cover loads.	
	(d) truck idling is minimised where possible.		Trucks are discouraged from idling onsite	
B32	Prior to the commencement of construction of the food de-packaging plant, the Applicant must provide a detailed design of the odour control unit on the food de-packaging plant, to the satisfaction of the Planning Secretary. The design must include:	Construction	This is outside the scope of the operational stage.	Not triggered
	(a) details of the treatment method;		This is outside the scope of the operational stage.	
	(b) size and capacity of the unit;		This is outside the scope of the operational stage.	
	(c) details of the control efficiencies that the unit would achieve; and		This is outside the scope of the operational stage.	
	(d) performance monitoring maintenance procedures.	This is outside the scope of the operational stage.		

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
B33	Prior to the commencement of operation, the Applicant must provide written evidence to the satisfaction of the Planning Secretary, demonstrating that odour controls, such as a carbon filter drum or equivalent odour control measure, has been installed for waste oil unloading activities, to minimise benzene emissions.	Operational	<ul style="list-style-type: none"> DPE (8 July 2022) REMONDIS Resource Recovery Facility Tomago (SSD-10447) Condition B33 Odour Controls. Letter states that Department has reviewed the information and is satisfied that the installation of the carbon filter drums has adequately fulfilled the relevant condition. 	Compliant
B34	Prior to the commencement of construction of the food de-packaging plant, the Applicant must prepare an Air Quality Verification Report (AQVR), prepared by a suitably qualified and experienced air quality consultant, and submitted to the satisfaction of the Planning Secretary.	Construction	This is outside the scope of the operational stage.	Not triggered
B35	The AQVR required by condition B34 must:	Construction	This is outside the scope of the operational stage.	Not triggered
	(a) be prepared in consultation with the EPA;		This is outside the scope of the operational stage.	
	(b) be conducted in accordance with the EPA's Approved Methods for the Modelling and Assessment of Air Pollutants in NSW; and		This is outside the scope of the operational stage.	
	(c) be based on the final design of the development, including the odour control unit required by Condition B32.		This is outside the scope of the operational stage.	
B36	Prior to the commencement of operation, the Applicant must prepare an Air Quality Management Plan (AQMP) for the development, to the satisfaction of the Planning Secretary. The AQMP must form part of the OEMP required by Condition C5 and must: (a) be prepared by a suitably qualified and experienced person(s);	Operational	<ul style="list-style-type: none"> REMONDIS (14 June 2022) Resource Recovery Facility and Truck Parking Depot – Air Quality and Odour Management Plan. Prepared by Melissa Gilbert, a Consultant with BEnvSc DPE (2 August 2022) Operational Environmental Management Plan for REMONDIS Resource Recovery Facility Tomago (Condition C5 of SSD-10447). The letter acknowledged OEMP and its subplans (Energy from Waste Management Plan, Water Management Plan, and Air Quality Management Plan). DPE letter also states that the document contains the information required by the conditions of approval, documents were 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
			prepared in consultation with the EPA and Council, where required.	
	(b) detail and rank all significant emission sources from the development;		<ul style="list-style-type: none"> 022-HSEQ-MP-019 Tomago RRF - Air Quality and Odour Management Plan 	
	(c) identify the control measures, including proactive and reactive mitigation measures that will be implemented for each emission source;		<ul style="list-style-type: none"> 022-HSEQ-MP-019 Tomago RRF - Air Quality and Odour Management Plan 	
	(d) include the following for each emission source:		<ul style="list-style-type: none"> 022-HSEQ-MP-019 Tomago RRF - Air Quality and Odour Management Plan 	
	(i) risk assessment;		<ul style="list-style-type: none"> 022-HSEQ-MP-019 Tomago RRF - Air Quality and Odour Management Plan 	
	(ii) key performance indicator;		<ul style="list-style-type: none"> 022-HSEQ-MP-019 Tomago RRF - Air Quality and Odour Management Plan 	
	(iii) monitoring method;		<ul style="list-style-type: none"> 022-HSEQ-MP-019 Tomago RRF - Air Quality and Odour Management Plan 	
	(iv) location, frequency, and duration of monitoring;		<ul style="list-style-type: none"> 022-HSEQ-MP-019 Tomago RRF - Air Quality and Odour Management Plan 	
	(v) record keeping;		<ul style="list-style-type: none"> 022-HSEQ-MP-019 Tomago RRF - Air Quality and Odour Management Plan 	
	(vi) response mechanism and contingency measures; and		<ul style="list-style-type: none"> 022-HSEQ-MP-019 Tomago RRF - Air Quality and Odour Management Plan 	

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	(vii) compliance reporting.		<ul style="list-style-type: none"> 022-HSEQ-MP-019 Tomago RRF - Air Quality and Odour Management Plan 	
B37	<p>The Applicant must:</p> <p>(a) not commence operation until the AQMP required by Condition B36 is approved by the Planning Secretary; and</p> <hr/> <p>(b) implement the most recent version of the AQMP approved by the Planning Secretary for the duration of operation.</p>	Operational	<ul style="list-style-type: none"> DPE (2 August 2022) Operational Environmental Management Plan for REMONDIS Resource Recovery Facility Tomago (Condition C5 of SSD-10447). The letter acknowledged OEMP and its subplans (Energy from Waste Management Plan, Water Management Plan, and Air Quality Management Plan). DPE letter also states that the document contains the information required by the conditions of approval, documents were prepared in consultation with the EPA and Council, where required. Newcert (1 June 2022) Occupation Certificate 21-057-OC1 Newcert (3 August 2022) Occupation Certificate 21-057-OC2 <hr/> <p>Current Approved version dated October 2, 2025. Approved October 31 2025</p>	Compliant
B38	<p>The Applicant must ensure:</p> <p>(a) internal roads, driveways and parking (including grades, turn paths, sight distance requirements, aisle widths, aisle lengths and parking bay dimensions) associated with the development are constructed and maintained in accordance with the latest version of AS 2890.1:2004 Parking facilities Off-street car parking (Standards Australia, 2004), AS 2890.2:2018 Parking facilities Off-street commercial vehicle facilities (Standards Australia, 2018) and AS 2890.6.2009 Parking facilities Off-street parking for people with disabilities (Standards Australia, 2009)</p> <hr/> <p>(b) the swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, is in accordance with the relevant AUSTRROADS guidelines;</p>	Operational	<p>Internal roads, driveways, and parking were already built prior to issue of the SSD. The architectural drawings by EJE Architecture are as built drawings.</p> <ul style="list-style-type: none"> EJE Architecture drawings prepared for CC: <ol style="list-style-type: none"> Drawing No A-000 Rev L 17 March 2022 – COVERSHEET Drawing No A-002 Rev N 17 March 2022 – SITE/ROOF PLAN Drawing No A-002 Rev Q 17 March 2022 SITE PLAN – MOVEMENT & ACCESS EJE states that drawings are in accordance with DA Conditions A18 and B38. OC1 and OC2 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
			<ul style="list-style-type: none"> • Northrop (6 December 2021) 21F School Drive, Tomago – Hardstand and Capping Civil Design. Letter states that: <i>“Northrop Consulting Engineers Pty Ltd, being professional engineers, certify the civil drawings noted in the attached document transmittal were prepared:</i> <ul style="list-style-type: none"> a) <i>Under the supervision of a professional civil engineer register under NER.</i> b) <i>The design intent documented in these drawings is generally in accordance with the relevant civil requirements of the National Construction Code.</i> c) <i>In accordance with the relevant requirements of the National Construction code, the relevant requirements of AS2890.1, AS2890.2, and 3500 Part 3 ‘Stormwater Drainage’ and relevant Austroads Guidelines;</i> d) <i>In accordance with Condition B24 and B38 of the Development Consent, where relevant to the hardstand parking area (Lot 21F).”</i> • Northrop (2 December 2021) 21F School Drive, Tomago – Hardstand and Capping Civil Design. Letter states that: Northrop Consulting Engineers Pty Ltd, being professional engineers, certify the civil drawings noted in the attached document transmittal were prepared: <ul style="list-style-type: none"> e) Under the supervision of a professional civil engineer register under NER. f) The design intent documented in these drawings is generally in accordance with the relevant civil requirements of the National Construction Code. g) In accordance with the relevant requirements of the National Construction code, the relevant requirements of AS2890.1, AS2890.2, and 3500 Part 	

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	(c) the development does not result in any vehicles queuing on the public road network;		3 'Stormwater Drainage' and relevant Austroads guidelines; h) To ensure that swept path of the longest vehicle expected to enter and exit the site, as well as manoeuvrability through the site is in accordance with the relevant Austroads guidelines.	
	(d) heavy vehicles and bins associated with the development are not parked on local roads or footpaths in the vicinity of the site;		No vehicles observed to be queuing on the public road network.	
	(e) all vehicles are wholly contained on site before being required to stop;		No heavy vehicles or bins observed to be parked on local roads or footpaths.	
	(f) all loading and unloading of materials is carried out on-site; and		All vehicles observed to be wholly contained on the site.	
	(g) the proposed turning areas in the car park are kept clear of any obstacles, including parked cars, at all times.		No loading and unloading of materials were observed to be carried out onsite. Loading area was observed to be well into the site boundary.	
B39	The Applicant must provide sufficient parking facilities on-site, including for heavy vehicles and for site personnel, to ensure that traffic associated with the development does not utilise public and residential streets or public parking facilities.	Operational	Sufficient parking onsite	Compliant
B40	The Applicant must comply with the hours detailed in Table 1, unless otherwise agreed in writing by the Planning Secretary.	Operational	Sign in/sign out book located at the reception for the operational phase only, noting that the consent allows for 24-hour operation.	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
B41	Works outside of the hours identified in condition B40 may be undertaken in the following circumstances:	Operational	N/A as consent allows for 24/7 operation	Not triggered
	(a) works that are inaudible at the nearest sensitive receivers;		N/A as consent allows for 24/7 operation	
	(b) works agreed to in writing by the Planning Secretary;		N/A as consent allows for 24/7 operation	
	(c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or		N/A as consent allows for 24/7 operation	
	(d) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.		N/A as consent allows for 24/7 operation	
B42	The Applicant must ensure that noise generated by operation of the development does not exceed the noise limits in Table 2.	Operational	<ul style="list-style-type: none"> Intercity Hearing Safety (15 Dec 2022) Noise Survey, which confirmed potential risk of noise is minimal. 	Compliant
B43	The development must be constructed to achieve the construction noise management levels detailed in the Interim Construction Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the management and mitigation measures included in the CEMP in accordance with condition C2.	Construction	This is outside the scope of the operational stage.	Not triggered
B44	The quantities of dangerous goods stored and handled at the site must be below the threshold quantities listed in the Department of Planning's Hazardous and Offensive Development Application Guidelines – Applying SEPP 33 at all times.	Operational	Storage does not exceed SEPP 33 thresholds.	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
B45	Dangerous goods, as defined by the Australian Dangerous Goods Code, must be stored, and handled strictly in accordance with: (a) all relevant Australian Standards;	Operational	<ul style="list-style-type: none"> Dangerous goods stored in the workshop area and in the chemical storage area on paved surface. Above ground diesel tank and waste oil tanks were observed to be present in the refuelling area, on paved surface. Spill kits onsite The diesel tanks has a plate stating compliance to AS 1692-2006 and AS 1657-1992 and AS 1940-2017 UL 142 and ULC-S601. Tank Solutions Quotation Proposal states that the tanks were certified to AS1692-2006 and AS 1657-1992 and AS 1940-2017 UL 142. 	Compliant
	(b) for liquids, a minimum bund volume requirement of 110% of the volume of the largest single stored volume within the bund; and		<ul style="list-style-type: none"> The chemical drums stored on bunds. Tank Solutions Quotation Proposal states that the tanks were certified to AS1692-2006 and AS 1657-1992 and AS 1940-2017 UL 142. 	
	(c) the Environment Protection Manual for Authorised Officers: Bunding and Spill Management – technical bulletin (EPA, 1997).		<ul style="list-style-type: none"> Bunding onsite Spill kits onsite All chemicals were stored on paved areas. 	
B46	In the event of an inconsistency between the requirements of conditions B45(a) to B45(c), the most stringent requirement must prevail to the extent of the inconsistency.	Operational	Noted.	Compliant
B47	The Applicant must store all chemicals, fuels and oils used on-site in appropriately bunded areas in accordance with the requirements of all relevant Australian Standards, and/or EPA's Storing and Handling of Liquids: Environmental Protection – Participants Manual (Department of Environment and Climate Change, 2007).	Operational	See B45.	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
B48	<p>Prior to the commencement of operation, the Applicant must prepare and submit to the Planning Secretary an Emergency Plan for the development. The Emergency Plan must:</p> <p>(a) be prepared in accordance with Australian Standard AS 7345 – 2010 Planning for emergencies in facilities;</p>	Operational	<ul style="list-style-type: none"> REMONDIS (11 March 2022) Tomago Resource Recovery Facility Emergency Response Management Plan 	Compliant
	<p>(b) include procedures for bushfire evacuation and management planning, consistent with the recommendations of the Bushfire Assessment Report: Proposed Recycling Facility, Lot 7 and Lot 11 DP 270328, 21D and 21F School Drive, Tomago prepared by Newcastle Bushfire Consulting dated 11 November 2020; and</p>		<p>Provided in Sections 6.1.1 and 11.2</p>	Compliant
	<p>(c) include flood risk management procedures including:</p> <p>(i) clear triggers for implementing flood risk mitigation actions, such as flood heights at a local gauge or flood warnings from the Bureau of Meteorology;</p>		<p>Port Stephens Council flood map, the property is not considered to be in a flood-prone area.</p>	Compliant
	<p>(ii) flood emergency responses, consistent with the State Emergency Service local flood plan;</p>			
	<p>(iii) predicted flood levels;</p>			
	<p>(iv) flood warning time and flood notification;</p>			
<p>(v) contact details for the State Emergency Service;</p>				
<p>(vi) assembly points, refuge and evacuation routes and protocols to maintain personal safety of occupants; and</p>				

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	(vii) awareness training for employees and contractors.			
B49	The Applicant must design, install, and operate the development to meet the requirements of FRNSW's Fire Safety in Waste Facilities 2020, or as otherwise approved by Fire & Rescue NSW (FRNSW).	Operational	<ul style="list-style-type: none"> Newcert (3 August 2022) OC2 (Certificate no. 21-057-OC2) 	Compliant
B50	The Applicant must consult FRNSW during the fire engineering brief consultation process for the development.	Operational	<ul style="list-style-type: none"> Email from FRNSW (7 April 2020) – consultation and conditions required to address. 	Compliant
B51	If there are any significant changes to the approved site layout, processing capacity or accepted waste streams, including combustible materials, the Applicant must reassess the fire and life safety measures for the development, re-consult FRNSW and obtain approval from the Planning Secretary.	Operational	No significant changes to the layout since OC issues in August 2022.	Compliant
B52	The Applicant must ensure:	Operational	<ul style="list-style-type: none"> FRNSW email (15 April 2020) provided recommendations which were addressed in the EIS. 	Compliant
	(a) the development complies with the relevant provisions of Planning for Bushfire Protection 2019;			
	(b) the site is managed as an inner protection area in accordance with the recommendations of the Bushfire Assessment Report: Proposed Recycling Facility, Lot 7 and Lot 11 DP 270328, 21D and 21F School Drive, Tomago prepared by Newcastle Bushfire Consulting dated 11 November 2020; and		<ul style="list-style-type: none"> Minimal landscaping is present onsite. Majority of site is paved. 	
	(c) landscaping on site is maintained and managed in accordance with Planning for Bushfire Protection 2019.		<ul style="list-style-type: none"> Minimal landscaping is present onsite. Majority of site is paved. 	

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
B53	Prior to any clearing or construction works for the development, the Applicant must purchase and retire one (1) species credit species to offset the removal of 0.1 hectares of Mahony's Toadlet (<i>Uperoleia mahonyi</i>) habitat on the site. The species credits must be retired in accordance with the requirements of the EES Group's Biodiversity Offsets Scheme and the Biodiversity Conservation Act 2016.	Construction	This is outside the scope of the operational stage.	Not triggered
B54	The requirement to retire species credits (see Condition B53) may be satisfied by payment to the Biodiversity Conservation Fund of an amount equivalent to the number and classes of species credits, as calculated by the EES Group's Biodiversity Offsets Payment Calculator.	Construction	This is outside the scope of the operational stage.	Not triggered
B55	The Applicant must provide the Planning Secretary with evidence that: (a) the retirement of species credits has been completed (see Condition B53); or	Construction	This is outside the scope of the operational stage.	Not triggered
	(b) a payment has been made to the Biodiversity Conservation Fund prior to undertaking any clearing or construction works for the development.	Construction	This is outside the scope of the operational stage.	
B56	The Applicant must: (a) implement suitable measures to manage declared priority weeds on the site; and	Operational	Most of the site paved, only several garden beds observed in the carpark area. The garden beds adequately maintained.	Compliant
	(b) inspect the site on a regular basis to ensure that these measures are working effectively, and that priority weeds are not present on site in sufficient numbers to pose an environmental hazard or cause the loss of amenity in the surrounding area.		Weeds inspected in weekly check.	

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
<p><i>Note: For the purposes of this condition, priority weed has the same definition of the term in the Biosecurity Act 2015.</i></p>				
B57	<p>If any item or object of Aboriginal heritage significance is identified on site:</p> <p>(a) all work in the immediate vicinity of the suspected Aboriginal item or object must cease immediately;</p> <p>(b) a 10 m wide buffer area around the suspected item or object must be cordoned off; and</p> <p>(c) Heritage NSW must be contacted immediately.</p>	Construction	No Aboriginal heritage objects were encountered during construction phase.	Not triggered
B58	Work in the immediate vicinity of the Aboriginal item or object may only recommence in accordance with the provisions of Part 6 of the National Parks and Wildlife Act 1974.	Construction	No Aboriginal heritage objects were encountered during construction phase.	Not triggered
B59	If any archaeological relics are uncovered during the course of the work, then all works must cease immediately in that area. Unexpected finds must be evaluated and recorded in accordance with the requirements of Heritage NSW.	Construction	No Aboriginal heritage objects were encountered during construction phase.	Not triggered
B60	Prior to the commencement of construction, the Applicant must prepare and implement Aboriginal cultural heritage and Non-Aboriginal heritage induction training for all staff and contractors. The training must outline the obligations of staff and contractors under the National Parks and Wildlife Act 1974 and the Heritage Act 1977.	Construction	This is outside the scope of the operational stage.	Not triggered
B61	The Applicant must ensure the lighting associated with the development:	Operational	<ul style="list-style-type: none"> PTD Group (12 December 2023) letter states: <i>“PTD Electrical Services have assessed the site at 21D School Drive, Tomago, within this assessment the perimeter of the site was walked</i> 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	<p>(a) complies with the latest version of AS 4282-2019 - Control of the obtrusive effects of outdoor lighting (Standards Australia, 2019); and</p> <hr/> <p>(b) is mounted, screened, and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.</p>		<p>(11/12/23), and Lux Readings were recorded at four metre intervals... the site complies AS4282:2019 section 3 and note it conforms to the requirements outlined in AS4282:2019... All external lighting is installed in a manor to reduce any spill or glare into neighbouring properties and roadways.”</p> <hr/> <ul style="list-style-type: none"> No complaints on lighting have occurred. 	
B62	<p>All signage and fencing must be erected in accordance with the development plans included in the EIS. <i>Note: This condition does not apply to temporary construction and safety related signage and fencing.</i></p>	Operational	<ul style="list-style-type: none"> Fencing around the perimeter of the site as per the development plan in the EIS. The EIS states that Part 3 of SEPP 64 does not apply for signage. 	Compliant
C1	<p>Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:</p> <p>(a) details of:</p> <p>(i) the relevant statutory requirements (including any relevant approval, licence, or lease conditions);</p> <hr/> <p>(ii) any relevant limits or performance measures and criteria; and</p> <hr/> <p>(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;</p>	Operational	<ul style="list-style-type: none"> REMONDIS Integrated Management Plan, Tomago Resource Recovery Facility. REMONDIS Energy from Waste Management Plan – Eligible Fuels. REMONDIS Tomago Resource Recovery Facility Emergency Response Management Plan REMONDIS Pollution Incident Response Management Plan, Tomago Resource Recovery Facility REMONDIS Tomago Resource Recovery Facility and Truck Parking Depot Water Management Plan REMONDIS Resource Recovery Facility and Truck Parking Depot - Air Quality and Odour Management Plan 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	<p>(b) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;</p> <hr/> <p>(c) a program to monitor and report on the:</p> <ul style="list-style-type: none"> (i) impacts and environmental performance of the development; and <hr/> <ul style="list-style-type: none"> (ii) effectiveness of the management measures set out pursuant to paragraph (c) above; <hr/> <p>(d) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;</p> <hr/> <p>(e) a program to investigate and implement ways to improve the environmental performance of the development over time;</p> <hr/> <p>(f) a protocol for managing and reporting any:</p> <ul style="list-style-type: none"> (i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria); <hr/> <ul style="list-style-type: none"> (ii) complaint; <hr/> <ul style="list-style-type: none"> (iii) failure to comply with statutory requirements; and <hr/> <p>(g) a protocol for periodic review of the plan. <i>Note: the Planning Secretary may waive some of these</i></p>			

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	<i>requirements if they are unnecessary or unwarranted for particular management plans</i>			
C2	The Applicant must prepare a Construction Environmental Management Plan (CEMP) for the development in accordance with the requirements of condition C1 and to the satisfaction of the Planning Secretary.	Construction	This is outside the scope of the operational stage.	Not triggered
C3	As part of the CEMP required under condition C2 of this consent, the Applicant must include an Erosion and Sediment Control Plan (see condition B19).	Construction	This is outside the scope of the operational stage.	Not triggered
C4	The Applicant must: (a) not commence construction of the development until the CEMP is approved by the Planning Secretary; and	Construction	This is outside the scope of the operational stage.	Not triggered
	(b) carry out the construction of the development in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.	Construction	This is outside the scope of the operational stage.	
C5	The Applicant must prepare an Operational Environmental Management Plan (OEMP) for the development in accordance with the requirements of condition C1 and to the satisfaction of the Planning Secretary.	Operational	<ul style="list-style-type: none"> REMONDIS Integrated Management Plan, Tomago Resource Recovery Facility. DPE (2 August 2022) Operational Environmental Management Plan for REMONDIS Resource Recovery Facility Tomago (Condition C5 of SSD-10447). The letter acknowledged OEMP and its subplans (Energy from Waste Management Plan, Water Management Plan, and Air Quality Management Plan). DPE letter also states that the document contains the information required by the conditions of approval, documents were prepared in consultation with the EPA and Council, where required. 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
C6	As part of the OEMP required under condition C5 of this consent, the Applicant must include the following: (a) describe the role, responsibility, authority, and accountability of all key personnel involved in the environmental management of the development;	Operational	<ul style="list-style-type: none"> REMONDIS Integrated Management Plan, Tomago Resource Recovery Facility. Provided in Section 6 and Table 2 	Compliant
	(b) describe the procedures that would be implemented to: (i) keep the local community and relevant agencies informed about the operation and environmental performance of the development;		<ul style="list-style-type: none"> REMONDIS Integrated Management Plan, Tomago Resource Recovery Facility. Provided in Section 15 and 16 	
	(ii) receive, handle, respond to, and record complaints;		<ul style="list-style-type: none"> REMONDIS Integrated Management Plan, Tomago Resource Recovery Facility. Provided in Section 15 	
	(iii) resolve any disputes that may arise;		<ul style="list-style-type: none"> REMONDIS Integrated Management Plan, Tomago Resource Recovery Facility. Provided in Section 15 	
	(iv) respond to any non-compliance;		<ul style="list-style-type: none"> REMONDIS Integrated Management Plan, Tomago Resource Recovery Facility. Provided in Section 16 	
(v) respond to emergencies; and (c) include the following environmental management plans: (i) Energy from Waste Management Plan (see condition B8);	<ul style="list-style-type: none"> REMONDIS Tomago Resource Recovery Facility Emergency Response Management Plan REMONDIS Pollution Incident Response Management Plan, Tomago Resource Recovery Facility REMONDIS Energy from Waste Management Plan – Eligible Fuels. These documents are separate management plans referenced in OEMP/Integrated Management Plan 			

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	(ii) Water Management Plan (see condition B26); and		<ul style="list-style-type: none"> REMONDIS Tomago Resource Recovery Facility and Truck Parking Depot Water Management Plan. These documents are separate management plans referenced in OEMP/Integrated Management Plan 	
	(iii) Air Quality Management Plan (see condition B36).		<ul style="list-style-type: none"> REMONDIS Resource Recovery Facility and Truck Parking Depot - Air Quality and Odour Management Plan. These documents are separate management plans referenced in OEMP/Integrated Management Plan 	
C7	<p>The Applicant must:</p> <p>(a) not commence operation until the OEMP is approved by the Planning Secretary; and</p> <hr/> <p>(b) operate the development in accordance with the OEMP approved by the Planning Secretary (and as revised and approved by the Planning Secretary from time to time).</p>	Operational	<ul style="list-style-type: none"> DPE (2 August 2022) Operational Environmental Management Plan for REMONDIS Resource Recovery Facility Tomago (Condition C5 of SSD-10447). The letter acknowledged OEMP and its subplans (Energy from Waste Management Plan, Water Management Plan, and Air Quality Management Plan). DPE letter also states that the document contains the information required by the conditions of approval, documents were prepared in consultation with the EPA and Council, where required. Newcert (1 June 2022) Occupation Certificate 21-057-OC1 Newcert (3 August 2022) Occupation Certificate 21-057-OC2 <hr/> <ul style="list-style-type: none"> REMONDIS Integrated Management Plan, Tomago Resource Recovery Facility. Current version implemented. 	Compliant
C8	<p>Within three months of:</p> <p>(a) the submission of a Compliance Report under condition C14;</p> <hr/> <p>(b) the submission of an incident report under condition C10;</p> <hr/> <p>(c) the submission of an Independent Audit under condition C16;</p>	Operational	<p>An Operational Compliance Report was submitted to the DPE in November 2023 and 2024 and has been made available on the REMONDIS website.</p> <hr/> <p>No reportable incidents occurred in reporting year</p> <hr/> <p>An Independent Environmental Audit was submitted to the DPE in October 2023 and has been made publicly available on the REMONDIS website.</p>	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	<p>(d) the approval of any modification of the conditions of this consent; or</p> <p>(e) the issue of a direction of the Planning Secretary under condition A2(b) which requires a review, the strategies, plans, and programs required under this consent must be reviewed, and the Planning Secretary must be notified in writing of the outcomes of any review.</p>		<p>No Audit was required in the 2024/2025 reporting year.</p> <p>A modification was approved in May 2025, notification of the plans review was made August 15 2025.</p> <p>No direction has been received from planning.</p>	
C9	<p>If necessary to either improve the environmental performance of the development, cater for a modification, or comply with a direction, the strategies, plans, and programs required under this consent must be revised, to the satisfaction of the Planning Secretary. Where revisions are required, the revised document must be submitted to the Planning Secretary for approval within six weeks of the review required under condition C8, or such other timing as agreed by the Planning Secretary.</p> <p><i>Note: This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.</i></p>	Operational	<p>Updated plans submitted to the department within 6 weeks of notification of review (August 15, 2025). The following plans submitted:</p> <ul style="list-style-type: none"> 022-HSEQ-MP-014 Tomago RRF Construction Waste Management Plan 2025-08-15 022-HSEQ-PG-001 B10 Tomago Waste Monitoring Program 2025-08-15 022-HSEQ-MP-006 Tomago Water Management Plan 2025-08-15 022-HSEQ-MP-001 Tomago RRF HSEQ Management Plan 2025-08-15 022-HSEQ-MP-019 Tomago RRF - Air Quality and Odour Management Plan 2025-10-02 	Compliant
C10	<p>The Planning Secretary must be notified in writing via the Major Projects website immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports</p>	Operational	No reportable incidents occurred in reporting year.	Not Triggered

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	submitted in accordance with the requirements set out in Appendix 3.			
C11	The Planning Secretary must be notified in writing via the Major Projects website within seven days after the Applicant becomes aware of any non-compliance.	Operational	No non-compliance	Not triggered
C12	A non-compliance notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.	Operational	No non-compliance	Not triggered
C13	A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.	Operational	Noted	Compliant
C14	<p>Within three months after the first year of commencement of operation of the development, and in the same month each subsequent year (or such other timing as agreed by the Planning Secretary), the Applicant must submit a Compliance Report to the Planning Secretary reviewing the environmental performance of the development to the satisfaction of the Planning Secretary. Compliance Reports must be prepared in accordance with the Compliance Reporting Post Approval Requirements (Department 2020) and must also:</p> <p>(a) identify any trends in the monitoring data over the life of the development;</p> <hr/> <p>(b) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and</p>	Operational	<p>2023 Operational Compliance Report submitted on 11 November 2023</p> <p>2024 Operational Compliance Report submitted on 29 November 2024</p> <p>Requirements detailed in sections of this report.</p>	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	(c) describe what measures will be implemented over the next year to improve the environmental performance of the development.			
C15	The Applicant must make each Compliance Report publicly available no later than 60 days after submitting it to the Planning Secretary and notify the Planning Secretary in writing at least seven days before this is done.	Operational	<ul style="list-style-type: none"> - Post-approval document dated January 14, 2025, titled REMONDIS Resource Recovery Facility Tomago – SSD-10447-PA-29, Intent to Publish Compliance Report Tomago SSD. - NSW Government email correspondence dated 14 January 2025, titled “REMONDIS Resource Recovery Facility Tomago - Post Approval Document Received - (SSD-10447-PA-36)” - Tomago Compliance Report 2024 dated 29 November 2024 on the REMONDIS website: https://www.remondis-australia.com.au/locations/nsw/remondis-tomago-rrf/ 	Compliant
C16	<p>Within one year of the commencement of operation of the development, and every three years after, unless the Planning Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit (Audit) of the development. Audits must:</p> <p>(a) be prepared in accordance with the Independent Audit Post Approval Requirements (Department 2020)</p> <hr/> <p>(b) be led and conducted by a suitably qualified, experienced, and independent team of experts whose appointment has been endorsed by the Planning Secretary; and</p>	Operational	<p>This item is not yet triggered for the current period.</p> <hr/> <p>This item is not yet triggered for the current period.</p>	Not Triggered

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	(c) be submitted to the satisfaction of the Planning Secretary within three months of commissioning the Audit (or within another timeframe agreed by the Planning Secretary).		This item is not yet triggered for the current period.	
C17	In accordance with the specific requirements in the Independent Audit Post Approval Requirements (Department 2020), the Applicant must: (a) review and respond to each Independent Audit Report prepared under condition C16 of this consent;	Operational	This item is not yet triggered for the current period.	Not Triggered
	(b) submit the response to the Planning Secretary and any other NSW agency that requests it, together with a timetable for the implementation of the recommendations;		This item is not yet triggered for the current period.	
	(c) implement the recommendations to the satisfaction of the Planning Secretary; and		This item is not yet triggered for the current period.	
	(d) make each Independent Audit Report and response to it publicly available no later than 60 days after submission to the Planning Secretary and notify the Planning Secretary in writing at least 7 days before this is done.		This item is not yet triggered for the current period.	
C18	Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy, or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance reporting and independent auditing. <i>Note: For the purposes of this condition, as set out in the EP&A Act, "monitoring" is monitoring of the development to provide data on compliance with the consent or on the</i>	Operational	Noted, and is reviewed in relevant conditions associated with monitoring.	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
C19	<p><i>environmental impact of the development, and an “environmental audit” is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.</i></p> <p>At least 48 hours before the commencement of construction of the development until the completion of all works under this consent (or such other time as agreed by the Planning Secretary), the Applicant must:</p> <p>(a) make the following information and documents (as they are obtained or approved) publicly available on its website:</p> <hr/> <p>(i) the documents referred to in condition A2 of this consent;</p> <hr/> <p>(ii) all current statutory approvals for the development;</p> <hr/> <p>(iii) all approved strategies, plans and programs required under the conditions of this consent;</p> <hr/> <p>(iv) regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent;</p>	Construction	<p>The project website https://www.remondis-australia.com.au/locations/nsw/remondis-tomago-rrf/</p> <hr/> <p>SSD, written correspondence, EIS and RTS were sighted on the project website (https://www.remondis-australia.com.au/locations/nsw/remondis-tomago-rrf/)</p> <hr/> <p>SSD on the project website.</p> <hr/> <p>The following documents were sighted on the project website:</p> <ul style="list-style-type: none"> • Pollution Incident Response Management Plan • Air Quality Management Plan • Water Management Plan • Integrated Management Plan • Energy from Waste Management Plan • Long Term Environmental Management Plan <hr/> <p>Groundwater results on the REMONDIS website.</p>	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	(v) a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;		Groundwater results on the REMONDIS website.	
	(vi) a summary of the current stage and progress of the development;		The project is operational.	
	(vii) contact details to enquire about the development or to make a complaint;		Environmental complaint line is provided on the REMONDIS website.	
	(viii) complaints register, updated monthly;		Complaint register was sighted on the REMONDIS website.	
	(ix) the Compliance Report of the development;		Compliance Report is provided on the REMONDIS website.	
	(x) audit reports prepared as part of any Independent Audit of the development and the Applicant's response to the recommendations in any audit report;		Independent Environment Audit is provided on the REMONDIS website.	
	(xi) any other matter required by the Planning Secretary; and		No other matter was identified to require inclusion on the website.	
	(b) keep such information up to date, to the satisfaction of the Planning Secretary.		Review of the website indicates the information is up to date.	
Appendix 2 – Waste	<ul style="list-style-type: none"> Waste management and minimisation will form part of the induction program (which includes environmental due diligence training). All Project and site personnel will be trained in the requirements of this document including minimising wastes, recognising which types of materials are recyclable and their obligations to use recycling facilities provided on site; 	Operational	<ul style="list-style-type: none"> The waste types observed onsite were included in the EPL e.g., mine waste (contaminated soil in drums, oily rags, waste oil), cardboard, plastic, coffee pods, glass, timber. Waste segregation was observed. Spill kits were observed. No trucks were observed to be coming or leaving the site during the audit. 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	<ul style="list-style-type: none"> Clearly assign and communicate responsibilities to ensure that those involved in the construction are aware of their responsibilities in relation to the waste management plan; Engage and educate personnel on how the various elements of the waste management plan will be implemented; Specific locations for waste management (e.g., sorting area locations, recycling bin locations, material stockpile locations) will be established on site and signposted appropriately; Waste management areas will be adequately managed to prevent sediment runoff and dust generation; Construction Method Statements (CMS) will include practices to minimise waste generation and to maximise recycling and reuse of materials including oils, greases, lubricants, timber, glass, and metal; Packaging minimisation and reuse initiatives will be implemented as part of the procurement; Development of an unexpected finds environmental procedure should any contamination be found during construction works; Spill kit to be present on site in the case of any fuel leaks of plant and equipment during the construction phase of the development; Segregated waste disposal containers for the collection and recycling/disposal of all waste streams generated during the construction and operation phases will be provided onsite. Waste disposal containers will have clear signage and instructions for use to avoid cross contamination. No rubbish shall be disposed of on site; 		<ul style="list-style-type: none"> Waste storage was observed to be in paved areas. Chemicals were observed to be present in paved and generally bunded areas. Monthly inspections are conducted by management team and include waste management. 	

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	<ul style="list-style-type: none"> • Waste will be disposed to an appropriate licensed facility. A Waste Management Register of all waste collected for disposal and / recycling, including amounts, data and time and details and location of disposal will be maintained at all times; • All waste being transported off site must be covered. The transportation must be appropriately licensed to carry that material; • Storage of all hazardous substances and dangerous goods will be in accordance with SDS requirements in a bunded area. Solid and hazardous wastes will be contained and separated from inert waste; • Any hazardous will be managed and handled by an appropriately licensed contractor and transported for disposal to a licensed facility approved site; • Any material contaminated by spills i.e., fuel, oil, lubricants etc., including empty fuel, oil and chemical containers, will be stored in a sealed secure container within a bunded area and will be transported to a waste disposal site approved by the NSW EPA to accept such material; • Incompatible wastes will not be mixed; • Storage areas would be located away from waterways and the stormwater system; • Biodegradable products will be used wherever practicable; • Regular collection of wastes will ensure air emissions are at a satisfactory level. Inappropriate waste and wastewater management systems will be regularly inspected and audited; • Conduct regular litter patrols to ensure litter is effectively controlled on site; 			

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
Appendix 2 – Air Quality	<ul style="list-style-type: none"> • All waste tipping, sorting, processing, and storage will occur indoors at all times; • Implement a waste acceptance evaluation procedure to ensure all waste received on site meets the relevant criteria; • Use odour neutralisers; • Availability of spill kits to allow for prompt containment of spills which could be odorous; • Daily odour survey observations around the boundary of the site; • Work procedures in the event of any particularly odorous loads (e.g., Use of odour neutraliser, identifying waste source and investigating possibility of diverting to another waste facility); • Additional odour control system medium on-site at all times (e.g., Additional activated carbon to be stored on site). 	Operational	<ul style="list-style-type: none"> • All waste tipping, sorting, processing, and storage were observed to be indoor. • REMONDIS stated that odour neutraliser was not needed. Observation indicated there was no unacceptable odour during the audit. • Spill kits were observed. • REMONDIS activated carbon filter was present in the vicinity of the coffee processing area. 	Compliant
Appendix 2 – Greenhouse Gas	<ul style="list-style-type: none"> • Minimise the use of fuel by selecting fuel efficient plant and equipment, operating vehicles and machinery in a fuel-efficient manner e.g., turning off idling equipment, and selecting construction techniques that utilise lower amounts of fuel; • Implement a maintenance plan for all fuel and electrically powered equipment; • Implement energy conservation practices by all staff (which can be enforced through appropriate training); • Use solar panels. 	Operational	<ul style="list-style-type: none"> • All waste tipping, sorting, processing, and storage were observed to be indoor. • REMONDIS stated that odour neutraliser was not needed. Observation indicated there was no unacceptable odour during the audit. • Spill kits were observed. • Air Quality and Odour Management Plan • Asset register record for weekly Australian Bale Press • Monthly Australian Bale Press • 3-monthly Bale Conveyance • REMONDIS stated that activated carbon filter was present in the vicinity of the coffee processing area. 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
Appendix 2 – Noise and Vibration	<ul style="list-style-type: none"> • Avoid the coincidence of noisy plant working simultaneously close together would result in reduced noise emissions; • Equipment which is used intermittently is to be shut down when not in use; • Where possible, equipment with directional noise emissions should be oriented away from sensitive receivers; • Regular compliance checks on the noise emissions of all plant and machinery used for the proposal would indicate whether noise emissions from plant items were higher than predicted. This also identifies defective silencing equipment on the items of plant; • Non-tonal reversing alarms should be used on all items of plants and heavy vehicles used for construction; • Existing doors are closed during the waste processing whenever practicable (note this measure is not required to achieve the Project Noise Trigger Levels for the project and is at the discretion of the proponent). 	Operational	No hazards reported onsite for excessive noise. Controls in place.	Compliant
Appendix 2 – Biodiversity (construction)	<ul style="list-style-type: none"> • The clearing boundary should be clearly marked to avoid removal of additional native vegetation. • Priority will be given during construction to avoid any inadvertent impact to significant biodiversity values within the study area. Avoidance measures should include the following: <ul style="list-style-type: none"> - All material stockpiles, vehicle parking and machinery storage will be located within cleared areas proposed for clearing, and not in areas of native vegetation that are to be retained; - Implementation of temporary stormwater controls during construction and to ensure that discharges outside the 	Operational	<p>The site was cleared (and mostly developed and paved) at the time of construction. Minimal construction work occurred.</p> <p>All materials, vehicles, and machines located within paved areas.</p>	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	<p>development footprint are consistent with existing conditions and do not impact the stream located within the site;</p> <ul style="list-style-type: none"> Any animals injured during construction should be taken immediately to a Vet for treatment. Any animals suspected to require rehabilitation would be delivered post-veterinary care to an appropriate animal rehabilitator; The following measures should be implemented to prevent exotic plant material from entering/exiting the development area; <ul style="list-style-type: none"> No imported/exported material to be permitted unless it has been inspected and confirmed to be free of dirt and mud which may contain weed seeds and vegetative material such as bulbs, root fragment, tubers or rhizomes; Vehicles and machinery to be clean of soils, vegetation and seeds that have been brushed off or washed down prior to entering the study area; and A clean down register to be maintained at the entry/exit of the study area. 			
Appendix 2 – Biodiversity (operation)	<ul style="list-style-type: none"> Vehicles should not drive off the designated parking area into vegetation within the study area to reduce impact to resident fauna and flora within the study area during the operations phase; Any animals injured during operations should be taken immediately to the Motto Farm Veterinary Hospital for treatment. Any animals suspected to require rehabilitation would be delivered post-veterinary care to an appropriate animal rehabilitator associated with Wildlife in Need of Care Phone 1300 946 295); The following measures should be implemented to prevent exotic plant material from entering/exiting the study area: 	Operational	<ul style="list-style-type: none"> The majority of site was observed to be paved, with the exception of some garden beds. Vehicles were observed to be in paved areas. External lighting is directed downwards. The only material that was imported to site during construction only comprised DGB. No injured animals have been encountered. 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	<ul style="list-style-type: none"> • No imported/exported material to be permitted unless it has been inspected and confirmed to be free of dirt and mud which may contain weed seeds and vegetative material such as bulbs, root fragment, tubers or rhizomes; • Vehicles and machinery to be clean of soils, vegetation and seeds that have been brushed off or washed down prior to entering the study area; • A clean down register to be maintained at the entry of the study area; and • Trucks are not to drive off the designated parking area onto vegetation within the site; • As a part of maintenance within the study area any high threat weeds known to occur will be controlled in accordance with appropriate DPI guidelines. Guidelines for the treatment of high threat weeds can be sourced within the DPI website; • Any artificial lighting used for security at night should be angled/directed downwards to avoid excessive light pollution affecting adjacent habitat. 			
Appendix 2 – Heritage	<ul style="list-style-type: none"> • All on-site personnel are to be made aware of their obligations under the National Parks and Wildlife Act 1974, this includes protection of Aboriginal sites and the reporting of any new Aboriginal, or suspected Aboriginal, heritage sites. This may be done through an onsite induction or other suitable format; • All on-site personnel are to be made aware of their obligations under the NSW Heritage Act 1977, including the reporting of any historic, or suspected historic material. This may be done through an onsite induction or other suitable format; 	Operational	<ul style="list-style-type: none"> • Aboriginal Cultural Heritage Awareness Training • No Aboriginal or suspected Aboriginal archaeological material has been uncovered to date. 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	<ul style="list-style-type: none"> In the unlikely event that Aboriginal or suspected Aboriginal archaeological material is uncovered during the development, then works in that area are to stop and the area cordoned off. The project manager is to contact the heritage consultant to make an assessment as to whether the material is classed as Aboriginal object/s under the National Parks and Wildlife Act and advise on the required management and mitigation measures. Works are not to recommence in the cordoned off area until heritage clearance has been given and/or the required management and mitigation measures have been implemented; 			
Appendix 2 – Bushfire	<ul style="list-style-type: none"> At the commencement of building works and in perpetuity, manage an inner protection area (IPA) for the entire property as outlined within Appendix 4 of Planning for Bush Fire Protection (2019) and the NSW Rural Fire Service's Standards for Asset Protection Zones; Undertake landscaping in accordance with Appendix 4 of Planning for Bush Fire Protection (2019) and manage and maintain in perpetuity; Property owner and occupants to familiarise themselves with the relevant bushfire preparation and survival information provided by the New South Wales Rural Fire Service; Implement emergency evacuation plans prepared for the workplace with specific consideration of bushfire evacuation and management planning; 	Operational	<ul style="list-style-type: none"> Bushfire response program is in 022-HSEQ-MP-002 Emergency Management Plan The site is mostly paved, with only small garden beds. 	Compliant
Appendix 2 – Contamination	<ul style="list-style-type: none"> Implement remedial measures as detailed in the Remedial Action Plan, Prepare and implement a Long-Term Environmental Management Plan. 	Operational	<ul style="list-style-type: none"> GHD (20 May 2022) Site Audit Report, with LTEMP attached. 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
Appendix 2 – Chemicals and fuels and pollution incidents	<ul style="list-style-type: none"> • All liquid wastes, chemicals, and fuels to be handled and stored under cover in bunded areas; • All staff working in areas with liquid wastes to be properly trained and wear PPE at all times; • MSDS sheets, where available, to be readily accessible for all chemicals on site; • Chemical spill kits and “absorbent sausages” to be kept on site and readily accessible near liquid waste and chemical storage; • Firefighting equipment to be accessible and regularly inspected. • The area for loading and off-loading drill muds will occur fully indoors within the designated bunded area of Building 2; • Tankers will be provided with automatic shut-off mechanisms; • Valves will be kept closed unless manually opened during transfer; • Storage tanks will be provided with overfill protection and alarms; • Leak detection tests on tanks, distribution lines and seals will be conducted regularly; • The 2 x 50,000L storage tanks will be internally bunded or will be provided with secondary containment bunding such that the compound (area where the two tanks are stored) will contain a spill equivalent to the volume of one tank (50,000L); 	Operational	<ul style="list-style-type: none"> • Chemical spill kits available near chemical storage. • Firefighting equipment onsite and maintained by third party. • The diesel tank has a plate stating compliance to AS 1692-2006 and AS1940-2017 UL 142 and ULC-S601. • No drilling muds have been received onsite. • Tankers have automatic shut-off mechanisms. • Storage tanks have bunds and were built in accordance with Australian Standards. • Leak detection has not occurred as the facility is new. • No underground pipes are present. • The waste oil tank is fitted with alarm. The levels can be viewed online with GES online system. GES was sighted. • Waste types were observed to be segregated inside the buildings. • ChemAlert, which provides a list of chemicals stores onsite. Examples of SDS were sighted. • Induction material includes traffic management required, which requires that different waste streams need to follow colour-coded transport route and door number. • Tool Box Topic #28 Spill Control 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	<ul style="list-style-type: none"> • The floors of bulk storage facilities will be designed to withstand the hydrostatic pressure exerted when tanks are full; • The containment system will be compatible with the liquid being stored and provide an impervious barrier to prevent spills from discharging outside the containment system; • Any pipes connected to the storage tanks will be located over the containment system. If a pipe passes through a wall, the joint should be sealed to prevent leakage; • All fixed tanks will be provided with a suitable overflow system that discharges to an area within the bund wall or to a collection or holding point; • Any valve used for draining a storage compound should be located outside the bund wall; • The valve should have clear open and closed positions and be compatible with the liquid contained. The valve should normally be closed except during drainage; • Storage tanks should be fitted with level indicators. Where the level inside the tank is not continuously visible to the person filling the tank, a high-level alarm should be fitted to prevent overflow; • All tanks and storage compounds will be inspected and maintained regularly, and the tanks' integrity should be tested at least every 5 years; • Tanks will be properly labelled and have Material Safety Data Sheets available in the work area; • Vehicles will move between storage areas in a manner that prevents the tracking of contamination from one area to another; 			

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	<ul style="list-style-type: none"> • All storage areas will be secured against unauthorised entry; • Adequate supplies of spill response equipment should be maintained in accessible locations. These are to be checked on a weekly basis and replenished with new supplies immediately after use; • Contaminated water and other waste (spill materials) from the clean-up of spills must be collected and disposed of in accordance with EPA requirements; • A spill response plan will be developed as part of the Operational Environmental Management Plan for the site, implemented, reviewed, and updated as required; • Spill response training and drills will be conducted regularly or as appropriate; • The spread of the spill should be contained, and all spilled liquids should be recovered immediately. 			
Appendix 2 – Chemicals and fuels and pollution incidents (continued)	<ul style="list-style-type: none"> • The spilled liquid and other clean-up waste should be properly disposed of; • Water used for cleaning up and decontaminating spills should not be allowed to enter stormwater drains or watercourses; • Spills should be covered and protected from stormwater runoff during rainfall to the extent that it does not compromise clean-up activities; • An emergency management plan to deal with significant incidents will be implemented, reviewed, and updated as required; 	Operational	<ul style="list-style-type: none"> • Spills cleaned using spill kits, not water. • Sufficient area onsite to allow access during emergencies. • The diesel tank has a plate stating compliance to AS1692-2006 and AS1940-2017 UL 142 and ULC-S601. • All containers holding liquids sealed. • Packages stored with adequate separation from site boundaries. • Tool Box Topic Spill Control • ChemAlert, which provides a list of chemicals stores onsite. Examples of SDS were sighted. • Induction material includes traffic management required, which requires that different waste streams need to follow colour-coded transport route and door number. 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	<ul style="list-style-type: none"> • At the detailed design stage, sufficient space between bund walls, storage areas and other structures should be provided to allow access during emergencies; • Employees will be trained in emergency response procedures, including spill clean-up procedures; • Response equipment should be provided to allow emergencies to be dealt with immediately; • Emergency drills using the emergency response plan should be undertaken at least annually; • Spilled liquids and other wastes from the clean-up should be collected and properly disposed of; • Responsible individuals should be designated to oversee and enforce control; • The site will maintain adequate measures to contain contaminated firewater on-site; • The site's stormwater isolation valve to be activated to block the stormwater drain outlets from the site; • Oil and oily water is to be pumped into designated holding tanks. These tanks are contained within the fully bunded area, with good ventilation; • Tanks will be provided with suitable vents to enable the safe discharge of displaced volatile air emissions during loading and unloading; should have a vapour disposal or recovery system installed where necessary; • Storage tanks are located in a tank farm that will have bunding for at least 100% of the largest tank; • Package stores containing chemicals that emit volatile gases should be provided with adequate natural or mechanical ventilation; 			

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	<ul style="list-style-type: none"> • All containers storing liquids / waste liquids should be sealed (i.e., lids sealed, and bungs secured); • All containers are to be stored in accordance with their waste classification codes; • All areas to have placarding and signage to facilitate identification and management of storages; • Package stores should be located with adequate separation from boundaries, ignition sources and protected places; • Stored chemicals and waste materials should be confined to designated areas; • All stores that contain liquid chemicals should be provided with suitable bunding and containment; • The capacity of the spillage containment compound should be adequate to retain spillage; • Spill containment areas should be designed so incompatible material does not drain to the same area; • Drums and other containers should be stored (stacked) in such a manner and location that if the drums and other containers are ruptured or toppled, the contents will not spill outside the containment structure; • All products should be sorted and labelled, and Material Safety Data Sheets should be made available in the work area; 			
Appendix 2 – Chemicals and fuels and pollution	<ul style="list-style-type: none"> • Areas for decanting and off-loading liquid chemicals will be done indoors within the fully bunded area of the Hazardous Waste Recycling Facility; 	Operational	<ul style="list-style-type: none"> • Decanting area is within Building 2 (fully paved). The buildings were all bunded. • The waste oil tank is fitted with alarm. The levels can be viewed online with GES online system. GES was sighted. 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
incidents (continued)	<ul style="list-style-type: none"> • Adequate natural or mechanical ventilation for package-filling operations should be provided, and if necessary, the vents should be fitted with filters to minimise air emissions; • Tanks should be located with adequate separation distances from boundaries, ignition sources and protected places; • Material that tanks are made of should be compatible with chemicals to be stored; • Oil storage tanks will be located away from the containment bunds, so any lateral spill from the tank would be contained inside the containment walls or hit a suitable splatter shield; • All storage tanks should be fitted with level indicators. Where the level inside the tank is not continuously visible to the person filling the tank, a high-level alarm should be fitted to prevent overflow; • Tankers that will visit the site to pump out the drain drum and oil filter drum will be provided with automatic shut-off mechanisms; • Shut-off valves used in the transfer of liquids should be of the quick-closing type; • Hatches, manholes or covers on all tankers should be kept closed, except during loading and unloading operations; • Drums or containers to be used to catch any drips from hoses before or after decanting; • Transfer pumps should be provided with emergency shut-down devices; • Hoses should be purged before uncoupling; • Overfill protection devices should be regularly inspected; 		<ul style="list-style-type: none"> • All static equipment onsite has e-stop. • The buildings appropriately ventilated. No evidence of unacceptable odour was noted. • Tanks have adequate separation to site boundaries. • No tankers observed at the time of audit. • Bin washing was observed. Water from the washing is reportedly collected and treated in the oily water separator. Treated water and oil are disposed of offsite. • Chemical containers observed to be labelled. • Staff licences and training records saved on Qualls module on Donesafe 	

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	<ul style="list-style-type: none"> • Forklift drivers transporting IBC's or other containers should be appropriately trained; • Regular inspections should be undertaken for losses or leaks, and valves, pumps, couplings, and seals should be maintained regularly; • Areas for storing scheduled liquid chemical wastes will be secured, roofed, and walled, have impermeable floors and be adequately ventilated; • Empty containers should be washed, rinsed, or chemically treated and sealed before storage or disposal; • Labels of containers should be retained until the containers are washed and rinsed; • Containers not for reuse should be rendered safe and be punctured or crushed; • Accurate records of all wastes stored should be kept ensuring early disposal; • Employees should be trained in appropriate waste control and disposal procedures. 			
Appendix 2 – Fire Safety	<ul style="list-style-type: none"> • Access for fire brigade vehicles and firefighters: <ul style="list-style-type: none"> - It has been noted by both BMG (2020) and Affinity Fire Engineering (2020) that emergency vehicle access around the northern end of Building 2 is not deemed to satisfy BCA cl. C2.4, in that the perimeter road is greater than 18 metres from the building in certain locations; and • Fire safety in waste facilities: <ul style="list-style-type: none"> - Building 1 will be fitted with ridgeline exhaust fans capable of extracting smoke at the rate of 18m³/s within 10 minutes of the fire reaching steady heat release; 	Operational	<ul style="list-style-type: none"> • Newcert (3 August 2022) Occupation Certificate 21-057-OC2, which includes fire safety certificate. • Batteries stored in accordance with Dangerous Codes, separated from other waste streams. 	Compliant

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	<ul style="list-style-type: none"> - Building 1 will have a minimum 10mm high perimeter bund around the inside of the building; - Building 2 will be fitted with ridgeline exhaust fans capable of extracting smoke at the rate of 17m³/s within 6 minutes of the fire reaching steady heat release; - Building 2 will have a minimum 16mm high perimeter concrete bund around the inside of the building; - Building 3 will be fitted with ridgeline exhaust fans capable of extracting smoke at the rate of 26m³/s that are interlocked with the fire alarm; - Building 3 will have a minimum 5mm high perimeter concrete bund around the inside of the building; - Internal stockpiles will be arranged to allow for six (6) metres unobstructed access around internal stockpiles will have a maximum volume of 1000m³. • It is further recommended that REMONDIS : <ul style="list-style-type: none"> - Provide an emergency tipping area, such as the undeveloped areas on Site 21F, at least 10 metres from parked vehicles and within a 70 metre radius of hydrant FH5; - Use portable infrared detectors to check for thermal hotspots; - Install fixed infrared cameras with audible alarm at five (5) identified high fire load locations; - Install automatic sprinkler system in Building 2; - Building 2 will require the installation of 4 x 36m (DN19) fire hose reels adjacent personal access doors to ensure coverage of the building internal floor area; - 2A 60B(E) 9 kg powder fire extinguishers will be installed on all the vehicles working in the vicinity of the fire compartments; - 5 x 2A 60B(E) 9 kg powder fire extinguishers to be inside the recycling plant; - Lithium batteries must be stored in accordance with the 			

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
	<p>Dangerous Goods Code and AS/NZS 4681:2000 The storage and handling of Class 9 (miscellaneous) dangerous goods and articles; and</p> <ul style="list-style-type: none"> - Plastics will be removed on a regular basis to ensure that individual storage areas, no greater than 20m² and 2 metres high, are separated from adjoining storages by no less than 2.4 metres. 			
<p>Appendix 2 – Visual Impact</p>	<ul style="list-style-type: none"> • Preferably plant native trees and large shrubs along the boundary to help screen the proposed development from future development of adjacent Lots; • Ensure the proposed development is offset from the boundary to allow screen planting; • Plant native trees along the road verge of 21D to reduce views to the proposed development from future development. 	<p>Operational</p>	<ul style="list-style-type: none"> • Trees have been planted around the truck parking areas. • Trees were observed on the south-eastern boundary adjacent to the road. No planting space was available on the southern boundary. 	<p>Compliant</p>
<p>Appendix 2 – Emergency Response</p>	<ul style="list-style-type: none"> • In the event of an emergency, the Emergency Plan prepared of the facility will be implemented. • As per the Emergency Plan, in the event of a flood that has the potential to reach the site boundaries, the following actions are to be taken: <ul style="list-style-type: none"> - The facility is to stop receiving inbound product; - Service/remove all bins and vessels wherever possible; and - Send contents offsite to recycling/disposal destinations. • In the event the actions above cannot be carried out, the actions listed in table 4.3 of the Waste Minimisation and Management Plan (Version 4 dated 12/08/21) are to be implemented, relevant to the specific areas. 	<p>Operational</p>	<ul style="list-style-type: none"> • REMONDIS Tomago Resource Recovery Facility Emergency Response Management Plan. • No emergency has occurred which has triggered this need. 	<p>Not triggered</p>

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
Appendix 3.1	<p>1. A written incident notification addressing the requirements set out below must be submitted to the Planning Secretary via the Major Projects website within seven days after the Applicant becomes aware of an incident. Notification is required to be given under this condition even if the Applicant fails to give the notification required under condition C10 or, having given such notification, subsequently forms the view that an incident has not occurred.</p>		No triggered this reporting period	Not Triggered
Appendix 3.2	<p>2. Written notification of an incident must:</p> <p>(a) identify the development and application number;</p> <p>(b) provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);</p> <p>(c) identify how the incident was detected;</p> <p>(d) identify when the applicant became aware of the incident;</p> <p>(e) identify any actual or potential non-compliance with conditions of consent;</p> <p>(f) describe what immediate steps were taken in relation to the incident;</p> <p>(g) identify further action(s) that will be taken in relation to the incident; and</p> <p>(h) identify a project contact for further communication regarding the incident.</p>	Operational	Not triggered this reporting period	Not Triggered

Condition ID	Compliance Requirement	Phase	Evidence	Compliance Status
Appendix 3.3	3. Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary, the Applicant must provide the Planning Secretary and any relevant public authorities (as determined by the Planning Secretary) with a detailed report on the incident addressing all requirements below, and such further reports as may be requested.	Operational	Not triggered this reporting period	Not Triggered
Appendix 3.4	The Incident Report must include: (a) a summary of the incident; (b) outcomes of an incident investigation, including identification of the cause of the incident; (c) details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and (d) details of any communication with other stakeholders regarding the incident.	Operational	Not triggered this reporting period	Not Triggered

10.2 Appendix B – Action Status Table

Table 6 Action Status Table

Source	Condition of Consent No.	Action Proposed	Proposed Completion Date	Status	Action Completed
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No outstanding actions

10.3 Appendix C – Compliance Report Declaration Form

Compliance Report Declaration Form

Compliance Report Declaration Form

Project Name **REMONDIS Resource Recovery Facility and Truck Parking Depot**

Project Application
Number **SSD 10447**

Description of Project

Project Address **21D and 21F School Drive, Tomago NSW 2322**

Proponent **REMONDIS AUSTRALIA PTY LTD**

Title of Compliance Report **Operational Compliance Report - Tomago Resource Recovery Facility**

Date **29 November 2025**

I declare that I have reviewed the contents of the attached Compliance Report and to the best of my knowledge:

- i. the Compliance Report has been prepared in accordance with all relevant conditions of consent;
- ii. the Compliance Report has been prepared in accordance with the Compliance Reporting Requirements;
- iii. the findings of the Compliance Report are reported truthfully, accurately and completely;
- iv. due diligence and professional judgement have been exercised in preparing the Compliance Report; and
- v. the Compliance Report is an accurate summary of the compliance status of the development.

Notes:

- Under section 10.6 of the Environmental Planning and Assessment Act 1979 a person must not include false or misleading information (or provide information for inclusion in) a report of monitoring data or an audit report produced to the Minister in connection with an audit if the person knows that the information is false or misleading in a material respect. The proponent of an approved project must not fail to include information in (or provide information for inclusion in) a report of monitoring data or an audit report produced to the Minister in connection with an audit if the person knows that the information is materially relevant to the monitoring or audit. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000; and
- The Crimes Act 1900 contains other offences relating to false and misleading information: section 307B (giving false or misleading information – maximum penalty 2 years' imprisonment or 200 penalty units, or both).

Name of Authorised

Reporting Officer **Rachael Mulholland**

Title **Environment and Sustainability Advisor**

Signature *Rachael Mulholland*

Qualification **Bachelor of Arts, Bachelor of Environmental Management**

Company **REMONDIS AUSTRALIA PTY LTD**

Company Address **Level 4/163 O'Riordan St, Mascot NSW 2020**

10.4 Appendix D – Groundwater Monitoring Report

JM Environments
0427 893 668
37 Tooke St
COOKS HILL NSW 2300
ABN 67 166 341 288



7 May 2025

Rachael Mulholland
Remondis Australia Pty Ltd
21D and 21F School Drive
TOMAGO NSW 2322

Dear Rachael,

RE: JME21054-3 - GROUNDWATER MONITORING 24 March 2024-23 March 2025

1 INTRODUCTION

JM Environments (JME) was commissioned by Remondis Australia Pty Ltd to conduct groundwater monitoring at 21D and 21F School Drive Tomago NSW (the site). The site is identified as Lots 8 and 11 in Deposited Plan (DP) 270328 and is approximately 3.9 hectares in area. The site location is shown in Figure 1.

The groundwater monitoring was required by Condition P1.1 of Environmental Protection Licence (EPL) 21636 with an anniversary date of 24 March. Condition R4.1 of the EPL requires:

The licensee must provide with its Annual Return to the EPA, a groundwater monitoring report. The report must be prepared by an appropriately qualified and experienced person and include:

- a) A graphical representation of the monitoring results required by condition M2.1 for the annual return period;*
- b) For each parameter required to be monitored by condition M2.1, provide a graph that compares the ANZECC Guideline trigger value with the monitoring results since monitoring began.*
- c) include daily rainfall data in graphical form.*

James McMahon BSc (Chem) PhD (Chem) is an accredited Contaminated Land Specialist. Dr McMahon, an “appropriately qualified and experienced person”, undertook the groundwater monitoring and prepared this groundwater monitoring report. Requirements R4.1 a), b) and c) are presented in Appendices A, B and C respectively.

The site location is shown in Figure 1.

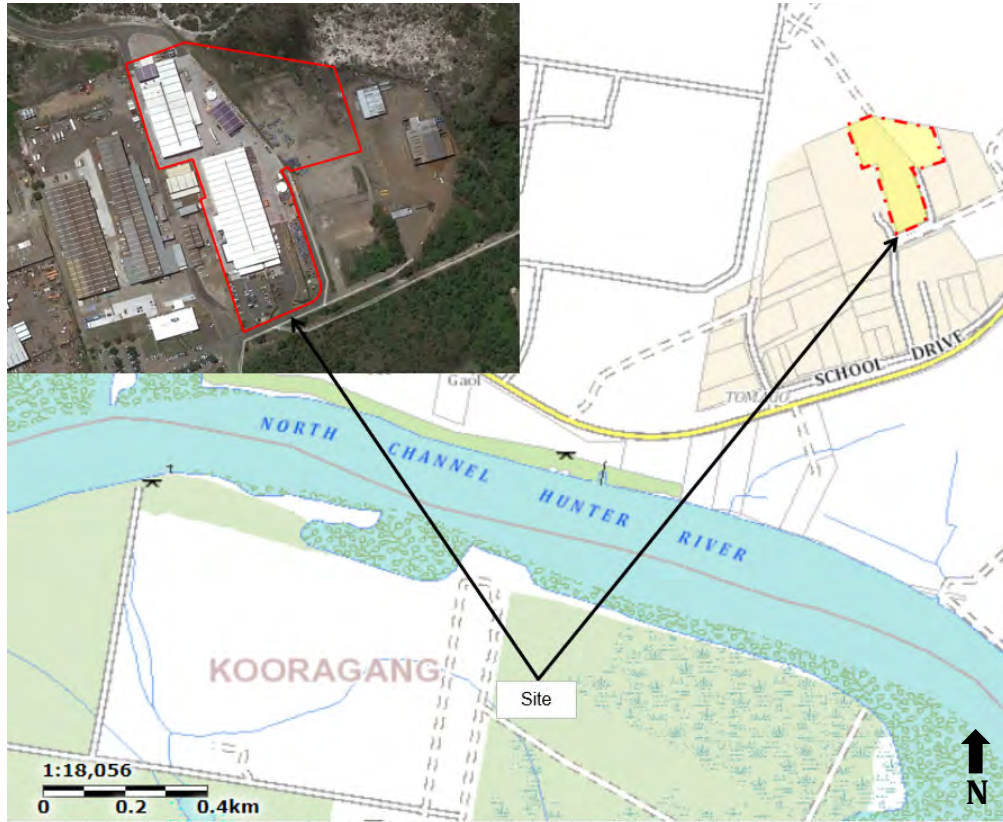


Figure 1: Site location

Monitoring well locations are shown in Figure 2.



Figure 2: Monitoring well locations

2 SCOPE OF WORK

The following scope of works was completed:

- Gauging, purging and sampling of seven monitoring wells;
- Laboratory analysis;
- Tabulation of analysis results;
- Preparation of this report describing results of the assessment; and

3 FIELD WORK

Sampling dates are recorded in the attached spreadsheet. Monitoring wells MW4 – MW9 were sampled in accordance with the following protocols:

- Prior to purging, the presence of phase separated hydrocarbons (PSH), and depth to groundwater were measured using an oil water interface probe. Depth to groundwater was recorded from the tops of the Gatic® covers (taken to approximate ground level);
- Prior to sampling, each well was purged using a low flow peristaltic pump until uniform turbidity was (visually) obtained, and field water quality parameters (electrical conductivity (EC), pH and temperature) stabilised over successive readings at least three minutes apart;
- The sampling train consisted of LDPE PFAS free plastic.
- Wells were purged and sampled at a pump flow rate which did not significantly reduce the height of the water column within the well;
- Field measurements - pH, electrical conductivity (EC), temperature, dissolved oxygen (DO) and redox potential (Eh) – were recorded during purging;
- Samples for metals analysis were field filtered using dedicated 0.45µm filtration packs;
- Each sample was collected into two appropriate contaminant free laboratory-supplied bottles, uniquely labelled, and placed on ice for transportation to the laboratory; and
- Samples were transported to the laboratory under Chain of Custody (CoC) conditions. CoC documentation is attached.

4 LABORATORY ANALYSIS

A groundwater sample from each well, plus a duplicate sample, were analysed by SGS Australia Pty Ltd (SGS). The samples were analysed for the following suite of analytes:

- Arsenic, cadmium chromium, copper lead and zinc; and
- Perfluorooctane sulfonate (PFOS) and Perfluorooctanoic acid (PFOA)

5 QUALITY ASSURANCE/QUALITY CONTROL

Instrument calibration and quality reports for the water quality meter and interface probe were sighted prior to use and are in Appendix D:

Dedicated sampling equipment (excluding the flow cell and silicon tubing in the peristaltic pump) was used for groundwater sample collection, and changed between each sampling location. The flow cell and silicon tubing in the peristaltic pump were purged between each sampling location, and the flow cell was not used during sample collection.

Groundwater samples were collected in appropriate laboratory-supplied bottles, transported under CoC conditions, and received by the laboratories with sufficient time to undertake analyses within specified holding times.

During the assessment, field duplicate groundwater samples were collected and analysed to assess whether field sampling procedures provided reproducible results. The RPD of analyte

concentrations between duplicates and triplicates and their respective primary samples were compared with the acceptance criterion of 50% for concentrations greater than 5x the laboratory limit of reporting (note that RPD calculation was not considered appropriate for results that rely on the addition of individual analytes or bands of analytes). RPD results are included in Summary Table 2 (attached).

SGS is a National Association of Testing Authorities (NATA)-certified for the analyses undertaken for this assessment. The laboratories conducted internal quality control using spikes, laboratory duplicates and method blanks. Laboratory QA/QC documentation is attached in Appendix E.

6 RESULTS

Field observations and laboratory results are summarised in Summary Table 1 (attached), and laboratory documentation is attached in Appendix E.

The number of exceedances 250% above the ANZECC guideline trigger values in the 12 month reporting period are summarised in Results table 1 below.

	MW4	MW5	MW6	MW7	MW8	MW9	MW10
Arsenic	0	0	0	0	0	0	0
Cadmium	0	0	0	0	0	0	0
Copper	0	0	0	0	0	0	0
Chromium	0	0	0	0	0	0	0
Lead	0	0	0	0	0	0	0
Zinc	1	2	0	8	0	0	2
PFOA	0	0	0	0	0	0	0
PFOS	0	0	0	0	0	0	0

Results Table 1: Number of exceedances >250% of the ANZECC guideline trigger value in the reporting period

7 DISCUSSION

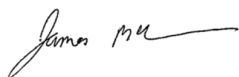
The groundwater monitoring results show that Zinc exceeds 250% of the ANZECC guideline trigger value in monitoring wells MW4, MW5, MW7 and MW10 in the . The Remondis Tomago facility does not handle zinc in any significant quantities, so it is considered that the zinc contamination is historical contamination, and it is recommended to continue monitoring.

Other exceedances below 250% of the ANZECC guideline trigger value are not considered significant.

8 CONCLUDING REMARKS

We trust that this meets your needs at this time. If you have any queries please contact the undersigned.

For and on behalf of JM Environments



James McMahon PhD Chem
Principal Environmental Scientist



Attachments

Summary Tables

Appendix A: A graphical representation of the monitoring results required by condition M2.1 for the annual return period

Appendix B: For each parameter required to be monitored by condition M2.1, a graph that compares the ANZECC Guideline trigger value with the monitoring results since monitoring began

Appendix C: Daily rainfall data for the monitoring period in graphical form

Appendix D: Calibration certificates for the monitoring period

Appendix E: Laboratory Documentation for the monitoring period

LIMITATIONS

This work has been conducted in good faith, in accordance with JME's understanding of the client's brief, and general accepted practice for environmental consulting.

The findings within this report are the result of discrete/specific sampling practices used in accordance with normal practices and standards. The investigations undertaken are considered to provide an assessment of the likely contamination conditions at the locations sampled. To the best of JME's knowledge, they represent a reasonable interpretation of the general conditions of the site. Under no circumstances, however, can it be considered that these findings represent the actual state of the site at all points.

It is the nature of contaminated site assessments that the degree of variability in site conditions cannot be known completely, and no sampling and analysis program can eliminate all uncertainty concerning the condition of the site. Professional judgement must be exercised in the collection and interpretation of the data presented.

This report was prepared for Remondis Australia Pty Ltd with the objective of monitoring selected metals and PFAS compounds in groundwater on the site.

No warranty, expressed or implied, is made as to the information and professional advice included in this report. The report is not intended for other parties or other uses. Anyone using this document does so at their own risk and should satisfy themselves concerning its applicability and, where necessary, should seek expert advice in relation to the particular situation at the time.

**Summary Table 1
GW Monitoring
Results**



Summary Table 1:
GW Monitoring Results

		Adopted	NEMP	MW4	MW4	MW4	MW4	MW4	MW4	MW4	MW4	MW4	MW4	MW4	MW4	
		Trigger	99%	18/4/2024	16/5/2024	20/6/2024	4/7/2024	12/8/2024	18/9/2024	23/10/2024	18/11/2024	10/12/2024	22/1/2025	14/2/2025	13/3/2025	
		Value	Ecological Protection	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	
		Analyte Name	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	
Field Parameters	Time													1000	1235	1047
	Depth	mbTOC		2.061	1.529	1.638	1.441	1.773	2.096	1.926	1.966	2.050	1.676	1.854	1.886	
	Dissolved O2	ppm		0.41	1.8	0.99	5.13	0.7	0.41	9.7	0.29	0.48	1.54	6.4	0.540	
	Electrical Conductivity	µs/cm		525.0	664.0	422.9	545.0	493.1	455.8	392.1	313.6	255.5	611.0	659.0	433.7	
	pH			5.78	6.42	6.61	6.71	6.49	6.55	6.36	6.10	6.12	6.64	6.37	6.27	
	Redox Potential	mV		21.4	105.1	45.8	100.3	98.1	123	96.9	87.1	105.7	96.3	19.4	102.1	
	Temperature	°C		24.2	22.7	20.8	19.5	18.9	19.9	20.6	21.3	22.4	23.9	24.8	24.5	
Laboratory Analysis	Arsenic, As	mg/L	0.013	0.0010	0.0010	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001	0.0010	
	Cadmium, Cd	mg/L	0.0007	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
	Copper, Cu	mg/L	0.0013	0.0020	0.0030	0.0020	0.0020	0.0020	0.0010	<0.001	<0.001	<0.001	0.0020	0.0010	<0.001	
	Chromium, Cr	mg/L	0.0044	0.0030	0.0020	0.0020	0.0080	0.001	0.002	0.003	0.003	0.003	0.0040	0.0020	0.003	
	Lead, Pb	mg/L	0.0044	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
	Zinc, Zn	mg/L	0.015	0.011	0.0470	0.0170	0.0230	0.012	0.014	<0.005	0.011	0.009	0.017	0.009	0.01	
	Perfluorooctanoic Acid (PFOA)	mg/L	0.00056	0.019	0.000011	0.0000066	<0.000001	0.0000029	<0.000002	0.000004	<0.00001	0.000003	0.000002	0.000006	0.000004	<0.000002
	Perfluorooctane sulfonate (PFOS)	mg/L	0	0.0000091	<0.000002	0.0000068	<0.000002	0.0000019	0.000005	0.000006	<0.00001	0.000005	0.000006	<0.000002	<0.000002	0.000004
	Sum of PFHxS and PFOS	mg/L	0.00007		0.000023	0.000021	0.00001	0.0000081	0.000014	0.00002	<0.00001	0.000014	0.000015	0.000014	0.000016	0.000015



Summary Table 1:
GW Monitoring Results

		Adopted	NEMP	MW5	MW5	MW5	MW5	MW5	MW5	MW5	MW5	MW5	MW5	MW5	MW5	
		Trigger	99%	18/4/2024	16/5/2024	20/6/2024	4/7/2024	12/8/2024	18/9/2024	23/10/2024	18/11/2024	10/12/2024	22/1/2025	14/2/2025	13/3/2025	
		Value	Ecological	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	
		Analyte Name	Units	Protection	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	
Field Parameters	Time													925	1235	1000
	Depth	mbTOC			2.215	1.386	1.749	1.553	1.891	2.031	2.055	2.050	2.150	1.804	2.027	2.094
	Dissolved O2	ppm			0.54	5.2	5.28	4.99	0.6	0.39	3	0.29	0.19	4.22	2.3	4.230
	Electrical Conductivity	µs/cm			364.9	468.7	417.2	430.3	383.9	339.9	340.0	326.6	280.8	542.0	428.5	537.0
	pH				5.86	6.71	6.97	6.75	6.27	6.41	6.28	6.27	6.57	6.68	6.24	6.67
	Redox Potential	mV			-83.1	96.1	16.1	95.1	78.7	85.7	75	-77.8	-10.4	94.4	-74.1	138.3
	Temperature	°C			23.6	21.6	18.8	16.5	17.4	18.6	19.7	20.4	22.0	23.7	24.7	24.9
Laboratory Analysis	Arsenic, As	mg/L	0.013		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Cadmium, Cd	mg/L	0.0007		<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper, Cu	mg/L	0.0013		<0.001	0.0030	0.0020	<0.002	0.0010	0.0010	<0.001	<0.001	<0.001	0.0020	<0.001	0.0030
	Chromium, Cr	mg/L	0.0044		0.0050	0.0020	0.0020	0.0010	0.002	0.003	0.003	0.003	0.004	0.0020	0.0030	0.001
	Lead, Pb	mg/L	0.0044		0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Zinc, Zn	mg/L	0.015		0.012	0.0460	0.0360	0.0450	0.0360	0.0200	0.0230	0.0160	0.009	0.0310	0.0200	0.0150
	Perfluorooctanoic Acid (PFOA)	mg/L	0.00056	0.019	0.000003	<0.000005	<0.000001	<0.000005	<0.000002	<0.000002	<0.000001	<0.000002	<0.000002	0.000003	0.000002	0.000035
	Perfluorooctane sulfonate (PFOS)	mg/L	0	0.0000091	<0.000002	0.000001	<0.000002	0.0000011	0.000002	0.000005	<0.000001	0.000004	0.000008	<0.000002	<0.000002	0.000009
	Sum of PFHxS and PFOS	mg/L	0.00007		0.000017	0.000061	0.000003	0.0000082	0.000005	0.000015	<0.00001	0.000011	0.000015	0.000006	0.000008	0.000018



Summary Table 1:
GW Monitoring Results

		Adopted	NEMP	MW6	MW6	MW6	MW6	MW6	MW6	MW6	MW6	MW6	MW6	MW6	MW6	
		Trigger	99%	18/4/2024	16/5/2024	20/6/2024	4/7/2024	12/8/2024	18/9/2024	23/10/2024	18/11/2024	10/12/2024	22/1/2025	14/2/2025	13/3/2025	
		Value	Ecological	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	
		Analyte Name	Protection	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	
		Units														
Field Parameters	Time													715	910	802
	Depth	mbTOC			3.548	2.865	2.886	2.883	2.990	3.136	3.215	3.286	3.350	3.074	3.208	3.317
	Dissolved O2	ppm		probe failure	5.8	6.14	6.14	7.24	6.5	5.55	60.3	6.79	6	6.4	58.7	5.730
	Electrical Conductivity	µs/cm		probe failure	109.0	76.9	91.1	94.4	98.8	101.5	109.3	130.7	126.9	132.5	136.5	
	pH			probe failure	5.02	5.51	5.02	4.90	5.32	5.04	5.04	5.35	5.01	4.96	4.64	
	Redox Potential	mV		probe failure	223.3	129.6	238	181	128.3	237	161.7	193.8	206.9	163.4	215.2	
	Temperature	°C		probe failure	20.5	18.6	18.2	17.3	18.3	18.9	19.6	21.3	21.8	22.4	21.8	
	Arsenic, As	mg/L	0.013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Cadmium, Cd	mg/L	0.0007	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper, Cu	mg/L	0.0013	<0.001	<0.001	<0.001	<0.002	0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0020	
Chromium, Cr	mg/L	0.0044	0.0030	0.0030	0.0030	0.0030	0.003	0.004	0.003	0.003	0.002	0.0020	0.0020	0.003		
Lead, Pb	mg/L	0.0044	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Zinc, Zn	mg/L	0.015	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Perfluorooctanoic Acid (PFOA)	mg/L	0.00056	0.019	<0.000002	<0.0000005	<0.000001	<0.0000005	<0.000002	<0.000002	<0.000001	<0.000002	<0.000002	<0.000002	0.000002	<0.000002	
Perfluorooctane sulfonate (PFOS)	mg/L	0	0.0000091	<0.000002	<0.0000002	<0.000002	<0.0000002	<0.000002	<0.000002	<0.000001	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	
Sum of PFHxS and PFOS	mg/L	0.00007		<0.000002	0.0000002	<0.000002	<0.0000002	<0.000002	<0.000002	<0.000001	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	



Summary Table 1:
GW Monitoring Results

		Adopted	NEMP	MW7	MW7	MW7	MW7	MW7	MW7	MW7	MW7	MW7	MW7	MW7	MW7	
		Trigger	99%	18/4/2024	16/5/2024	20/6/2024	4/7/2024	12/8/2024	18/9/2024	23/10/2024	18/11/2024	10/12/2024	22/1/2025	14/2/2025	13/3/2025	
		Value	Ecological	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	
			Protection	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	
Analyte Name		Units														
Field Parameters	Time													845	1105	935
	Depth	mbTOC			2.566	2.202	2.287	2.144	2.436	2.576	2.618	2.695	2.550	2.401	2.581	2.672
	Dissolved O2	ppm			1.06	5.6	3.68	6.96	1.2	1.11	6.4	0.18	0.25	6.87	8.4	3.890
	Electrical Conductivity	µs/cm			186.8	149.5	176.8	132.4	175.6	171.7	158.5	144.4	162.3	156.9	205.6	244.2
	pH				5.71	6.22	6.42	6.24	6.18	6.38	6.25	6.21	6.39	6.28	5.96	6.27
	Redox Potential	mV			-6.1	111.1	35.1	95.5	44	88.7	-83.2	-69.4	179	99.3	21.3	71.1
	Temperature	°C			23.5	21.1	19.9	17.8	18.2	18.4	19.1	19.8	21.2	22.9	23.6	23.7
	Arsenic, As	mg/L	0.013		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0010	<0.001	<0.001
Cadmium, Cd	mg/L	0.0007		<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Copper, Cu	mg/L	0.0013		<0.001	0.0030	0.0010	<0.002	0.0010	<0.001	<0.001	<0.001	<0.001	0.0030	<0.001	0.0020	
Chromium, Cr	mg/L	0.0044		0.0030	0.0010	0.0020	0.0010	0.003	0.003	0.003	0.003	0.002	0.0020	0.0030	0.002	
Lead, Pb	mg/L	0.0044		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Zinc, Zn	mg/L	0.015		0.01	0.6200	0.5300	0.7700	0.2400	0.0410	0.0890	0.0330	0.01	0.6000	0.1700	0.2000	
Perfluorooctanoic Acid (PFOA)	mg/L	0.00056	0.019	0.000004	<0.0000005	<0.000001	<0.0000005	0.000003	0.000002	<0.000001	0.000002	<0.000002	<0.000002	0.000002	<0.000002	
Perfluorooctane sulfonate (PFOS)	mg/L	0	0.0000091	<0.000002	0.0000006	<0.000002	<0.000002	0.000005	0.000002	<0.000001	0.000004	0.000003	<0.000002	0.000005	<0.000002	
Sum of PFHxS and PFOS	mg/L	0.00007		0.000004	0.0000006	<0.000002	<0.000002	0.000005	0.000002	<0.000001	0.000004	0.000003	<0.000002	0.000007	<0.000002	



Summary Table 1:
GW Monitoring Results

		Adopted	NEMP	MW8	MW8	MW8	MW8	MW8	MW8	MW8	MW8	MW8	MW8	MW8	MW8	
		Trigger	99%	18/4/2024	16/5/2024	20/6/2024	4/7/2024	12/8/2024	18/9/2024	23/10/2024	18/11/2024	10/12/2024	22/1/2025	14/2/2025	13/3/2025	
		Value	Ecological	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	
		Protection	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	
Analyte Name		Units														
Field Parameters	Time															
	Depth	mb/TOC		2.927	2.249	2.333	2.196	2.473	2.621	2.668	2.739	2.750	2.441	2.634	2.660	
	Dissolved O2	ppm		probe failure	4.6	6.21	6.74	4.9	1.35	12.2	0.7	0.43	3.49	10.1	0.460	
	Electrical Conductivity	µs/cm		probe failure	135.1	111.9	69.9	92.0	68.1	100.5	86.5	109.8	116.6	141.9	129.9	
	pH			probe failure	5.98	6.31	6.11	5.89	6.54	6.08	6.64	6.49	6.04	6.15	6.06	
	Redox Potential	mV		probe failure	155.7	61.4	142	104.1	98.9	111	16.9	100.2	121	84.6	134	
	Temperature	°C		probe failure	21.5	19.0	18.2	17.2	18.6	19.1	19.8	21.4	22.8	23.6	23.2	
Laboratory Analysis	Arsenic, As	mg/L	0.013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
	Cadmium, Cd	mg/L	0.0007	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
	Copper, Cu	mg/L	0.0013	<0.001	<0.001	<0.001	<0.002	<0.001	0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
	Chromium, Cr	mg/L	0.0044	0.0010	0.0020	0.0010	0.0020	0.002	0.002	0.001	0.001	0.001	0.0020	0.0020	0.002	
	Lead, Pb	mg/L	0.0044	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
	Zinc, Zn	mg/L	0.015	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
	Perfluorooctanoic Acid (PFOA)	mg/L	0.00056	0.019	0.000004	0.000001	<0.000001	<0.0000005	<0.000002	<0.000002	<0.000001	0.000004	0.000003	0.000008	0.000008	0.000006
	Perfluorooctane sulfonate (PFOS)	mg/L	0	0.0000091	<0.000002	0.0000003	<0.000002	<0.000002	<0.000002	0.000003	<0.000001	0.000004	0.000004	0.000002	0.000005	0.000006
	Sum of PFHxS and PFOS	mg/L	0.00007		<0.000002	0.0000005	<0.000002	0.0000004	<0.000002	0.000003	<0.000001	0.000004	0.000004	0.000002	0.000005	0.000006



Summary Table 1:
GW Monitoring Results

		Adopted	NEMP	MW10	MW10	MW10	MW10	MW10	MW10	MW10	MW10	MW10	MW10	MW10	MW10
		Trigger	99%	18/4/2024	16/5/2024	20/6/2024	4/7/2024	12/8/2024	18/9/2024	23/10/2024	18/11/2024	10/12/2024	22/1/2025	14/2/2025	13/3/2025
		Value	Ecological	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
			Protection	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Analyte Name		Units													
Field Parameters	Time												810	1020	901
	Depth	mbTOC													
	Dissolved O2	ppm													
	Electrical Conductivity	µs/cm													
	pH														
	Redox Potential	mV													
	Temperature	°C													
Laboratory Analysis	Arsenic, As	mg/L	0.013	<0.001	0.0020	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Cadmium, Cd	mg/L	0.0007	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper, Cu	mg/L	0.0013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Chromium, Cr	mg/L	0.0044		0.0040	0.0030	0.0040	0.0030	0.004	0.004	0.004	0.004	0.004	0.0040	0.0040
	Lead, Pb	mg/L	0.0044	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Zinc, Zn	mg/L	0.015	<0.005	0.0460	0.010	0.0580	<0.005	0.006	0.006	0.01	<0.005	0.0320	<0.005	<0.005
	Perfluorooctanoic Acid (PFOA)	mg/L	0.00056	0.019	<0.000002	0.000009	<0.000001	0.000016	<0.000002	<0.000002	<0.000001	<0.000002	<0.000002	<0.000002	<0.000002
	Perfluorooctane sulfonate (PFOS)	mg/L	0	0.0000091	<0.000002	0.000027	<0.000002	0.000018	0.000012	0.000008	<0.000001	0.000007	0.000004	0.000003	<0.000002
	Sum of PFHxS and PFOS	mg/L	0.00007		<0.000002	0.000056	<0.000002	0.000038	0.000012	0.000008	<0.000001	0.000007	0.000004	0.000003	<0.000002

Summary Table 2
GW Monitoring
QA/QC Summary



Summary Table 2
Groundwater monitoring QA/QC summary

		MW9	QC2404	Relative	MW9	QC2405	Relative	MW9	QC2406	Relative	MW9	QC2407	Relative
		18/4/2024	18/4/2024	percentage	16/05/2024	16/05/2024	percentage	20/06/2024	20/06/2024	percentage	4/7/2024	4/7/2024	percentage
		Water	Water	difference	Water	Water	difference	Water	Water	difference	Water	Water	difference
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Arsenic	mg/L	<0.001	<0.001	0%	<0.001	<0.001	0%	<0.001	<0.001	0%	<0.001	<0.001	0%
Cadmium	mg/L	<0.0001	<0.0001	0%	<0.0001	<0.0001	0%	<0.0001	<0.0001	0%	<0.0001	<0.0001	0%
Copper	mg/L	<0.001	<0.001	0%	<0.001	<0.001	0%	<0.001	<0.001	0%	<0.001	<0.001	0%
Chromium	mg/L	0.004	0.004	0%	0.002	0.002	0%	0.003	0.003	0%	0.004	0.004	0%
Lead	mg/L	<0.001	<0.001	0%	<0.001	<0.001	0%	<0.001	<0.001	0%	<0.001	<0.001	0%
Zinc	mg/L	<0.005	0.007	33%	<0.005	<0.005	0%	<0.005	<0.005	0%	<0.005	<0.005	0%
Perfluorooctanoic Acid (PFOA)	mg/L	<0.000002	<0.000002	0%	0.0000005	0.0000006	18%	<0.000001	<0.000001	0%	<0.0000005	<0.0000005	0%
Perfluorooctane sulfonate (PFOS)	mg/L	<0.000002	<0.000002	0%	<0.0000002	0.0000005	86%	<0.000002	<0.000002	0%	<0.0000002	<0.0000002	0%
Sum of PFHxS and PFOS	mg/L	<0.000002	<0.000002	0%	<0.0000002	0.0000008	120%	<0.000002	<0.000002	0%	<0.0000002	<0.0000002	0%

		MW9	QC2408	Relative	MW9	QC2409	Relative	MW9	QC2410	Relative	MW9	QC2411	Relative
		12/8/2024	12/8/2024	percentage	18/09/2024	18/09/2024	percentage	23/10/2024	23/10/2024	percentage	18/11/2024	18/11/2024	percentage
		Water	Water	difference	Water	Water	difference	Water	Water	difference	Water	Water	difference
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Arsenic	mg/L	<0.001	<0.001	0%	<0.001	<0.001	0%	<0.001	sample results unavailable	-	<0.001	<0.001	0%
Cadmium	mg/L	<0.0001	<0.0001	0%	<0.0001	<0.0001	0%	<0.0001		-	<0.0001	<0.0001	0%
Copper	mg/L	<0.001	<0.001	0%	<0.001	<0.001	0%	<0.001		-	<0.001	<0.001	0%
Chromium	mg/L	0.003	0.003	0%	0.003	0.003	0%	0.003		-	0.003	0.003	0%
Lead	mg/L	<0.001	<0.001	0%	<0.001	<0.001	0%	<0.001		-	<0.001	<0.001	0%
Zinc	mg/L	<0.005	<0.005	0%	<0.005	<0.005	0%	<0.005		-	<0.005	<0.005	0%
Perfluorooctanoic Acid (PFOA)	mg/L	<0.000002	<0.000002	0%	<0.000002	<0.000002	0%	<0.000001		-	<0.000002	<0.000002	0%
Perfluorooctane sulfonate (PFOS)	mg/L	<0.000002	<0.000002	0%	<0.000002	<0.000002	0%	<0.000001		-	<0.000002	<0.000002	0%
Sum of PFHxS and PFOS	mg/L	<0.000002	<0.000002	0%	<0.000002	<0.000002	0%	<0.000001		-	<0.000002	<0.000002	0%

		MW9	QC2412	Relative	MW9	QC 21054 2501	Relative	MW9	QC 21054 250	Relative	MW9	QC 21054 2503	Relative
		10/12/2024	10/12/2024	percentage	22/01/2025	22/01/2025	percentage	22/01/2025	17/02/2025	percentage	13/3/2025	13/3/2025	percentage
		Water	Water	difference	Water	Water	difference	Water	Water	difference	Water	Water	difference
		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Arsenic	mg/L	<0.001	<0.001	0%	<0.001	<0.001	0%	<0.001	<0.001	0%	<0.001	<0.001	0%
Cadmium	mg/L	<0.0001	<0.0001	0%	<0.0001	<0.0001	0%	<0.0001	<0.0001	0%	<0.0001	<0.0001	0%
Copper	mg/L	<0.001	<0.001	0%	<0.001	<0.001	0%	<0.001	<0.001	0%	0.002	0.002	0%
Chromium	mg/L	0.003	0.003	0%	0.003	0.003	0%	0.003	0.003	0%	0.004	0.004	0%
Lead	mg/L	<0.001	<0.001	0%	<0.001	<0.001	0%	<0.001	<0.001	0%	<0.001	<0.001	0%
Zinc	mg/L	<0.005	<0.005	0%	<0.005	<0.005	0%	<0.005	<0.005	0%	<0.005	<0.005	0%
Perfluorooctanoic Acid (PFOA)	mg/L	<0.000002	<0.000002	0%	<0.000002	<0.000002	0%	<0.000002	<0.000002	0%	<0.000002	<0.000002	0%
Perfluorooctane sulfonate (PFOS)	mg/L	<0.000002	<0.000002	0%	<0.000002	<0.000002	0%	<0.000002	<0.000002	0%	<0.000002	<0.000002	0%
Sum of PFHxS and PFOS	mg/L	<0.000002	<0.000002	0%	<0.000002	<0.000002	0%	<0.000002	<0.000002	0%	<0.000002	<0.000002	0%

JM Environments
0427 893 668
37 Tooke St
COOKS HILL NSW 2300
ABN 67 166 341 288



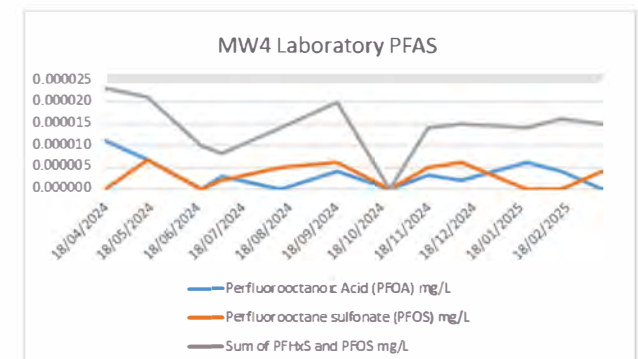
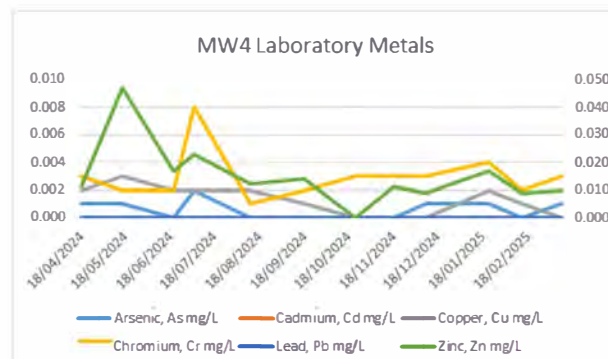
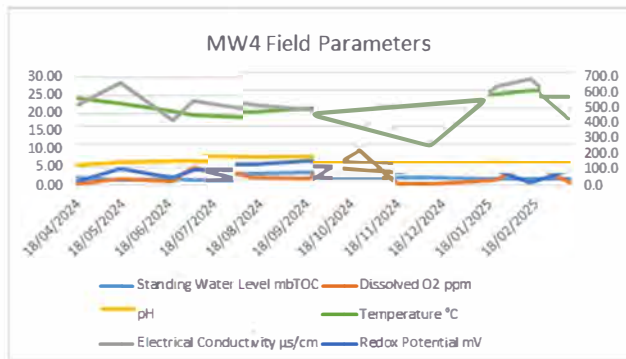
Appendix A:

A graphical representation of the monitoring results required by condition M2.1 for the annual return period



Appendix A: A graphical representation of the monitoring results MW4

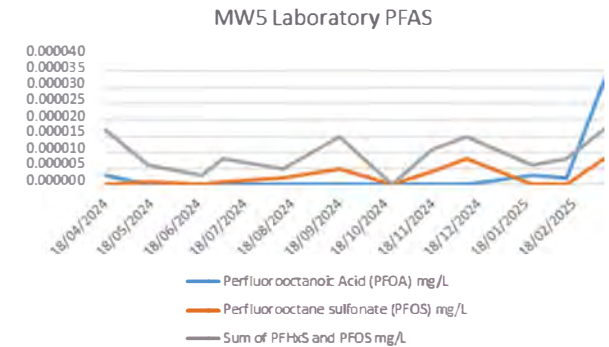
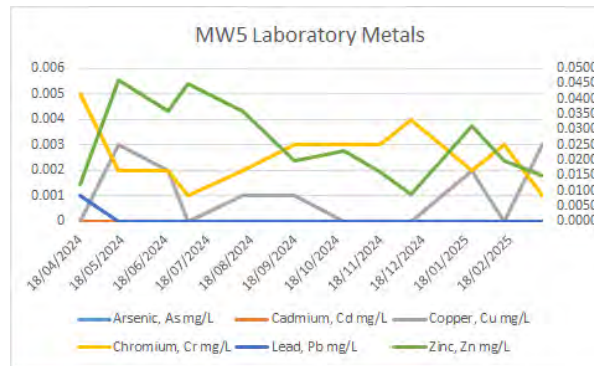
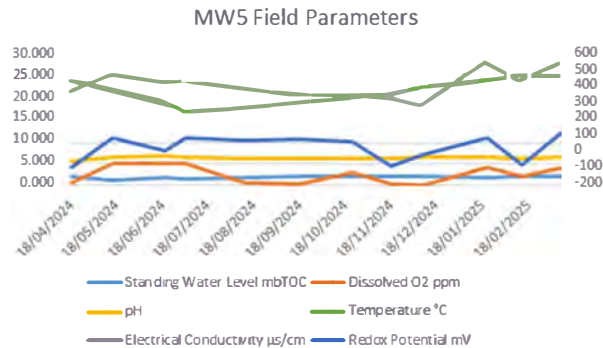
		MW4	MW4	MW4	MW4	MW4	MW4	MW4	MW4	MW4	MW4	MW4	MW4	MW4
		18/04/2024	16/05/2024	20/06/2024	4/07/2024	12/08/2024	18/09/2024	23/10/2024	18/11/2024	10/12/2024	22/01/2025	14/02/2025	13/03/2025	
Field Parameters	Time										1000	1235	1047	
	Standing Water Level	mbTOC	2.06	1.53	1.64	1.44	1.77	2.10	1.93	1.97	2.05	1.68	1.85	1.89
	Dissolved O2	ppm	0.41	1.80	0.99	5.13	0.70	0.41	9.70	0.29	0.48	1.54	6.40	0.54
	Electrical Conductivity	µs/cm	525.0	664.0	422.9	545.0	493.1	455.8	392.1	313.6	255.5	611.0	659.0	433.7
	pH		5.78	6.42	6.61	6.71	6.49	6.55	6.36	6.10	6.12	6.64	6.37	6.27
	Redox Potential	mV	21.40	105.10	45.80	100.30	98.10	123.00	96.90	87.10	105.70	96.30	19.40	102.10
	Temperature	°C	24.2	22.7	20.8	19.5	18.9	19.9	20.6	21.3	22.4	23.9	24.8	24.5
Laboratory Analysis	Arsenic, As	mg/L	0.001	0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001	0.001
	Cadmium, Cd	mg/L	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper, Cu	mg/L	0.0020	0.0030	0.0020	0.0020	0.0020	0.0010	<0.001	<0.001	<0.001	0.0020	0.0010	<0.001
	Chromium, Cr	mg/L	0.0030	0.0020	0.0020	0.0080	0.0010	0.0020	0.0030	0.0030	0.0030	0.0040	0.0020	0.0030
	Lead, Pb	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Zinc, Zn	mg/L	0.011	0.047	0.017	0.023	0.012	0.014	<0.005	0.011	0.009	0.017	0.009	0.010
	Perfluorooctanoic Acid (PFOA)	mg/L	0.000011	0.000007	<0.000001	0.000003	<0.000002	0.000004	<0.000001	0.000003	0.000002	0.000006	0.000004	<0.000002
	Perfluorooctane sulfonate (PFOS)	mg/L	<0.000002	0.000007	<0.000002	0.000002	0.000005	0.000006	<0.000001	0.000005	0.000006	<0.000002	<0.000002	0.000004
	Sum of PFHxS and PFOS	mg/L	0.000023	0.000021	0.000010	0.000008	0.000014	0.000020	<0.000001	0.000014	0.000015	0.000014	0.000016	0.000015





Appendix A: A graphical representation of the monitoring results MW5

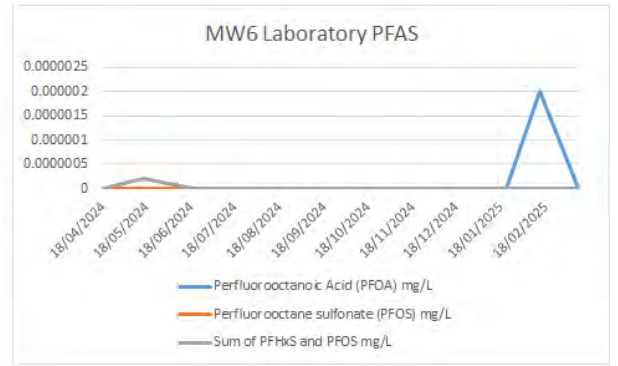
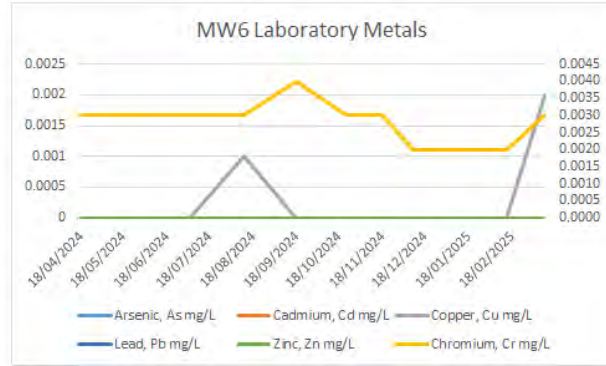
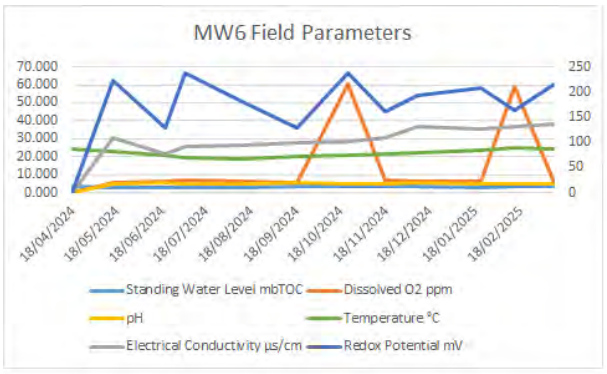
		MW5	MW5	MW5	MW5	MW5	MW5	MW5	MW5	MW5	MW5	MW5	MW5	
		18/04/2024	16/05/2024	20/06/2024	4/07/2024	12/08/2024	18/09/2024	23/10/2024	18/11/2024	10/12/2024	22/01/2025	14/02/2025	13/03/2025	
Field Parameters	Time										925	1235	1000	
	Standing Water Level	mbTOC	2.215	1.386	1.749	1.553	1.891	2.031	2.055	2.050	2.150	1.804	2.027	2.094
	Dissolved O2	ppm	0.54	5.2	5.28	4.99	0.6	0.39	3	0.29	0.19	4.22	2.3	4.23
	Electrical Conductivity	µs/cm	364.9	468.7	417.2	430.3	383.9	339.9	340	326.6	280.8	542	428.5	537
	pH		5.86	6.71	6.97	6.75	6.27	6.41	6.28	6.27	6.57	6.68	6.24	6.67
	Redox Potential	mV	-83.1	96.1	16.1	95.1	78.7	85.7	75.0	-77.8	-10.4	94.4	-74.1	138.3
	Temperature	°C	23.6	21.6	18.8	16.5	17.4	18.6	19.7	20.4	22	23.7	24.7	24.9
Laboratory Analysis	Arsenic, As	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
	Cadmium, Cd	mg/L	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
	Copper, Cu	mg/L	<0.001	0.003	0.0020	<0.002	0.0010	0.0010	<0.001	<0.001	<0.001	0.0020	<0.001	0.003
	Chromium, Cr	mg/L	0.0050	0.0020	0.0020	0.0010	0.0020	0.0030	0.003	0.003	0.004	0.0020	0.0030	0.001
	Lead, Pb	mg/L	0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Zinc, Zn	mg/L	0.0120	0.046	0.036	0.045	0.036	0.020	0.023	0.016	0.009	0.031	0.02	0.015
	Perfluorooctanoic Acid (PFOA)	mg/L	0.000003	<0.0000005	<0.000001	<0.0000005	<0.000002	<0.000002	<0.000001	<0.000002	<0.000002	0.000003	0.000002	0.000035
	Perfluorooctane sulfonate (PFOS)	mg/L	<0.000002	0.000001	<0.000002	0.0000011	0.000002	0.000005	<0.000001	0.000004	0.000008	<0.000002	<0.000002	0.000009
Sum of PFHxS and PFOS	mg/L	0.000017	0.000006	0.000003	0.0000082	0.000005	0.000015	<0.00001	0.000011	0.000015	0.000006	0.000008	0.000018	





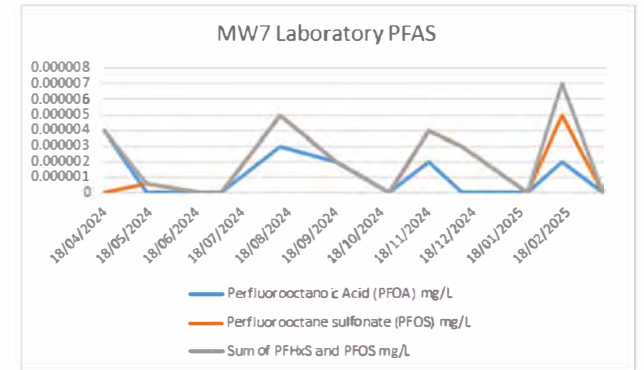
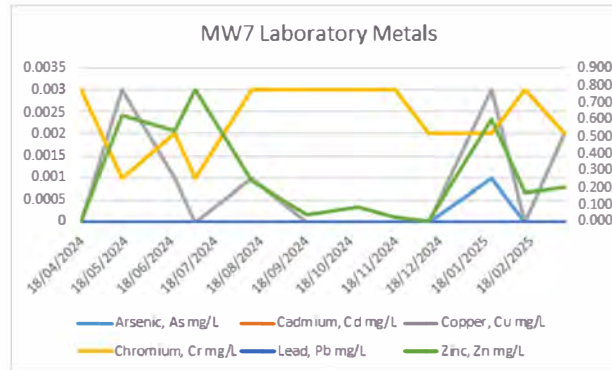
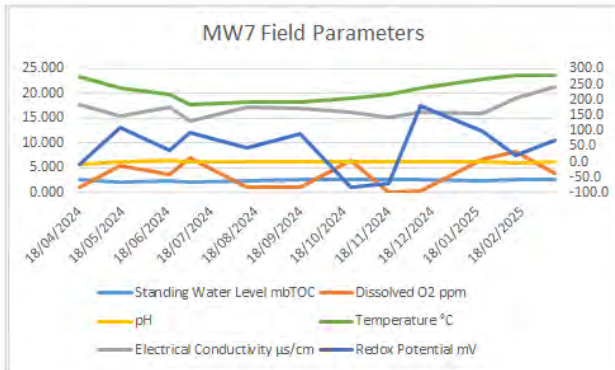
Appendix A: A graphical representation of the monitoring results MW6

		MW6	MW6	MW6	MW6	MW6	MW6	MW6	MW6	MW6	MW6	MW6	MW6	MW6
		18/04/2024	16/05/2024	20/06/2024	4/07/2024	12/08/2024	18/09/2024	23/10/2024	18/11/2024	10/12/2024	22/01/2025	14/02/2025	13/03/2025	
Field Parameters	Time											715	910	802
	Standing Water Level	mbTOC	3.548	2.865	2.886	2.883	2.990	3.136	3.215	3.286	3.350	3.074	3.208	3.317
	Dissolved O2	ppm	probe failure	5.8	6.14	7.24	6.5	5.55	60.3	6.79	6	6.4	58.7	5.73
	Electrical Conductivity	µs/cm	probe failure	109	76.9	91.1	94.4	98.8	101.5	109.3	130.7	126.9	132.5	136.5
	pH		probe failure	5.02	5.51	5.02	4.9	5.32	5.04	5.04	5.35	5.01	4.96	4.64
	Redox Potential	mV	probe failure	223.3	129.6	238	181	128.3	237	161.7	193.8	206.9	163.4	215.2
	Temperature	°C	probe failure	20.5	18.6	18.2	17.3	18.3	18.9	19.6	21.3	21.8	22.4	21.8
Laboratory Analysis	Arsenic, As	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Cadmium, Cd	mg/L	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper, Cu	mg/L	<0.001	<0.001	<0.001	<0.002	0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
	Chromium, Cr	mg/L	0.0030	0.0030	0.0030	0.0030	0.0030	0.0040	0.003	0.003	0.002	0.002	0.002	0.003
	Lead, Pb	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Zinc, Zn	mg/L	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Perfluorooctanoic Acid (PFOA)	mg/L	<0.000002	<0.000005	<0.000001	<0.000005	<0.000002	<0.000002	<0.000002	<0.000001	<0.000002	<0.000002	0.000002	<0.000002
	Perfluorooctane sulfonate (PFOS)	mg/L	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	<0.000001	<0.000002	<0.000002	<0.000002	<0.000002
	Sum of PFHxS and PFOS	mg/L	<0.000002	0.000002	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	<0.000001	<0.000002	<0.000002	<0.000002	<0.000002



Appendix A: A graphical representation of the monitoring results MW7

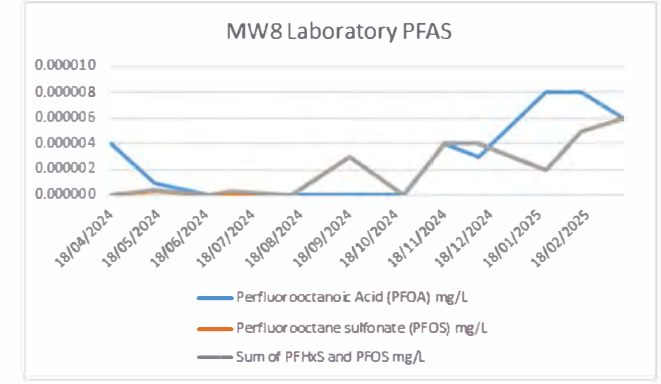
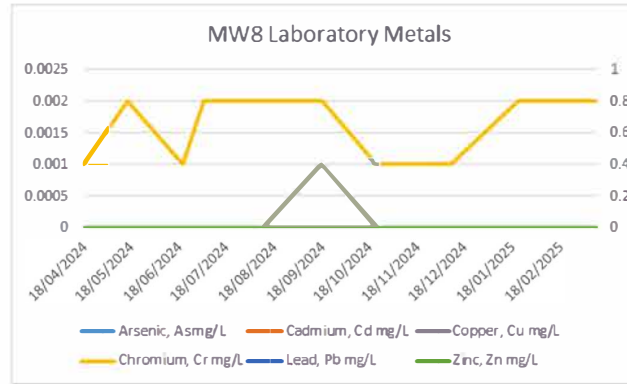
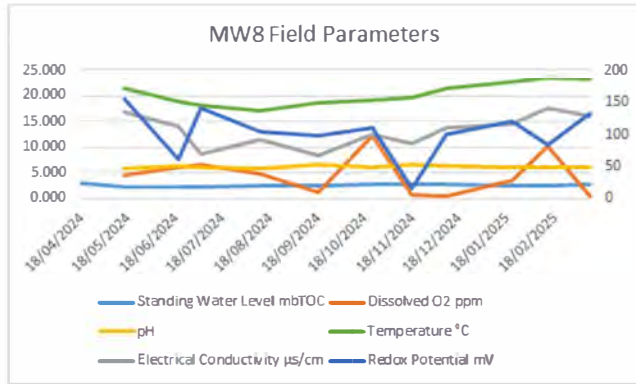
			MW7	MW7	MW7	MW7	MW7	MW7	MW7	MW7	MW7	MW7	MW7	MW7	
			18/04/2024	16/05/2024	20/06/2024	4/07/2024	12/08/2024	18/09/2024	23/10/2024	18/11/2024	10/12/2024	22/01/2025	14/02/2025	13/03/2025	
Field Parameters	Time												845	1105	935
	Standing Water Level	mbTOC	2.566	2.202	2.287	2.144	2.436	2.576	2.618	2.695	2.550	2.401	2.581	2.672	
	Dissolved O2	ppm	1.06	5.6	3.68	6.96	1.2	1.11	6.4	0.18	0.25	6.87	8.4	3.89	
	Electrical Conductivity	µs/cm	186.8	149.5	176.8	132.4	175.6	171.7	158.5	144.4	162.3	156.9	205.6	244.2	
	pH		5.71	6.22	6.42	6.24	6.18	6.38	6.25	6.21	6.39	6.28	5.96	6.27	
	Redox Potential	mV	-6.1	111.1	35.1	95.5	44	88.7	-83.2	-69.4	179	99.3	21.3	71.1	
	Temperature	°C	23.5	21.1	19.9	17.8	18.2	18.4	19.1	19.8	21.2	22.9	23.6	23.7	
Laboratory Analysis	Arsenic, As	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0010	<0.001	<0.001	
	Cadmium, Cd	mg/L	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
	Copper, Cu	mg/L	<0.001	0.0030	0.0010	<0.002	0.0010	<0.001	<0.001	<0.001	<0.001	0.0030	<0.001	0.002	
	Chromium, Cr	mg/L	0.0030	0.0010	0.0020	0.001	0.0030	0.0030	0.003	0.003	0.002	0.002	0.003	0.002	
	Lead, Pb	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
	Zinc, Zn	mg/L	0.010	0.620	0.530	0.770	0.240	0.041	0.089	0.033	0.01	0.60	0.17	0.2	
	Perfluorooctanoic Acid (PFOA)	mg/L	0.000004	<0.000005	<0.000001	<0.000005	0.000003	0.000002	<0.000001	0.000002	<0.000002	<0.000002	0.000002	<0.000002	
	Perfluorooctane sulfonate (PFOS)	mg/L	<0.000002	0.0000006	<0.000002	<0.0000002	0.000005	0.000002	<0.000001	0.000004	0.000003	<0.000002	0.000005	<0.000002	
	Sum of PFHxS and PFOS	mg/L	0.000004	0.0000006	<0.000002	<0.0000002	0.000005	0.000002	<0.000001	0.000004	0.000003	<0.000002	0.000007	<0.000002	





Appendix A: A graphical representation of the monitoring results MW8

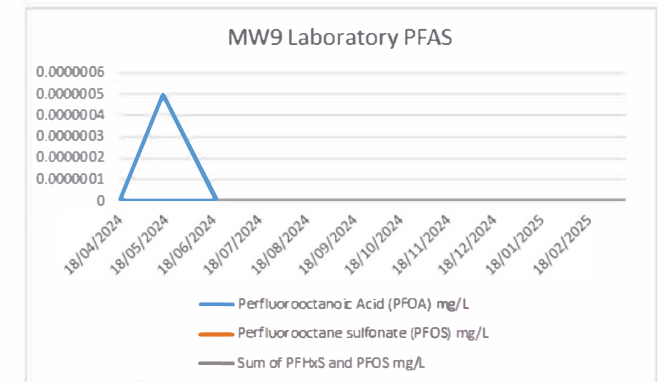
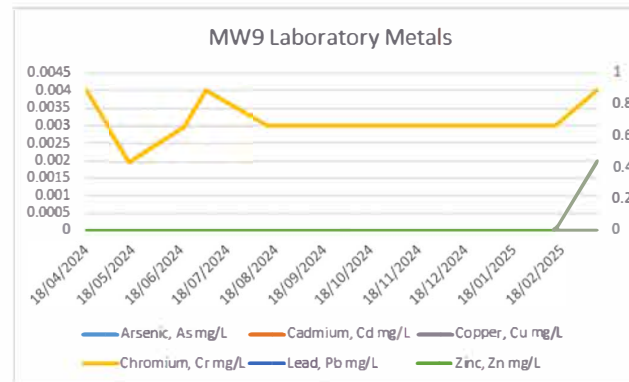
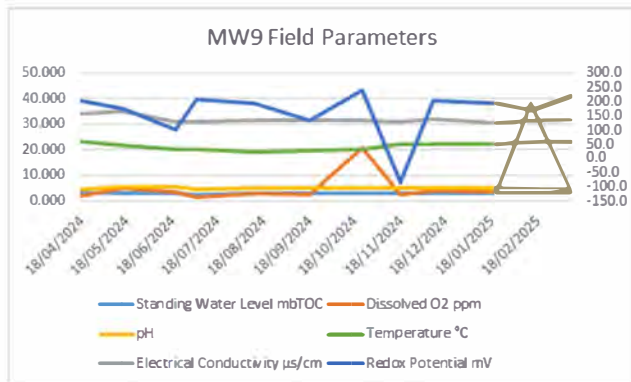
		MW8	MW8	MW8	MW8	MW8	MW8	MW8	MW8	MW8	MW8	MW8	MW8	
		18/04/2024	16/05/2024	20/06/2024	4/07/2024	12/08/2024	18/09/2024	23/10/2024	18/11/2024	10/12/2024	22/01/2025	14/02/2025	13/03/2025	
Field Parameters	Time										640	830	730	
	Standing Water Level	mbTOC	2.927	2.249	2.333	2.196	2.473	2.621	2.668	2.739	2.750	2.441	2.634	2.660
	Dissolved O2	ppm		4.6	6.21	6.74	4.9	1.35	12.2	0.7	0.43	3.49	10.1	0.46
	Electrical Conductivity	µs/cm		135.1	111.9	69.9	92	68.1	100.5	86.5	109.8	116.6	141.9	129.9
	pH			5.98	6.31	6.11	5.89	6.54	6.08	6.64	6.49	6.04	6.15	6.06
	Redox Potential	mV		155.7	61.4	142	104.1	98.9	111	16.9	100.2	121	84.6	134
	Temperature	°C		21.5	19.0	18.2	17.2	18.6	19.1	19.8	21.4	22.8	23.6	23.2
Laboratory Analysis	Arsenic, As	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Cadmium, Cd	mg/L	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper, Cu	mg/L	<0.001	<0.001	<0.001	<0.002	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Chromium, Cr	mg/L	0.0010	0.0020	0.0010	0.0020	0.0020	0.0020	0.001	0.001	0.001	0.002	0.002	0.002
	Lead, Pb	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Zinc, Zn	mg/L	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Perfluorooctanoic Acid (PFOA)	mg/L	0.000004	0.000001	<0.000001	<0.000005	<0.000002	<0.000002	<0.000001	0.000004	0.000003	0.000008	0.000008	0.000006
	Perfluorooctane sulfonate (PFOS)	mg/L	<0.000002	0.000003	<0.000002	<0.000002	<0.000002	0.000003	<0.000001	0.000004	0.000004	0.000002	0.000005	0.000006
Sum of PFHxS and PFOS	mg/L	<0.000002	0.000005	<0.000002	0.000004	<0.000002	0.000003	<0.000001	0.000004	0.000004	0.000002	0.000005	0.000006	





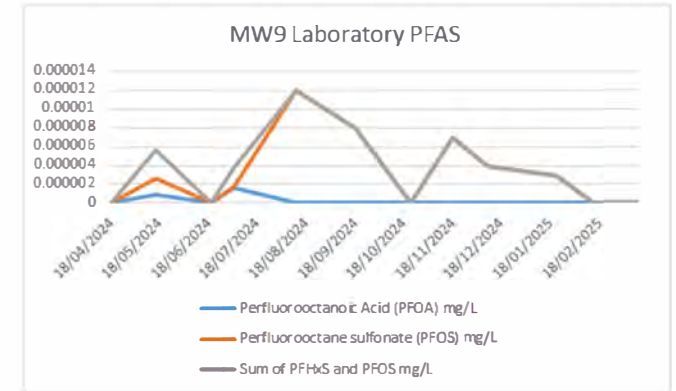
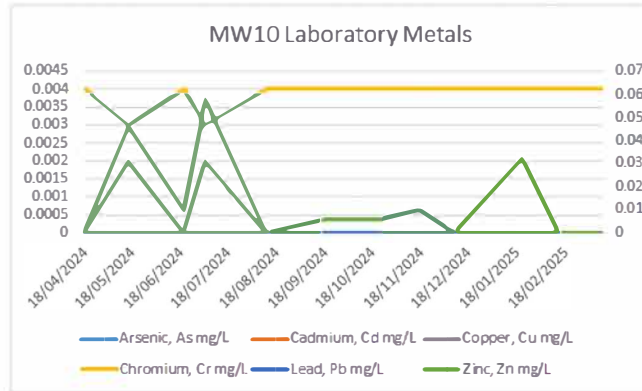
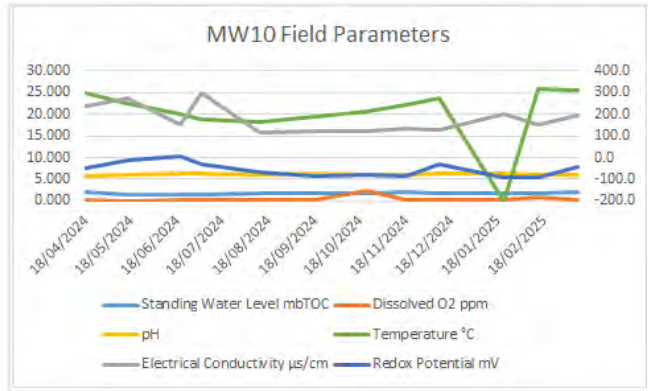
Appendix A: A graphical representation of the monitoring results MW9

			MW9	MW9	MW9	MW9	MW9	MW9	MW9	MW9	MW9	MW9	MW9	MW9
			Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25
Field Parameters	Time											740	945	834
	Standing Water Level	mbTOC	3.697	3.048	3.058	3.016	3.146	3.293	3.365	3.424	3.490	3.258	3.345	3.510
	Dissolved O2	ppm	2.38	5.1	3.78	1.64	3.2	2.89	20.9	2.56	4.23	3.93	38.2	3.9
	Electrical Conductivity	µs/cm	156.9	165.4	128.1	127.1	132.4	132.3	135.6	127.6	137.4	124.8	133.0	139.8
	pH		4.82	5.88	6.11	5.07	5.38	5.52	5.16	5.13	5.53	5.38	5.27	4.86
	Redox Potential	mV	203.6	175.8	103	206.1	191.8	135.6	239.6	-84.3	201.3	192.8	170.9	220.6
	Temperature	°C	23.3	22.0	20.3	20.3	19.0	19.7	20.0	22.3	22.4	22.5	23.3	23.1
Laboratory Analysis	Arsenic, As	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Cadmium, Cd	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper, Cu	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
	Chromium, Cr	mg/L	0.0040	0.0020	0.0030	0.0040	0.0030	0.0030	0.003	0.003	0.003	0.003	0.003	0.004
	Lead, Pb	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Zinc, Zn	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Perfluorooctanoic Acid (PFOA)	mg/L	<0.000002	0.0000005	<0.000001	<0.0000005	<0.000002	<0.000002	<0.000001	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002
	Perfluorooctane sulfonate (PFOS)	mg/L	<0.000002	<0.0000002	<0.000002	<0.0000002	<0.000002	<0.000002	<0.000001	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002
	Sum of PFHxS and PFOS	mg/L	<0.000002	<0.0000002	<0.000002	<0.0000002	<0.000002	<0.000002	<0.000001	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002



Appendix A: A graphical representation of the monitoring results MW10

			MW10	MW10	MW10	MW10	MW10	MW10	MW10	MW10	MW10	MW10	MW10	MW10
			18/04/2024	16/05/2024	20/06/2024	4/07/2024	12/08/2024	18/09/2024	23/10/2024	18/11/2024	10/12/2024	22/01/2025	14/02/2025	13/03/2025
Field Parameters	Time											810	1020	901
	Standing Water Level	mbTOC	2.202	1.548	1.596	1.532	1.724	1.869	1.793	1.984	1.950	1.811	1.751	2.010
	Dissolved O2	ppm	0.27	0.1	0.32	0.21	0.2	0.21	2.5	0.14	0.21	0.4	1	0.28
	Electrical Conductivity	µs/cm	235.2	274.2	153.1	297.4	117.4	122.2	123.4	133.4	130.1	202.4	151.3	194.7
	pH		5.82	6.16	6.26	6.34	6.07	6.26	6.13	6.12	6.37	6.33	6.05	5.93
	Redox Potential	mV	-49.6	-9.3	7.5	-29.9	-68.5	-84.9	-77	-84.3	-32.2	-89.9	-88.1	-43
	Temperature	°C	25.0	22.6	20.0	18.8	18.1	19.6	20.6	22.3	23.7	25.1	25.8	25.6
Laboratory Analysis	Arsenic, As	mg/L	<0.001	0.002	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Cadmium, Cd	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
	Copper, Cu	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Chromium, Cr	mg/L	0.0040	0.0030	0.0040	0.0030	0.0040	0.0040	0.004	0.004	0.004	0.004	0.004	0.004
	Lead, Pb	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Zinc, Zn	mg/L	<0.005	0.046	0.010	0.058	<0.005	0.006	0.006	0.01	<0.005	0.032	<0.005	<0.005
	Perfluorooctanoic Acid (PFOA)	mg/L	<0.000002	0.0000009	<0.000001	0.0000016	<0.000002	<0.000002	<0.000001	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002
	Perfluorooctane sulfonate (PFOS)	mg/L	<0.000002	0.0000027	<0.000002	0.0000018	0.000012	0.000008	<0.00001	0.000007	0.000004	0.000003	<0.000002	<0.000002
	Sum of PFHxS and PFOS	mg/L	<0.000002	0.0000056	<0.000002	0.0000038	0.000012	0.000008	<0.00001	0.000007	0.000004	0.000003	<0.000002	<0.000002



JM Environments
0427 893 668
37 Tooke St
COOKS HILL NSW 2300
ABN 67 166 341 288

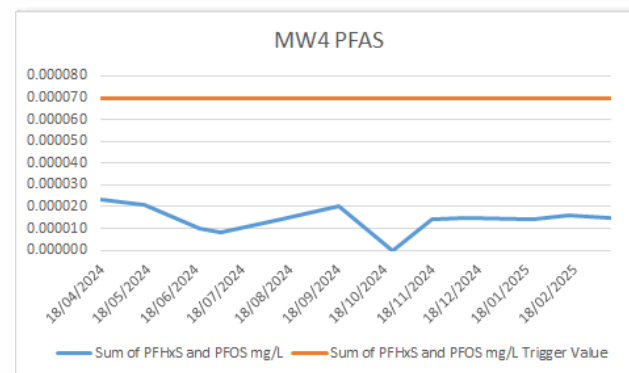
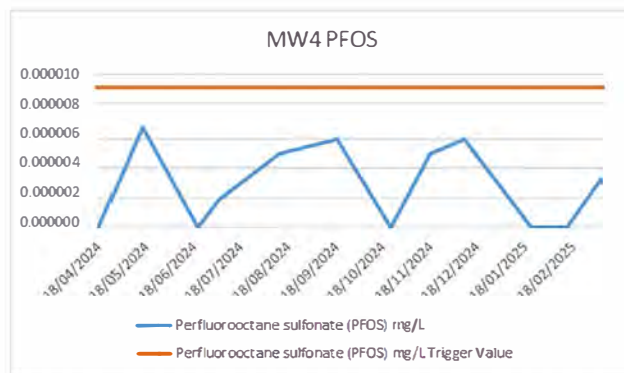
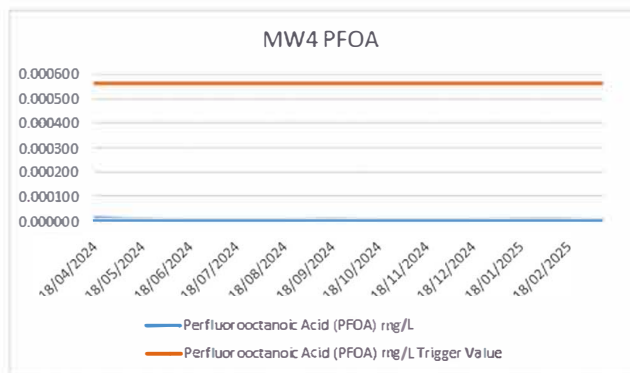
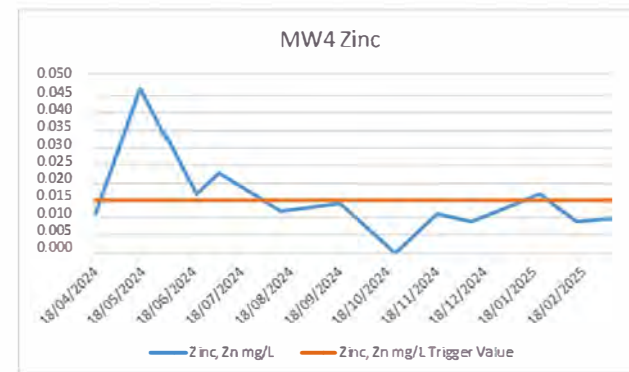
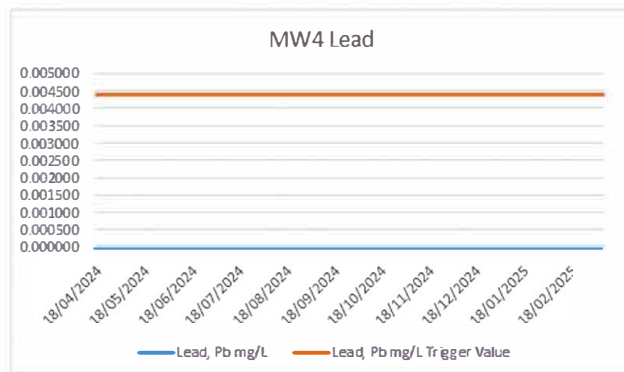
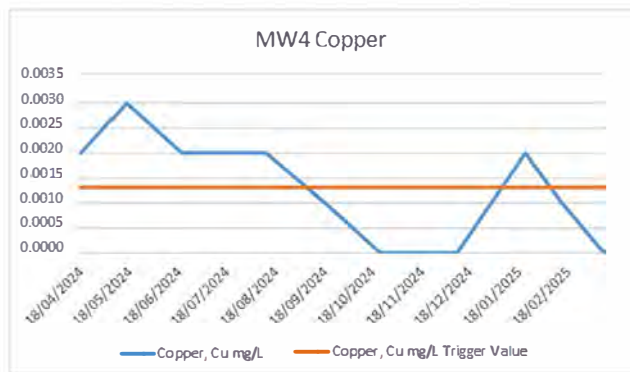
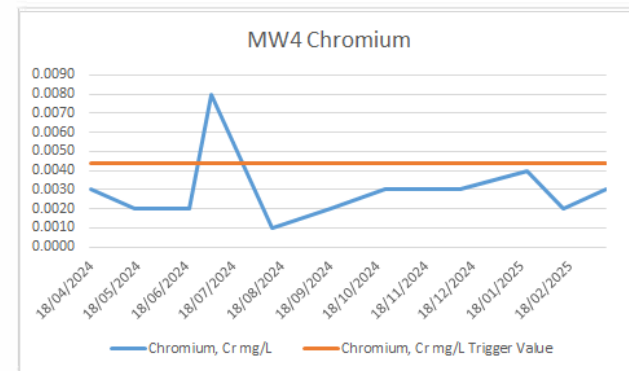
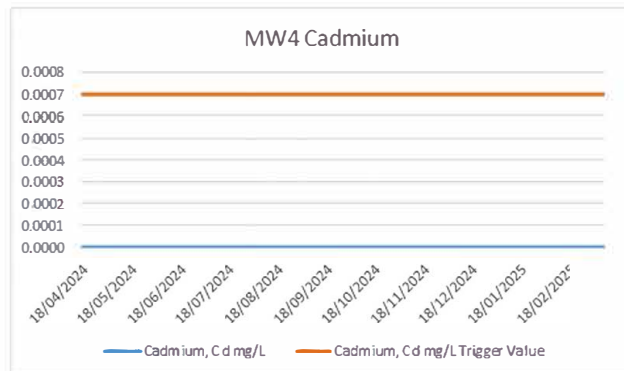
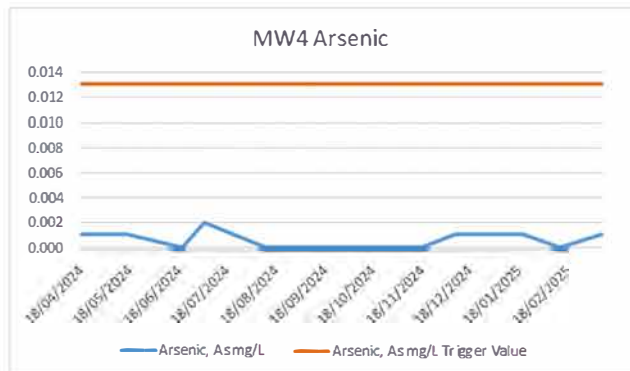


Appendix B:

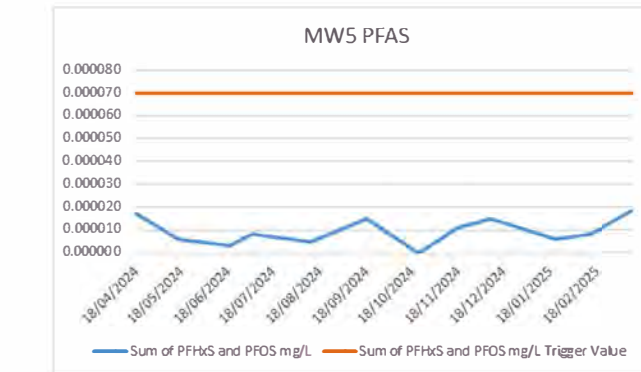
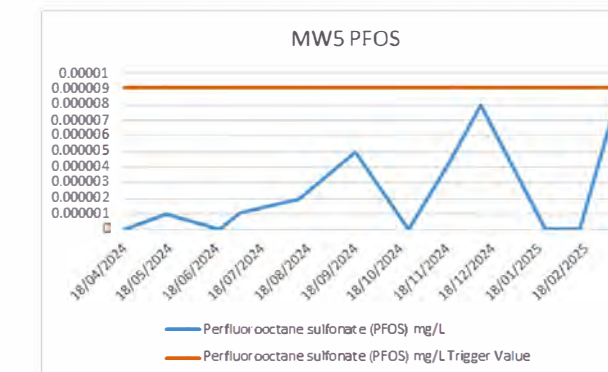
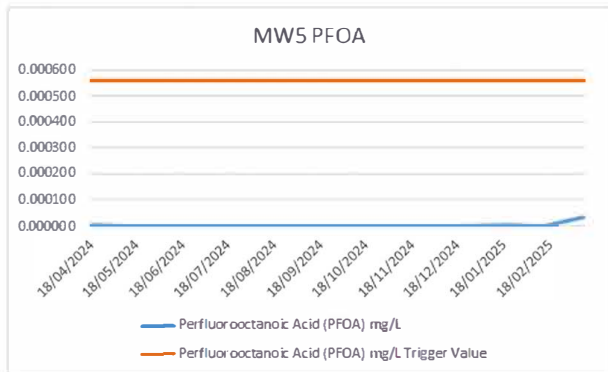
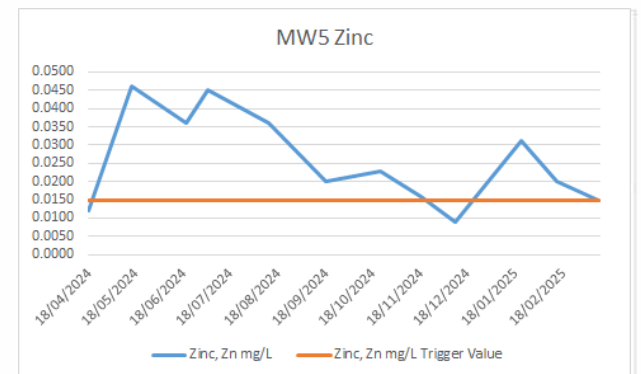
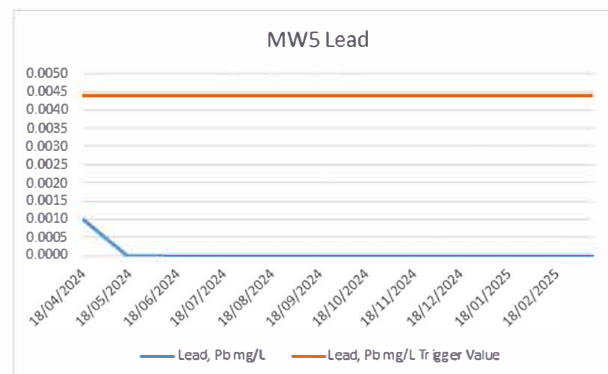
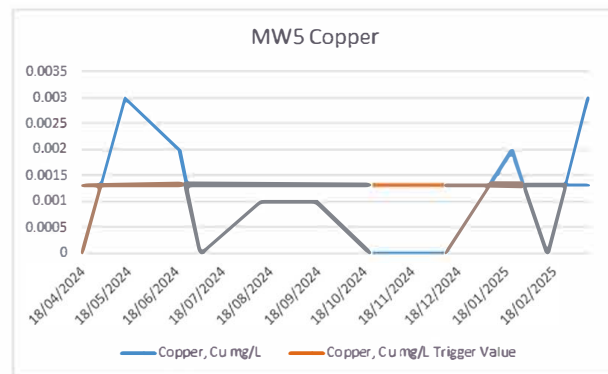
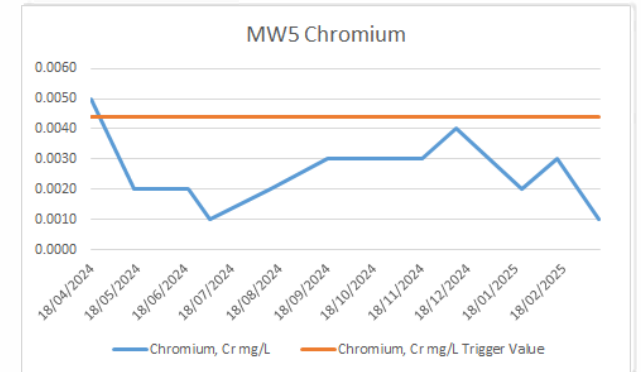
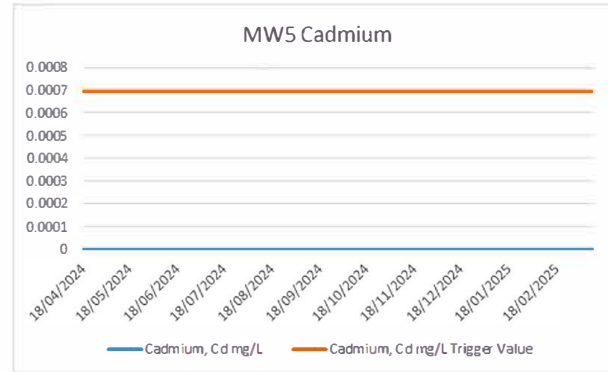
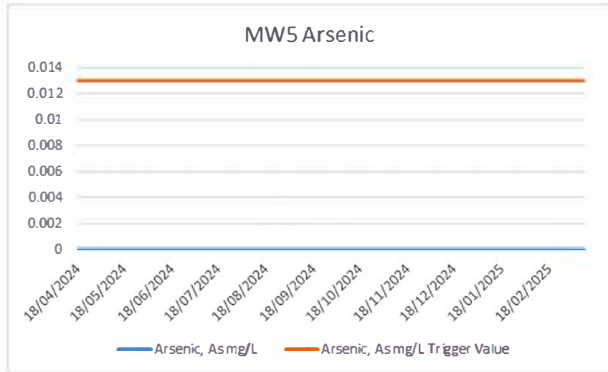
For each parameter required to be monitored by condition M2.1, a graph that compares the ANZECC Guideline trigger value with the monitoring results

Appendix B:

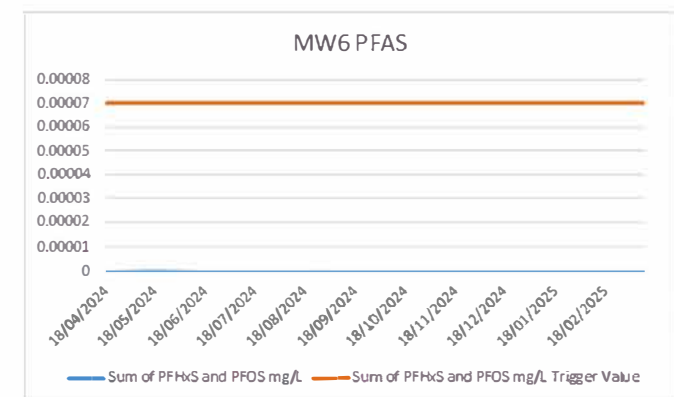
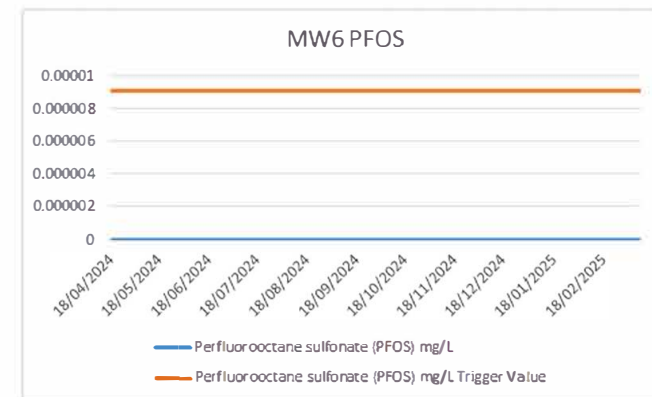
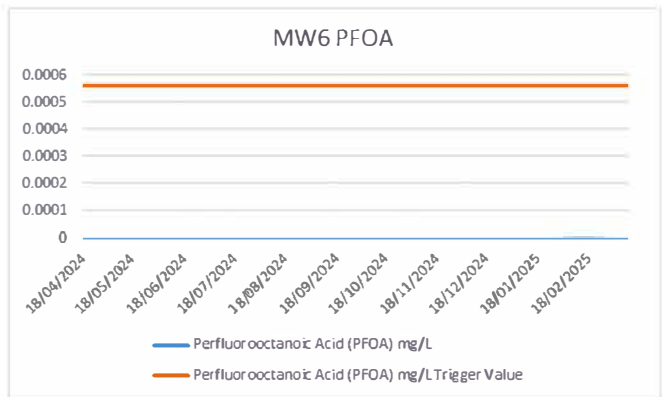
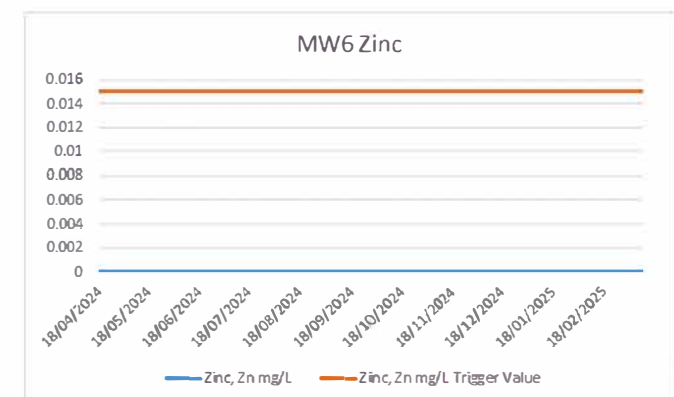
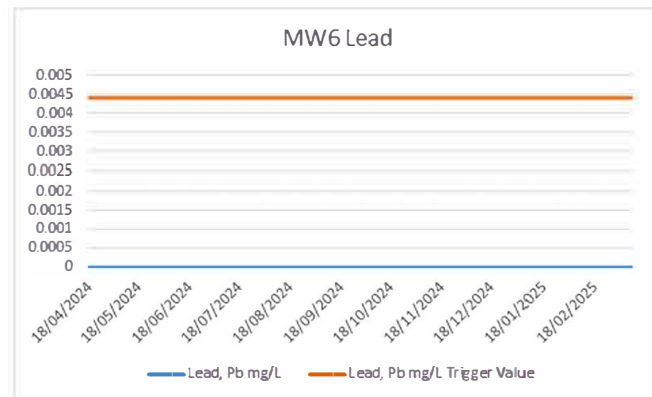
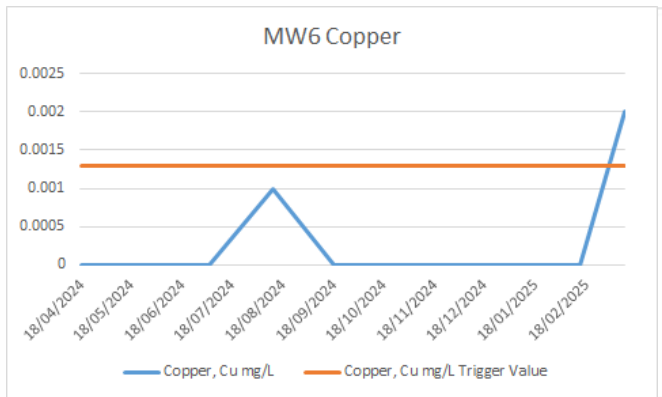
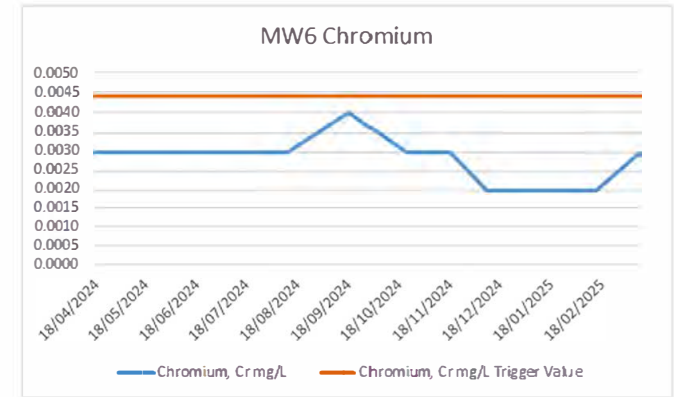
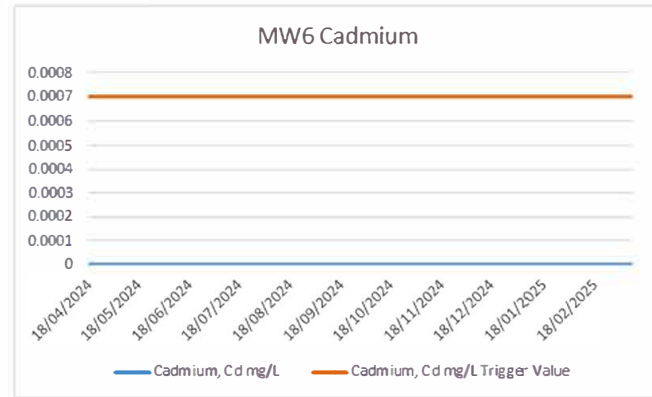
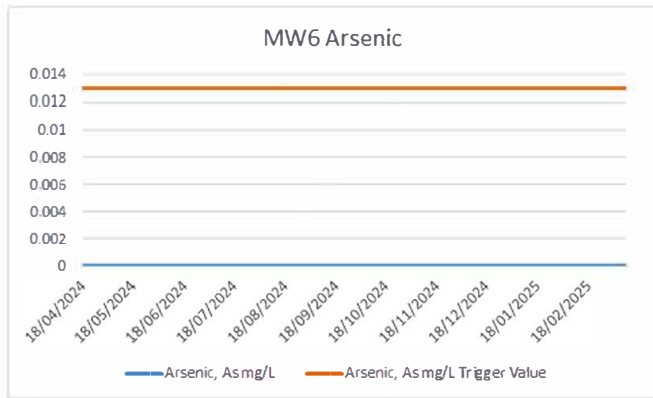
a graph that compares the ANZECC Guideline trigger value with the monitoring results MW4



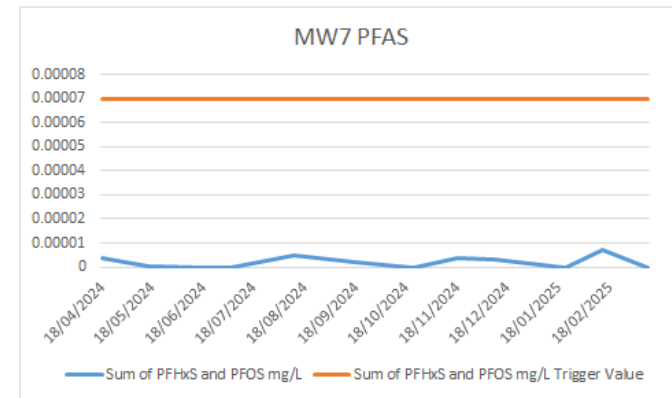
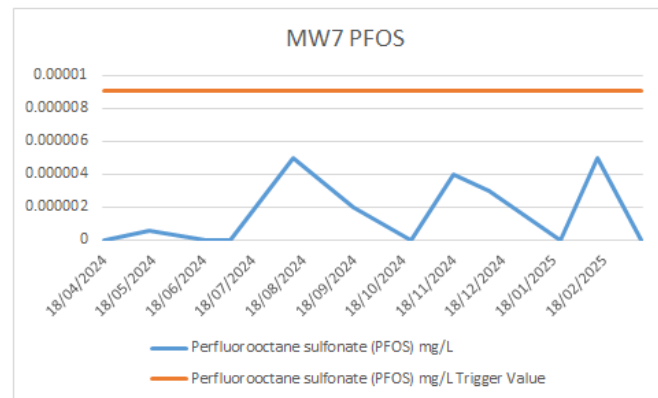
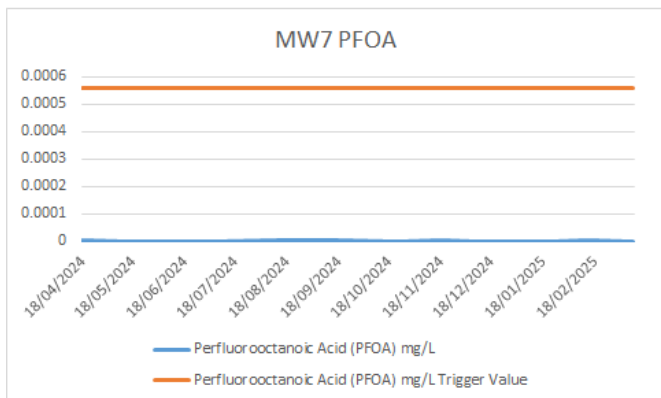
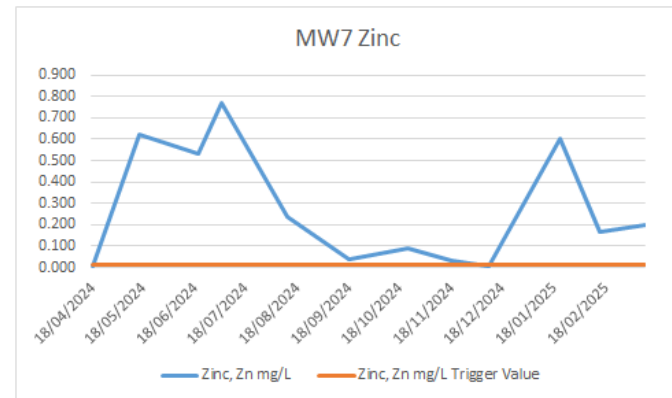
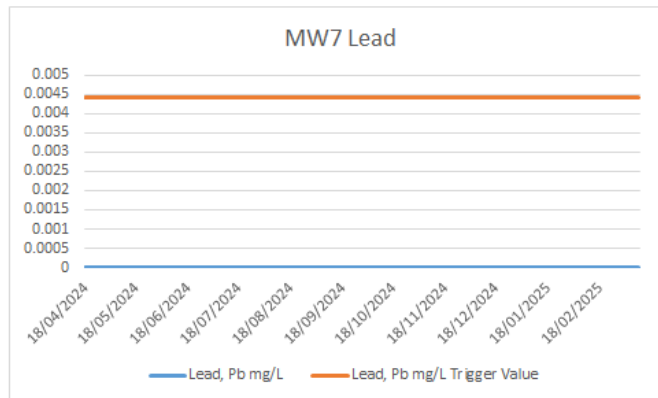
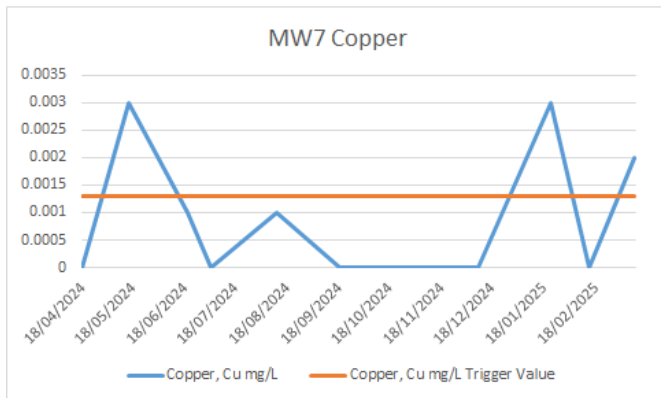
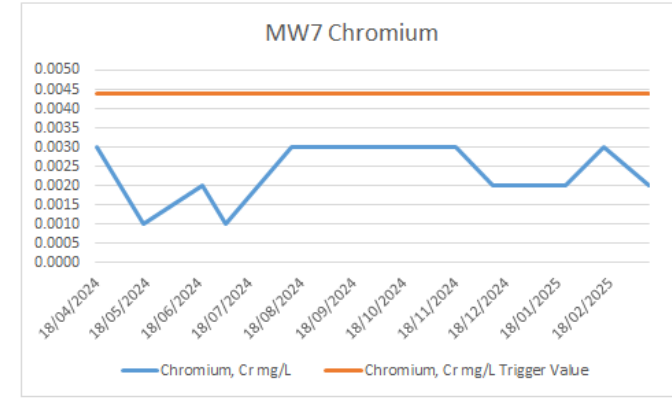
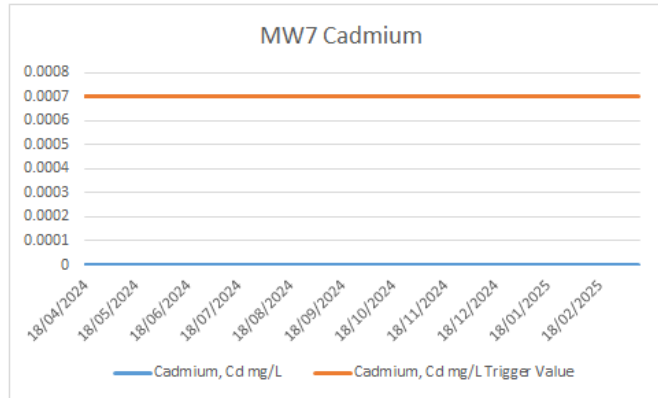
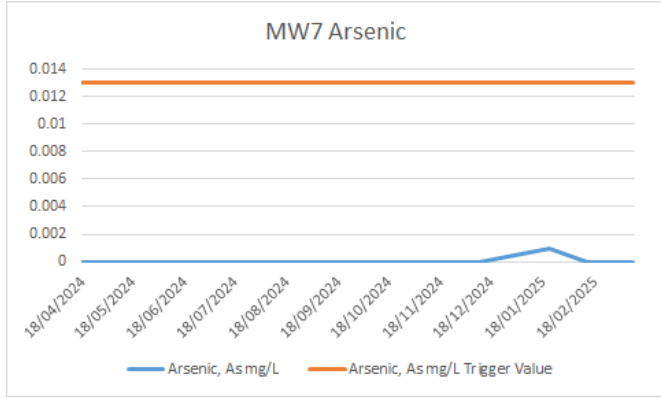
Appendix B: a graph that compares the ANZECC Guideline trigger value with the monitoring results MW5



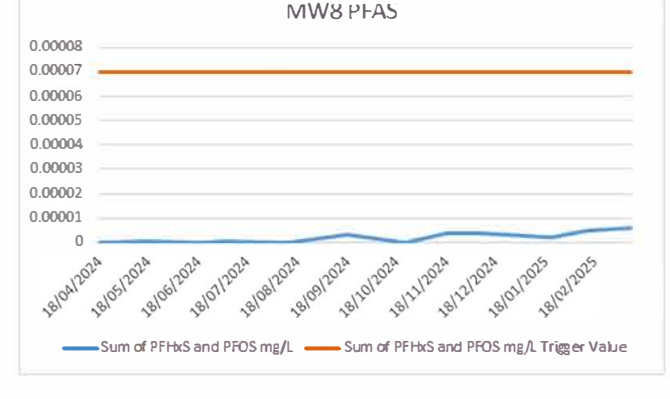
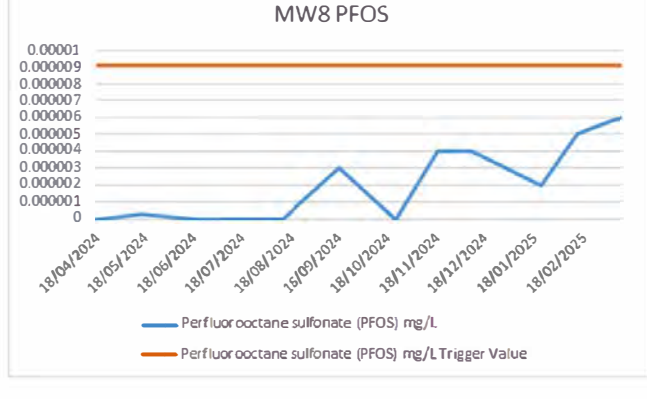
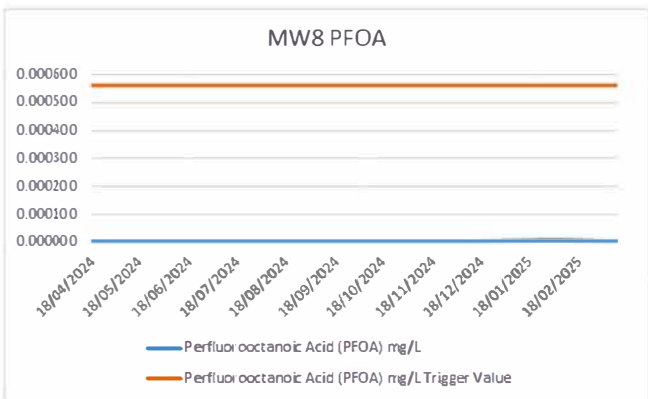
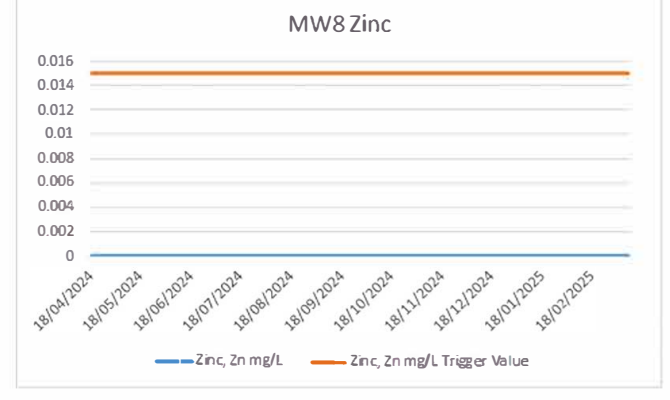
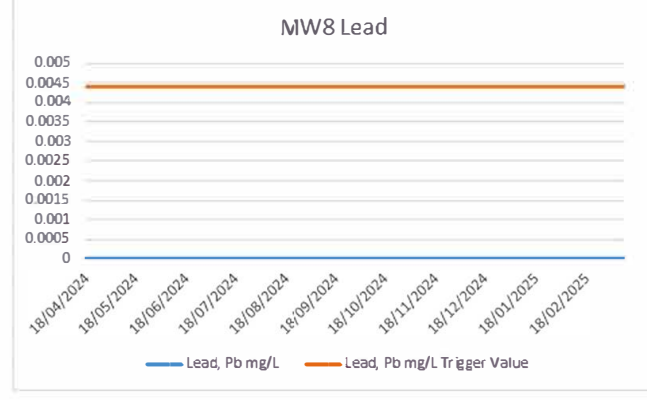
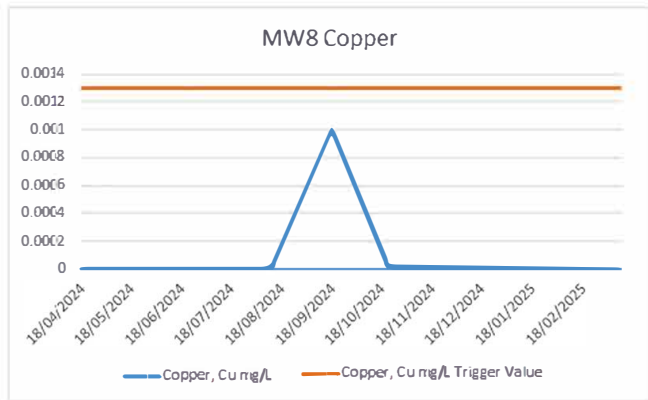
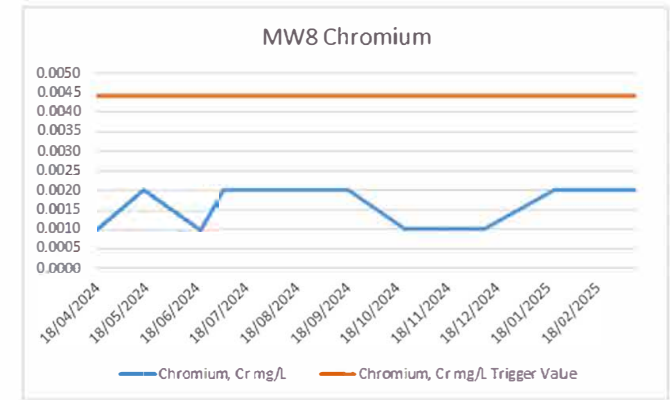
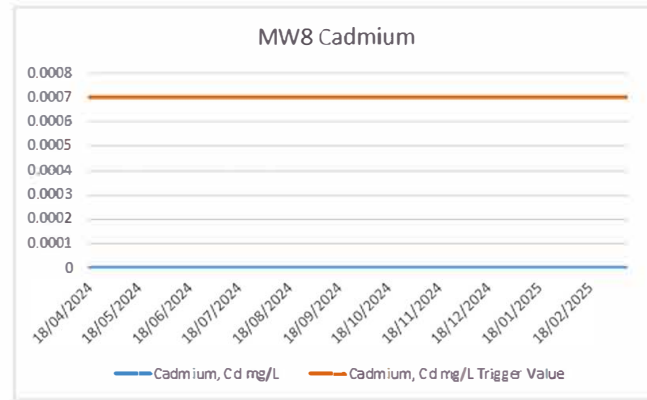
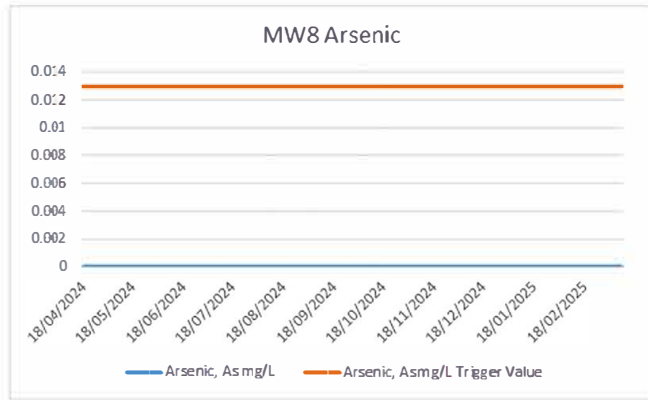
Appendix B: a graph that compares the ANZECC Guideline trigger value with the monitoring results MW6



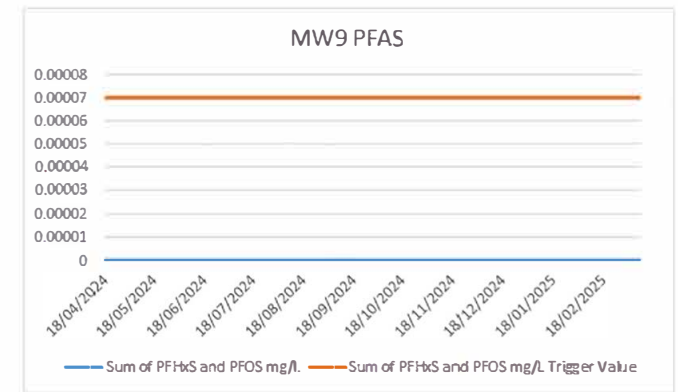
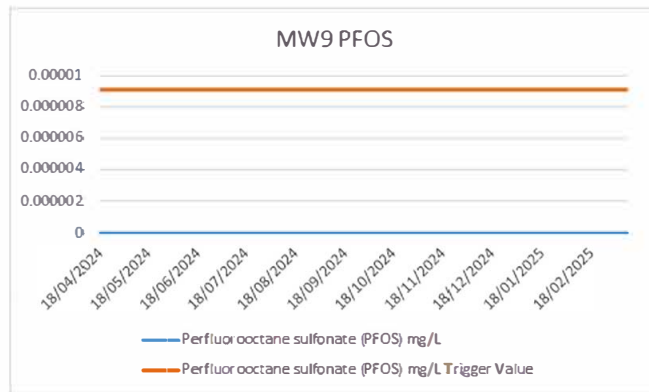
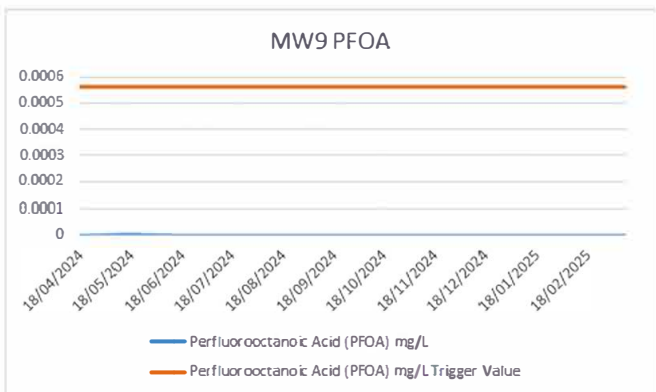
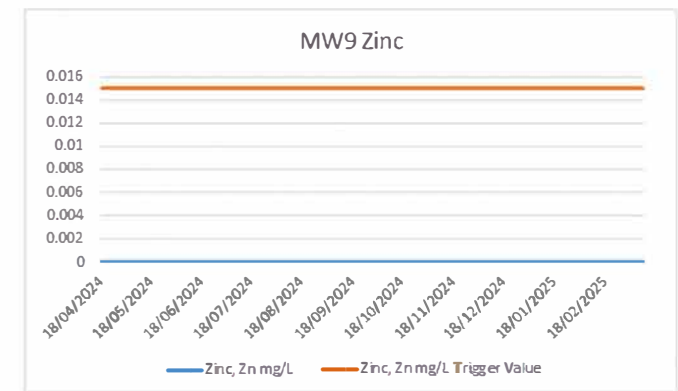
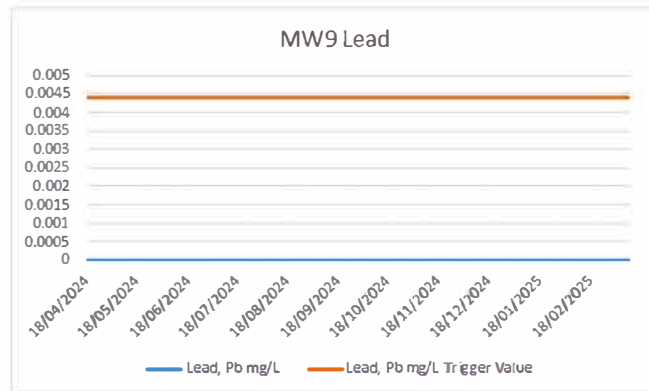
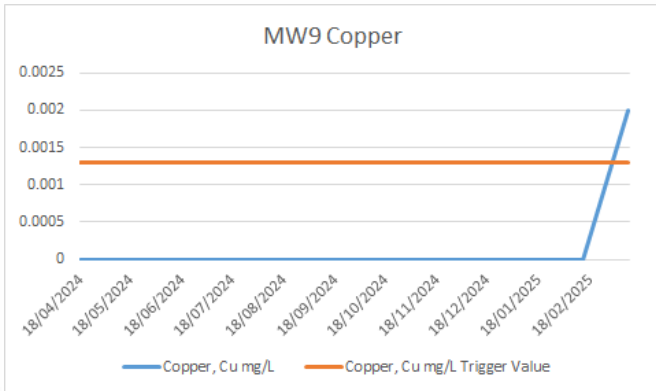
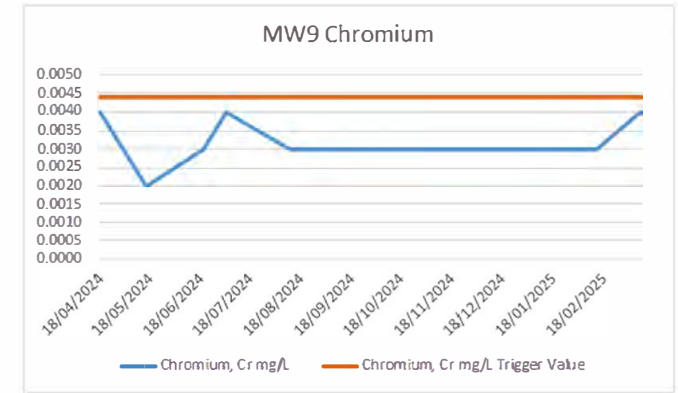
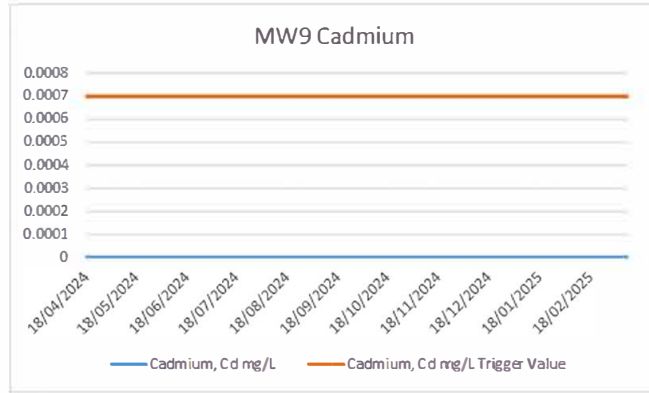
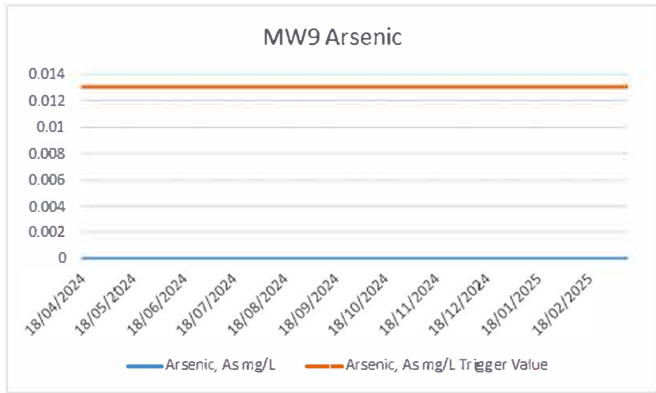
Appendix B: a graph that compares the ANZECC Guideline trigger value with the monitoring results MW7



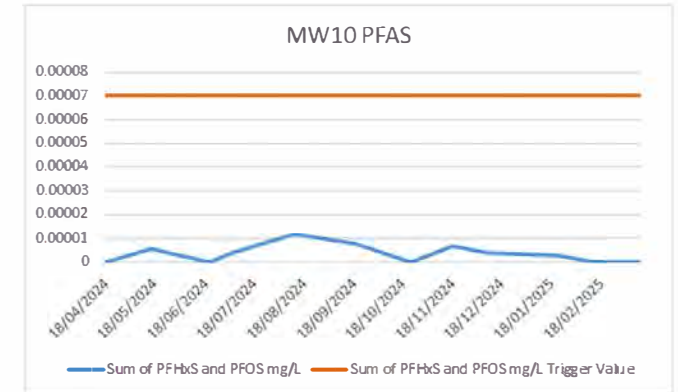
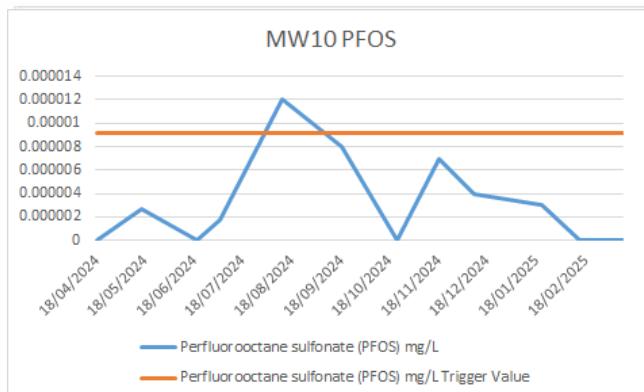
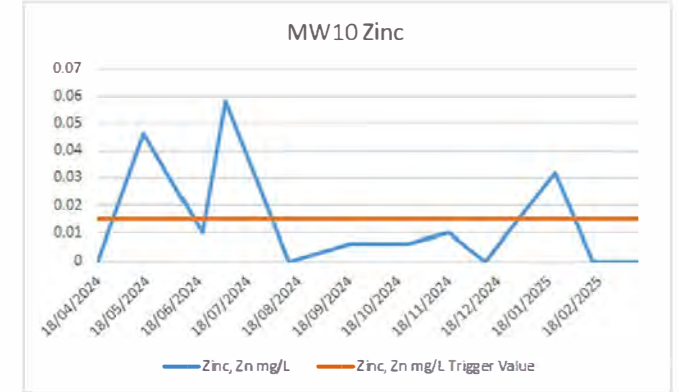
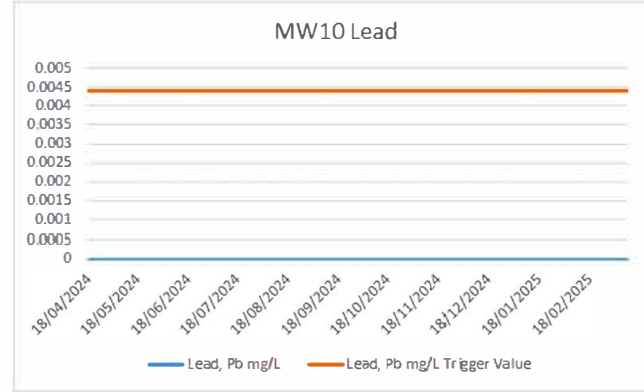
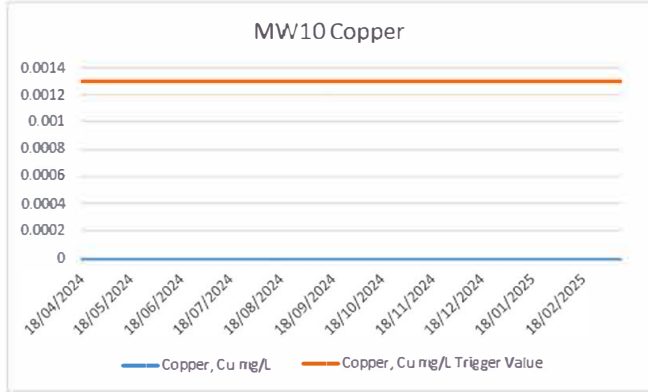
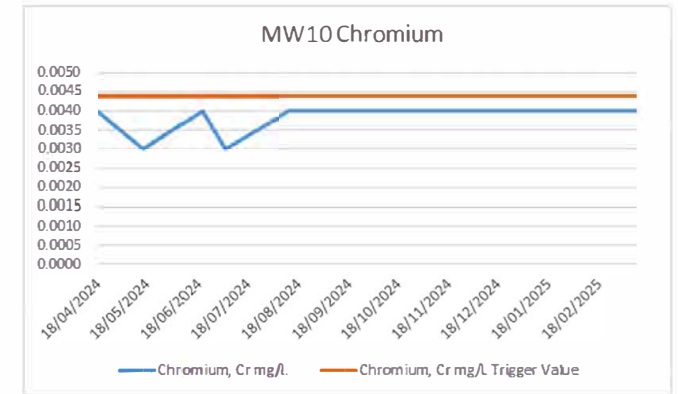
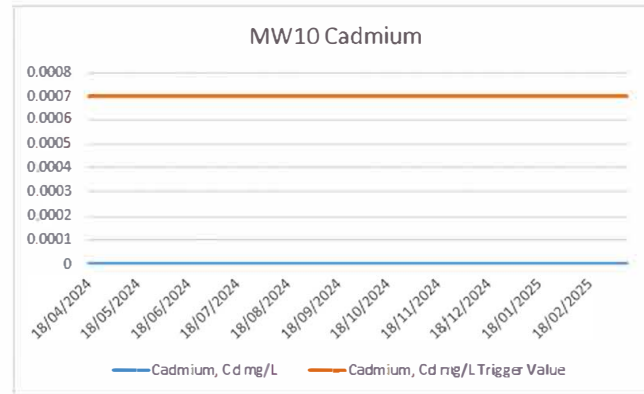
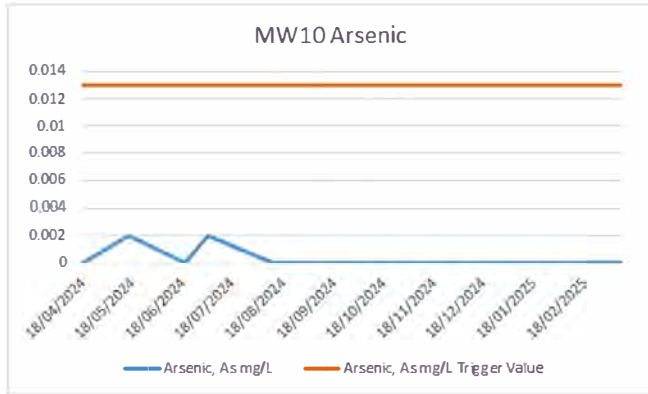
Appendix B: a graph that compares the ANZECC Guideline trigger value with the monitoring results MW8



Appendix B: a graph that compares the ANZECC Guideline trigger value with the monitoring results MW9



Appendix B: a graph that compares the ANZECC Guideline trigger value with the monitoring results MW10

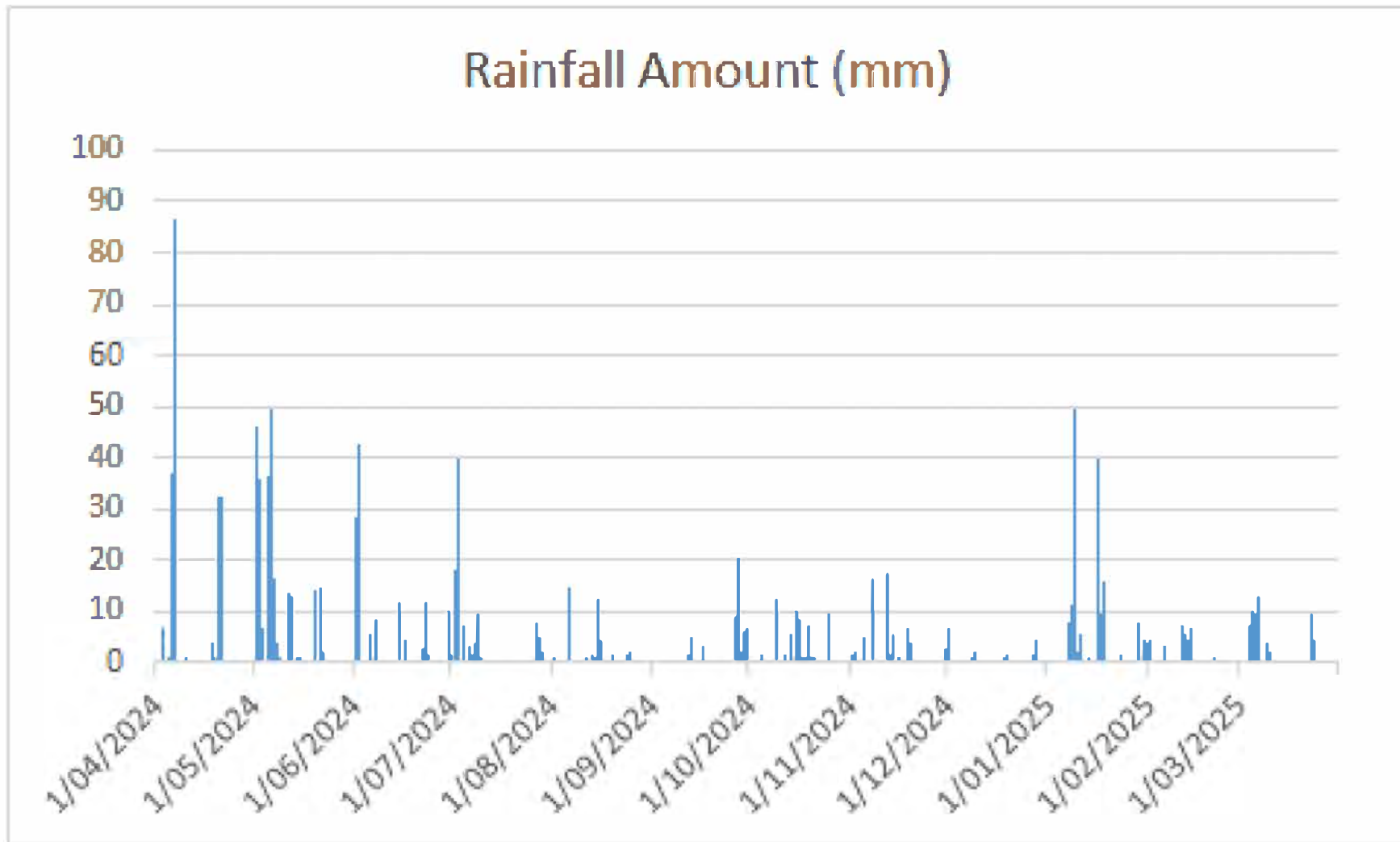


Appendix C:

Daily rainfall data for the monitoring period in graphical form

Appendix C:

Daily rainfall data for the monitoring period in graphical form.
Data source: Australian Bureau of Meteorology Williamtown RAAF
weather station



JM Environments
0427 893 668
37 Tooke St
COOKS HILL NSW 2300
ABN 67 166 341 288



Appendix D:

Calibration certificates for the monitoring period

Multi Parameter Water Meter

Instrument **YSI Pro DSS**
 Serial No. **21K104041**



Air-Met Scientific Pty Ltd
 1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
	Recharge OK?	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH/ORP	✓	
	2. Turbidity	✓	
	3. Conductivity	✓	
	4. D.O	✓	
	5. Temp	✓	
	6. Depth	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. EC		2760 µS/cm		414103	2762 µS/cm
2. Temp		20.8 °C		MultiTherm	20.7 °C
3. pH 4		pH 4.00		414104	pH 3.99
4. pH 7		pH 7.00		419529	pH 6.88
6. DO		0.00%		407802	-0.1%
7. Turbidity		100NTU		420991	101.07 NTU
8. mV		238.24mV		A420151/B398193	238.7 mV

Calibrated by: Eliza Anwar

Calibration date **12/04/2024**

Next calibration due: **12/05/2024**

Multi Parameter Water Meter

Instrument YSI Pro DSS
Serial No. 21K101474



Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
	Recharge OK?	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH/ORP	✓	
	2. Turbidity	✓	
	3. Conductivity	✓	
	4. D.O	✓	
	5. Temp	✓	
	6. Depth	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 7.00		pH7		419529	6.92
2. pH 4.00		pH4		414104	3.97
3. ORP (mV)		243.52		A420151/B420152	243.3
4. SPC (uS/cm)		2760		424499	2759
5. D.O		0.0%		407802	0.0%
6. Temp (°C)		19.2		MultiTherm	18.4
7. Turbidity (NTU)		200 NTU		387323	200.80

Calibrated by: _____ Eliza Anwar

Calibration date: 13/05/2024

Next calibration due: 12/06/2024

Multi Parameter Water Meter



airmet

Air-Met Scientific Pty Ltd
1300 137 067

Instrument YSI ProDSS
Serial No. 20F162173

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH	✓	
	2. mV	✓	
	3. EC	✓	
	4. D.O	✓	
	5. Temp	✓	
	6. Turbidity	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. D.O		0 ppm		399985	0 ppm
2. Conductivity		2760uS		406852	2760uS
3. pH7		pH 7.00		413975	pH 7.00
4. pH4		pH 4.00		414101	pH 4.00
5. ORP mV		237.96		405006/398193	237.96
6. Temp °C		18.2		33938728	18.2
7. Turbidity		100NTU		412418	100

Calibrated by:

Cameron Ensor

Calibration date:

4-Jun-24

Next calibration due:

1-Dec-24

Multi Parameter Water Meter

Instrument YSI Pro DSS
Serial No. 21K104034



Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
	Recharge OK?	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH/ORP	✓	
	2. Turbidity	✓	
	3. Conductivity	✓	
	4. D.O	✓	
	5. Temp	✓	
	6. Depth	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 7.00 (pH)		pH 7.00	NIST	419529	7.07
2. pH 4.00 (pH)		pH 4.00	NIST	414104	3.98
3. ORP (mV)		244.84	NIST	420151/420152	244.9
4. EC ($\mu\text{S}/\text{cm}$)		2760	NIST	424499	2760
5. D.O		0.0%	NIST	407802	0.1%
6. Temp ($^{\circ}\text{C}$)		17.8	NIST	MultiTherm	17.3
8 Turbidity		100NTU	NIST	426952	97.96

Calibrated by:

Samuel Tanner

Calibration date: 01/07/2024

Next calibration due: 31/07/2024

Multi Parameter Water Meter

Instrument **YSI Pro DSS**
 Serial No. **21K101474**



Air-Met Scientific Pty Ltd
 1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
	Recharge OK?	✓	
Switch/keypad	Operation	✓	
	Display	✓	
Grill Filter	Operation (segments)	✓	
	Condition	✓	
PCB	Seal	✓	
	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH/ORP	✓	
	2. Turbidity	✓	
	3. Conductivity	✓	
	4. D.O	✓	
	5. Temp	✓	
	6. Depth	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 7.00		pH7		419529	7.02
2. pH 4.00		pH4		414104	4.08
3. ORP (mV)		250.56		A420151/B420152	251.2
4. SPC (uS/cm)		2760		424499	2764
5. D.O		0.0%		407802	0.0%
6. Temp (°C)		15.2		MultiTherm	15.4
7. Turbidity (NTU)		100 NTU		426952	100.31

Calibrated by:

Christopher Nicdao

Calibration date:

6/08/2024

Next calibration due:

5/09/2024

Multi Parameter Water Meter

Instrument YSI Pro DSS
Serial No. 21K104040



Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
	Recharge OK?	✓	
Switch/keypad	Operation	✓	
	Display	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH/ORP	✓	
	2. Turbidity	✓	
	3. Conductivity	✓	
	4. D.O	✓	
	5. Temp	✓	
	6. Depth	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. SPC ($\mu\text{S}/\text{cm}$)		2760		424499	2765
2. Temp (C)		19.4		MultiTherm	19.3
3. pH 4		4.00		422643	3.98
4. pH 7		7.00		419529	7.01
6. DO (%)		0.0%		412773	-0.3%
7. Turbidity (NTU)		100.00		426945	99.67
ORP (mV)		241.32		420151/420152	241.3

Calibrated by:

Samuel Tanner

Calibration date:

04/09/2024

Next calibration due:

04/10/2024

Multi Parameter Water Meter

Instrument YSI Pro DSS
Serial No. 20F162072



Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass
Battery	Charge Condition	✓
	Fuses	✓
	Capacity	✓
	Recharge OK?	✓
Switch/keypad	Operation	✓
Display	Intensity	✓
	Operation (segments)	✓
Grill Filter	Condition	✓
	Seal	✓
PCB	Condition	✓
Connectors	Condition	✓
Sensor	1. pH/ORP	✓
	2. Turbidity	✓
	3. Conductivity	✓
	4. D.O	✓
	5. Temp	✓
Alarms	Beeper	
	Settings	
Software	Version	
Data logger	Operation	
Download	Operation	
Other tests:		

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle No.	Instrument Reading
pH 4.00 (pH)		pH 4.00		422643	4.02
pH 7.00 (pH)		pH 7.00		419529	6.99
ORP (mV)		235.10		426087/420151	236.0
EC (uS/cm)		2760		424499	2765
D.O. (%)		0%		412773	0.1%
Temp (°C)		19.5		MultiTherm	19.5
Turbidity (NTU)		100 NTU		426945	98.24

Calibrated by: Amanda Neale

Calibration date: 21/10/2024

Next calibration due: 21/11/2024

Multi Parameter Water Meter

Instrument **YSI Pro DSS**
Serial No. **21K104040**



Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
	Recharge OK?	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH/ORP	✓	
	2. Turbidity	✓	
	3. Conductivity	✓	
	4. D.O	✓	
	5. Temp	✓	
	6. Depth	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. SPC (µS/cm)		2760		424499	2757
2. Temp (°C)		22.2		MultiTherm	22.1
3. pH 4		4.00		429462	3.99
4. pH 7		7.00		424322	7.02
6. DO (%)		0.0%		412773	0.2%
7. Turbidity (NTU)		100.00		430123	99.52
ORP (mV)		226.52		420151/426087	226.8

Calibrated by: _____ **Chris Nicdao**

Calibration date: 11/11/2024

Next calibration due: 11/12/2024

Multi Parameter Water Meter

Instrument **YSI Pro DSS**
 Serial No. **21K104034**



Air-Met Scientific Pty Ltd
 1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
	Recharge OK?	✓	
Switch/keypad	Operation	✓	
	Intensity	✓	
Display	Operation	✓	
	(segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH/ORP	✓	
	2. Turbidity	✓	
	3. Conductivity	✓	
	4. D.O	✓	
	5. Temp	✓	
	6. Depth	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 7.00 (pH)		pH 7.00	NIST	426181	7.03
2. pH 4.00 (pH)		pH 4.00	NIST	429462	4.00
3. ORP (mV)		230.92	NIST	426087/426086	230.9
4. EC (µS/cm)		2760	NIST	429463	2762
5. D.O		0.0%	NIST	412773	-0.2%
6. Temp (°C)		21.4	NIST	MultiTherm	21.2
8. Turbidity (NTU)		100	NIST	434381	98.79

Calibrated by:

Samuel Tanner

Calibration date:

02/12/2024

Next calibration due:

01/01/2025

Multi Parameter Water Meter

Instrument **YSI Pro DSS**
 Serial No. **20F162072**



Air-Met Scientific Pty Ltd
 1300 137 067

Item	Test	Pass
Battery	Charge Condition	✓
	Fuses	✓
	Capacity	✓
	Recharge OK?	✓
	Operation	✓
Switch/keypad Display	Intensity	✓
	Operation (segments)	✓
Grill Filter	Condition	✓
	Seal	✓
PCB	Condition	✓
Connectors	Condition	✓
Sensor	1. pH/ORP	✓
	2. Turbidity	✓
	3. Conductivity	✓
	4. D.O	✓
	5. Temp	✓
Alarms	Beeper	
	Settings	
Software	Version	
Data logger	Operation	
Download	Operation	
Other tests:		

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle No.	Instrument Reading
pH 4.00 (pH)		pH 4.00		429462	4.06
pH 7.00 (pH)		pH 7.00		426181	7.05
ORP (mV)		228.28		A426086/B435258	226.8
EC (uS/cm)		2760		433489	2759
D.O. (%)		0%		412773	0.1%
Temp (°C)		22.6		MultiTherm	22.3
Turbidity (NTU)		100 NTU		434381	97.60

Calibrated by:

Miriam Poyitt

Calibration date: 14/01/2025

Next calibration due: 14/02/2025

Multi Parameter Water Meter

Instrument YSI Pro DSS
Serial No. 21K101474



Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
	Recharge OK?	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH/ORP	✓	
	2. Turbidity	✓	
	3. Conductivity	✓	
	4. D.O	✓	
	5. Temp	✓	
	6. Depth	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 7.00		pH7		426181	6.91
2. pH 4.00		pH4		429462	4.06
3. ORP (mV)		220.6		A426086/B435258	223.4
4. SPC (uS/cm)		2760		433489	2745
5. D.O		0.0%		412773	-0.4%
6. Temp (°C)		23.6		MultiTherm	23.6
7. Turbidity (NTU)		100		434381	99.60

Calibrated by:

Alex Buist

Calibration date:

11/02/2025

Next calibration due:

13/03/2025

Multi Parameter Water Meter

Instrument YSI Pro DSS
Serial No. 21K101479



Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
	Recharge OK?	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH	✓	
	2. Turbidity	✓	
	3. Conductivity	✓	
	4. D.O	✓	
	5. Temp	✓	
	6. Depth	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
pH 7.00		7.00		433551	7.00
pH 4.00		4.00		429462	4.03
ORP (mV)		225.64		A426086/B435258	240
EC (uS/cm)		2760		436693	2748
D.O. (%)		0.0%		412773	0.5%
Temp (°C)		23.8		MultiTherm	23.3
Turbidity (NTU)		100		436042	102.00

Calibrated by:

Nausheen Mazari

Calibration date:

28/02/2025

Next calibration due:

30/03/2025

JM Environments
0427 893 668
37 Tooke St
COOKS HILL NSW 2300
ABN 67 166 341 288



Appendix E:

Laboratory Documentation for the monitoring period



CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
 Unit 16, 33 Maddox Street
 Alexandria NSW 2015
 Telephone No: (02) 85940400
 Facsimile No: (02) 85940499
 Email: au.samplerreceipt.sydney@sgs.com

Company Name: JM Environments
 Address: 37 Taske Street
COOKS HILL
 Contact Name: James McMahon

Project Name/No: JME21054
 Purchase Order No: JME21054
 Results Required By: Standard
 Telephone: 0677 823 68
 Facsimile: admin@jmenvironments.com
 Email Results: james@jmenvironments.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	Heavy Metals		PFAS Short Suite	
							X		X	
MW4	13/3/24	1	X		Ice	2	X	X		
MW5		2								
MW6		3								
MW7		4								
MW8		5								
MW9		6								
MW10		7								
QC2403		8								

SGS EHS Sydney COC
SE262260

Relinquished By: <u>[Signature]</u>	Date/Time: <u>13/3 5pm</u>	Received By: <u>[Signature]</u>	Date/Time: <u>14-3-24 9am</u>
Relinquished By:	Date/Time:	Received By: <u>G.F</u>	Date/Time: <u>15/3/24 10:45</u>
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:

Comments:



SAMPLE RECEIPT ADVICE

SE262260

CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
COOKS HILL NSW 2300

Telephone 0427 893 668
Facsimile (Not specified)
Email james@jmenvironments.com

Project **JME21054**
Order Number **JME21054**
Samples 8

LABORATORY DETAILS

Manager Huong Crawford
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Fri 15/3/2024
Report Due Fri 22/3/2024
SGS Reference **SE262260**

SUBMISSION DETAILS

This is to confirm that 8 samples were received on Friday 15/3/2024. Results are expected to be ready by COB Friday 22/3/2024. Please quote SGS reference SE262260 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	15/3/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	17.0°C
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		

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

PFAS subcontracted to SGS Melbourne, Unit 10/585 Blackburn Road Notting Hill VIC 3168, NATA Accreditation Number 2562, Site number 14420. Results may be delayed.

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CLIENT DETAILS

Client **JM ENVIRONMENTS**

Project **JME21054**

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Per- and Polyfluoroalkyl Substances (PFAS) in	Trace Metals (Dissolved) in Water by ICPMS
001	MW4	1	25	7
002	MW5	1	25	7
003	MW6	1	25	7
004	MW7	1	25	7
005	MW8	1	25	7
006	MW9	1	25	7
007	MW10	1	25	7
008	QC2403	1	25	7

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.

CLIENT DETAILS

LABORATORY DETAILS

Contact **James McMahon**
 Client **JM ENVIRONMENTS**
 Address **37 TOOKE STREET
 COOKS HILL NSW 2300**

Telephone **0427 893 668**
 Facsimile **(Not specified)**
 Email **james@jmenvironments.com**

Project **JME21054**
 Order Number **JME21054**
 Samples **8**

Manager **Huong Crawford**
 Laboratory **SGS Alexandria Environmental**
 Address **Unit 16, 33 Maddox St
 Alexandria NSW 2015**

Telephone **+61 2 8594 0400**
 Facsimile **+61 2 8594 0499**
 Email **au.environmental.sydney@sgs.com**

SGS Reference **SE262260 R0**
 Date Received **15/3/2024**
 Date Reported **25/3/2024**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

PFAS subcontracted to SGS Melbourne, Unit 10/585 Blackburn Road Notting Hill VIC 3168, NATA Accreditation Number 2562, Site number 14420. Report No. ME349511 R0.

MA-1523: Majority of surrogate recoveries within acceptance criteria.

SIGNATORIES



Dong LIANG
 Metals/Inorganics Team Leader



Kamrul AHSAN
 Senior Chemist

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 20/3/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			13/3/2024 SE262260.001	13/3/2024 SE262260.002	13/3/2024 SE262260.003	13/3/2024 SE262260.004	13/3/2024 SE262260.005
Arsenic	µg/L	1	<1	<1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	0.1	<0.1	<0.1
Copper	µg/L	1	<1	<1	<1	<1	1
Chromium	µg/L	1	5	6	4	4	2
Nickel	µg/L	1	1	<1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1	<1	<1
Zinc	µg/L	5	28	8	39	10	33

PARAMETER	UOM	LOR	MW9	MW10	QC2403
			WATER	WATER	WATER
			13/3/2024 SE262260.006	13/3/2024 SE262260.007	13/3/2024 SE262260.008
Arsenic	µg/L	1	<1	<1	<1
Cadmium	µg/L	0.1	0.1	<0.1	0.1
Copper	µg/L	1	1	<1	2
Chromium	µg/L	1	5	5	5
Nickel	µg/L	1	<1	<1	<1
Lead	µg/L	1	<1	1	<1
Zinc	µg/L	5	28	14	23

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 18/3/2024

			MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			-	-	-	-	-
			13/3/2024	13/3/2024	13/3/2024	13/3/2024	13/3/2024
PARAMETER	UOM	LOR	SE262260.001	SE262260.002	SE262260.003	SE262260.004	SE262260.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

			MW9	MW10	QC2403
			WATER	WATER	WATER
			-	-	-
			13/3/2024	13/3/2024	13/3/2024
PARAMETER	UOM	LOR	SE262260.006	SE262260.007	SE262260.008
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples [MA-1523] Tested: 25/3/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			13/3/2024 SE262260.001	13/3/2024 SE262260.002	13/3/2024 SE262260.003	13/3/2024 SE262260.004	13/3/2024 SE262260.005
Perfluorobutanoic acid (PFBA)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	0.006
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.004	0.003	<0.002	0.003	0.005
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	0.004
Perfluorooctanoic Acid (PFOA)	µg/L	0.001	0.003	0.003	<0.001	0.003	0.011
Perfluorobutane sulfonate (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluoropentane sulfonate (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonate (PFHxS)	µg/L	0.002	0.010	0.009	<0.002	0.005	<0.002
Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonate (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Sum of PFHxS and PFOS	µg/L	0.002	0.010	0.009	<0.002	0.005	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002

PARAMETER	UOM	LOR	MW9	MW10	QC2403
			WATER	WATER	WATER
			13/3/2024 SE262260.006	13/3/2024 SE262260.007	13/3/2024 SE262260.008
Perfluorobutanoic acid (PFBA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctanoic Acid (PFOA)	µg/L	0.001	<0.001	<0.001	<0.001
Perfluorobutane sulfonate (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluoropentane sulfonate (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonate (PFHxS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonate (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002
Sum of PFHxS and PFOS	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002

METHOD

METHODOLOGY SUMMARY

AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: 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.
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
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.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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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CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
 COOKS HILL NSW 2300

Telephone 0427 893 668
Facsimile (Not specified)
Email james@jmenvironments.com

Project **JME21054**
Order Number **JME21054**
Samples 8

LABORATORY DETAILS

Manager Huong Crawford
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
 Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

SGS Reference **SE262260 R0**
Date Received 15 Mar 2024
Date Reported 25 Mar 2024

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.

This QA/QC Statement must be read in conjunction with the referenced Analytical Report.

The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	15/3/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	17.0°C
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		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE262260.001	LB306997	13 Mar 2024	15 Mar 2024	10 Apr 2024	18 Mar 2024	10 Apr 2024	19 Mar 2024
MW5	SE262260.002	LB306997	13 Mar 2024	15 Mar 2024	10 Apr 2024	18 Mar 2024	10 Apr 2024	19 Mar 2024
MW6	SE262260.003	LB306997	13 Mar 2024	15 Mar 2024	10 Apr 2024	18 Mar 2024	10 Apr 2024	19 Mar 2024
MW7	SE262260.004	LB306997	13 Mar 2024	15 Mar 2024	10 Apr 2024	18 Mar 2024	10 Apr 2024	19 Mar 2024
MW8	SE262260.005	LB306997	13 Mar 2024	15 Mar 2024	10 Apr 2024	18 Mar 2024	10 Apr 2024	19 Mar 2024
MW9	SE262260.006	LB306997	13 Mar 2024	15 Mar 2024	10 Apr 2024	18 Mar 2024	10 Apr 2024	19 Mar 2024
MW10	SE262260.007	LB306997	13 Mar 2024	15 Mar 2024	10 Apr 2024	18 Mar 2024	10 Apr 2024	19 Mar 2024
QC2403	SE262260.008	LB306997	13 Mar 2024	15 Mar 2024	10 Apr 2024	18 Mar 2024	10 Apr 2024	19 Mar 2024

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE262260.001	LB307350	13 Mar 2024	15 Mar 2024	09 Sep 2024	20 Mar 2024	09 Sep 2024	21 Mar 2024
MW5	SE262260.002	LB307350	13 Mar 2024	15 Mar 2024	09 Sep 2024	20 Mar 2024	09 Sep 2024	21 Mar 2024
MW6	SE262260.003	LB307350	13 Mar 2024	15 Mar 2024	09 Sep 2024	20 Mar 2024	09 Sep 2024	21 Mar 2024
MW7	SE262260.004	LB307350	13 Mar 2024	15 Mar 2024	09 Sep 2024	20 Mar 2024	09 Sep 2024	21 Mar 2024
MW8	SE262260.005	LB307350	13 Mar 2024	15 Mar 2024	09 Sep 2024	20 Mar 2024	09 Sep 2024	21 Mar 2024
MW9	SE262260.006	LB307350	13 Mar 2024	15 Mar 2024	09 Sep 2024	20 Mar 2024	09 Sep 2024	21 Mar 2024
MW10	SE262260.007	LB307350	13 Mar 2024	15 Mar 2024	09 Sep 2024	20 Mar 2024	09 Sep 2024	21 Mar 2024
QC2403	SE262260.008	LB307350	13 Mar 2024	15 Mar 2024	09 Sep 2024	20 Mar 2024	09 Sep 2024	21 Mar 2024

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: MA-1523

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE262260.001	%	10 - 150%	109
	MW5	SE262260.002	%	10 - 150%	116
	MW6	SE262260.003	%	10 - 150%	90
	MW7	SE262260.004	%	10 - 150%	88
	MW8	SE262260.005	%	10 - 150%	99
	MW9	SE262260.006	%	10 - 150%	94
	MW10	SE262260.007	%	10 - 150%	96
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	QC2403	SE262260.008	%	10 - 150%	92
	MW4	SE262260.001	%	10 - 150%	101
	MW5	SE262260.002	%	10 - 150%	115
	MW6	SE262260.003	%	10 - 150%	91
	MW7	SE262260.004	%	10 - 150%	88
	MW8	SE262260.005	%	10 - 150%	91
	MW9	SE262260.006	%	10 - 150%	92
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard	MW10	SE262260.007	%	10 - 150%	81
	QC2403	SE262260.008	%	10 - 150%	93
	MW4	SE262260.001	%	10 - 150%	97
	MW5	SE262260.002	%	10 - 150%	135
	MW6	SE262260.003	%	10 - 150%	105
	MW7	SE262260.004	%	10 - 150%	90
	MW8	SE262260.005	%	10 - 150%	110
(13C3-PFBs) Isotopically Labelled Internal Recovery Standard	MW9	SE262260.006	%	10 - 150%	108
	MW10	SE262260.007	%	10 - 150%	102
	QC2403	SE262260.008	%	10 - 150%	93
	MW4	SE262260.001	%	10 - 150%	112
	MW5	SE262260.002	%	10 - 150%	130
	MW6	SE262260.003	%	10 - 150%	96
	MW7	SE262260.004	%	10 - 150%	98
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	MW8	SE262260.005	%	10 - 150%	106
	MW9	SE262260.006	%	10 - 150%	104
	MW10	SE262260.007	%	10 - 150%	100
	QC2403	SE262260.008	%	10 - 150%	97
	MW4	SE262260.001	%	10 - 150%	96
	MW5	SE262260.002	%	10 - 150%	115
	MW6	SE262260.003	%	10 - 150%	94
(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	MW7	SE262260.004	%	10 - 150%	87
	MW8	SE262260.005	%	10 - 150%	108
	MW9	SE262260.006	%	10 - 150%	104
	MW10	SE262260.007	%	10 - 150%	101
	QC2403	SE262260.008	%	10 - 150%	100
	MW4	SE262260.001	%	10 - 150%	83
	MW5	SE262260.002	%	10 - 150%	96
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard	MW6	SE262260.003	%	10 - 150%	99
	MW7	SE262260.004	%	10 - 150%	89
	MW8	SE262260.005	%	10 - 150%	93
	MW9	SE262260.006	%	10 - 150%	91
	MW10	SE262260.007	%	10 - 150%	85
	QC2403	SE262260.008	%	10 - 150%	93
	MW4	SE262260.001	%	10 - 150%	100
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW5	SE262260.002	%	10 - 150%	102
	MW6	SE262260.003	%	10 - 150%	100
	MW7	SE262260.004	%	10 - 150%	100
	MW8	SE262260.005	%	10 - 150%	101
	MW9	SE262260.006	%	10 - 150%	101
	MW10	SE262260.007	%	10 - 150%	100
	QC2403	SE262260.008	%	10 - 150%	100
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW4	SE262260.001	%	10 - 150%	109
	MW5	SE262260.002	%	10 - 150%	111
	MW6	SE262260.003	%	10 - 150%	112
	MW7	SE262260.004	%	10 - 150%	110
	MW8	SE262260.005	%	10 - 150%	113

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: MA-1523

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW9	SE262260.006	%	10 - 150%	107
	MW10	SE262260.007	%	10 - 150%	96
	QC2403	SE262260.008	%	10 - 150%	106
	MW4	SE262260.001	%	10 - 150%	122
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	MW5	SE262260.002	%	10 - 150%	130
	MW6	SE262260.003	%	10 - 150%	116
	MW7	SE262260.004	%	10 - 150%	120
	MW8	SE262260.005	%	10 - 150%	119
	MW9	SE262260.006	%	10 - 150%	116
	MW10	SE262260.007	%	10 - 150%	107
	QC2403	SE262260.008	%	10 - 150%	108
	MW4	SE262260.001	%	10 - 150%	81
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	MW5	SE262260.002	%	10 - 150%	79
	MW6	SE262260.003	%	10 - 150%	87
	MW7	SE262260.004	%	10 - 150%	81
	MW8	SE262260.005	%	10 - 150%	85
	MW9	SE262260.006	%	10 - 150%	81
	MW10	SE262260.007	%	10 - 150%	83
	QC2403	SE262260.008	%	10 - 150%	85
	MW4	SE262260.001	%	10 - 150%	95
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	MW5	SE262260.002	%	10 - 150%	104
	MW6	SE262260.003	%	10 - 150%	127
	MW7	SE262260.004	%	10 - 150%	88
	MW8	SE262260.005	%	10 - 150%	83
	MW9	SE262260.006	%	10 - 150%	100
	MW10	SE262260.007	%	10 - 150%	104
	QC2403	SE262260.008	%	10 - 150%	97

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB306997.001	Mercury	mg/L	0.0001	<0.0001

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB307350.001	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262260.003	LB306997.014	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0
SE262305.013	LB306997.024	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE262260.003	LB307350.014	Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	0.1	0.1	90	4
		Chromium	µg/L	1	4	4	42	1
		Copper	µg/L	1	<1	1	111	24
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	174	0
		Zinc	µg/L	5	39	40	28	3
SE262279.001	LB307350.024	Chromium	µg/L	1	1	1	85	4

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB307350.002	Arsenic	µg/L	1	19	20	80 - 120	96
	Cadmium	µg/L	0.1	19	20	80 - 120	94
	Chromium	µg/L	1	20	20	80 - 120	102
	Copper	µg/L	1	20	20	80 - 120	102
	Lead	µg/L	1	20	20	80 - 120	99
	Nickel	µg/L	1	21	20	80 - 120	103
	Zinc	µg/L	5	22	20	80 - 120	108

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE262248.010	LB306997.004	Mercury	mg/L	0.0001	0.0020	<0.0001	0.008	99

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE262248.010	LB307350.004	Arsenic	µg/L	1	19	<1	20	96
		Cadmium	µg/L	0.1	19	<0.1	20	94
		Chromium	µg/L	1	20	<1	20	96
		Copper	µg/L	1	20	<1	20	98
		Lead	µg/L	1	19	<1	20	97
		Nickel	µg/L	1	20	<1	20	100
		Zinc	µg/L	5	24	<5	20	104

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here : https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service .
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

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 Order Number **SE262260**
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SGS Reference **ME349411 R0**
 Date Received **18 Mar 2024**
 Date Reported **25 Mar 2024**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562 (14420/22793/24472).

MA-1523: Majority of surrogate recoveries within acceptance criteria.

SIGNATORIES



Vanessa PALAMARA
 Senior Chemist

Parameter	Units	LOR	ME349411.001	ME349411.002	ME349411.003	ME349411.004
Sample Number			ME349411.001	ME349411.002	ME349411.003	ME349411.004
Sample Matrix			Water	Water	Water	Water
Sample Date			13 Mar 2024	13 Mar 2024	13 Mar 2024	13 Mar 2024
Sample Name			SE262260.001	SE262260.002	SE262260.003	SE262260.004

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples Method: MA-1523 Tested: 19/3/2024

Parameter	Units	LOR	ME349411.001	ME349411.002	ME349411.003	ME349411.004
Perfluorobutanoic acid (PFBA)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.004	0.003	<0.002	0.003
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctanoic Acid (PFOA)	µg/L	0.001	0.003	0.003	<0.001	0.003
Perfluorobutane sulfonate (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluoropentane sulfonate (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonate (PFHxS)	µg/L	0.002	0.010	0.009	<0.002	0.005
Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonate (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Sum of PFHxS and PFOS	µg/L	0.002	0.010	0.009	<0.002	0.005
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	100	102	100	100
(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	81	79	87	81
(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	122	130	116	120
(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	109	111	112	110
(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	83	96	99	89
(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	112	130	96	98
(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	96	115	94	87
(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	95	104	127	88
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	109	116	90	88
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	101	115	91	88
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	97	135	105	90

Parameter	Units	LOR	Sample Number	ME349411.005	ME349411.006	ME349411.007	ME349411.008
			Sample Matrix	Water	Water	Water	Water
			Sample Date	13 Mar 2024	13 Mar 2024	13 Mar 2024	13 Mar 2024
			Sample Name	SE262260.005	SE262260.006	SE262260.007	SE262260.008

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples Method: MA-1523 Tested: 19/3/2024

Perfluorobutanoic acid (PFBA)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	0.006	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.005	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.004	<0.002	<0.002	<0.002
Perfluorooctanoic Acid (PFOA)	µg/L	0.001	0.011	<0.001	<0.001	<0.001
Perfluorobutane sulfonate (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluoropentane sulfonate (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonate (PFHxS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonate (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Sum of PFHxS and PFOS	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	101	101	100	100
(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	85	81	83	85
(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	119	116	107	108
(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	113	107	96	106
(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	93	91	85	93
(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	106	104	100	97
(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	108	104	101	100
(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	83	100	104	97
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	99	94	96	92
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	91	92	81	93
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	110	108	102	93

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.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples Method: MA-1523

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Perfluorobutanoic acid (PFBA)	LB073135	µg/L	0.002	<0.002	0%	NA
Perfluoropentanoic acid (PFPeA)	LB073135	µg/L	0.002	<0.002	0 - 2%	NA
Perfluorohexanoic acid (PFHxA)	LB073135	µg/L	0.002	<0.002	2 - 5%	NA
Perfluoroheptanoic acid (PFHpA)	LB073135	µg/L	0.002	<0.002	0 - 3%	87%
Perfluorooctanoic Acid (PFOA)	LB073135	µg/L	0.001	<0.001	14 - 18%	118%
Perfluorobutane sulfonate (PFBS)	LB073135	µg/L	0.004	<0.004	0 - 16%	NA
Perfluoropentane sulfonate (PFPeS)	LB073135	µg/L	0.004	<0.004	0%	NA
Perfluorohexane sulfonate (PFHxS)	LB073135	µg/L	0.002	<0.002	17 - 18%	NA
Perfluoroheptane sulfonate (PFHpS)	LB073135	µg/L	0.002	<0.002	0%	NA
Perfluorooctane sulfonate (PFOS)	LB073135	µg/L	0.002	<0.002	0 - 37%	74%
Sum of PFHxS and PFOS	LB073135	µg/L	0.002	<0.002	18 - 20%	NA
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	LB073135	µg/L	0.002	<0.002	0%	NA
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	LB073135	µg/L	0.002	<0.002	0%	NA
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	LB073135	µg/L	0.002	<0.002	0%	NA
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard	LB073135	%	-	101%	1 - 2%	100%
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	LB073135	%	-	87%	4%	81%
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	LB073135	%	-	118%	2 - 11%	114%
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	LB073135	%	-	104%	0 - 5%	108%
(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	LB073135	%	-	91%	3 - 16%	85%
(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	LB073135	%	-	117%	0 - 10%	112%
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	LB073135	%	-	114%	0 - 2%	107%
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	LB073135	%	-	113%	0 - 1%	97%
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	LB073135	%	-	107%	0 - 10%	92%
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	LB073135	%	-	105%	0 - 10%	104%
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard	LB073135	%	-	104%	0 - 10%	99%

METHOD

METHODOLOGY SUMMARY

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.

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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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CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
 Unit 16, 33 Maddox Street
 Alexandria NSW 2015
 Telephone No: (02) 85940400
 Facsimile No: (02) 85940499
 Email: au.samplerreceipt.sydney@sgs.com

Company Name: JM Environments
 Address: 37 Tooke St
COOKS HILL
 Contact Name: Jamaa McMahon

Project Name/No: JME21054
 Purchase Order No: JME21054
 Results Required By: Standard
 Telephone: 0427 893 668
 Facsimile: admin@jmenvironments.com
 Email Results: jma@jmenvironments.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	SHM	PKAW
MW4	18/4	1	X		Ice	2	X	X
MW5		2					X	X
MW6		3					X	X
MW7		4					X	X
MW8		5					X	X
MW9		6					X	X
MW10		7					X	X
Q26404		28	X		2	1	X	X

SGS EHS Sydney COC
SE264054



Relinquished By:	Date/Time: <u>18/4/ 3:40pm</u>	Received By: <u>WGA SGS Newy</u>	Date/Time: <u>18-4-24 15:40</u>
Relinquished By:	Date/Time: <u>18/4/ 3:40pm</u>	Received By: <u>GF</u>	Date/Time: <u>22-4-24 10:05</u>
Samples Intact: <u>Yes/No</u>	Temperature: <u>Ambient / Chilled</u>	Sample Cooler Sealed: <u>Yes/No</u>	Laboratory Quotation No:
Comments:			

CHAIN OF CUSTODY RECORD

COC#: SE264054

Owner job:

Ship to: XML	Project Name:	Due date: 30/04/2024 10:05:00 AM Send Results to: AUENVSE
	Client: JM ENVIRONMENTS 3029337_9615544	
	Sampler Name: Client	
Carrier:	Airbill #:	

Field Sample ID	Client ID	Date sampling	Time	Matrix	# of Containers	Analyses Requested										Comments			
						152301													
SE264054.001	MW4	18/04/2024	0:00:00	Water		X													
SE264054.002	MW5	18/04/2024	0:00:00	Water		X													
SE264054.003	MW6	18/04/2024	0:00:00	Water		X													
SE264054.004	MW7	18/04/2024	0:00:00	Water		X													
SE264054.005	MW8	18/04/2024	0:00:00	Water		X													
SE264054.006	MW9	18/04/2024	0:00:00	Water		X													
SE264054.007	MW10	18/04/2024	0:00:00	Water		X													
SE264054.008	QC2404	18/04/2024	0:00:00	Water		X													

SGS EHS Melbourne COC

ME351127

SE264054 SUBCON

Received: 22 - Apr - 2024

Sample Condition Upon Receipt at Laboratory: <i>Good</i>	Cooler temperature: <i>12.4°C</i>
Special Instructions/Comments:	
Job Booked by: ML 22/4/2024 Job received date: 22/4/2024	
Loggin Checked by: JDR 22/4/2024	
Surcharge: 100/40/20/10 - PEAS price \$97.75	

#1 Released by: (Sig)	Date:	#2 Released by: (Sig)	Date:	#3 Released by: (Sig)	Date:
Company Name:	Time	Company Name:	Time	Company Name:	Time
#1 Received by: (Sig)	Date	#2 Received by: (Sig)	Date	#3 Received by: (Sig)	Date
Company Name:	Time	Company Name:	Time	Company Name:	Time

M. Albas
JGS N. H.

Date: *23/4/24*
Time: *9:47 AM*

SGS Notting Hill Bottle Map for Water & Soil Samples

Temperature 12.4°C Ice Brick Ice 2 Ice Pack Esky 1 Bag Box Bucket

Name + Date M. Lewis - 23/4/24

Bottle Type And Preservation Type

	Sample ID	Tray #	Soil	Water	Oil	1L Unpreserved Plastic	1L HNO3 Preserved Plastic	1L Unpreserved Glass	500mL Unpreserved Plastic	500mL Unpreserved Glass	250mL Unpreserved Plastic Bottle	250mL Unpreserved Plastic Jar	250mL H2SO4 Plastic	250mL Zn acetate & NaOH Plastic	250mL Unpreserved Glass Jar	200mL Unpreserved Glass	150mL Unpreserved Plastic Jar	125mL Unpreserved Plastic Bottle	125mL HNO3 (Filtered) Plastic (Dissolved meta	125mL HNO3 (Unfiltered) Plastic (Total Metals)	125mL NaOH Preserved Plastic Bottle	125mL H2SO4 Plastic	125mL Unpreserved Glass Jar	100mL Unpreserved Glass	70mL Unpreserved Plastic Container	50mL Unpreserved Plastic	40mL Unpreserved Glass vial	40mL Na2S2O3 Glass vial	40mL H2SO4 Glass vial	40mL NH4Cl Glass vial	40mL Diluted HCl Glass vial	10mL Unpreserved Glass	Plastic bag	Number of labels to be printed per sample ID			
1	SE264054.001	A5		X																																1	
2	" .002	↓		X																																	1
3	" .003			X																																	1
4	" .004			X																																	1
5	" .005			X																																	1
6	" .006			X																																	1
7	" .007			X																																	1
8	" .008			X																																	1
9																																					
10																																					

Comments:



SAMPLE RECEIPT ADVICE

SE264054

CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
COOKS HILL NSW 2300

Telephone 0427 893 668
Facsimile (Not specified)
Email james@jmenvironments.com

Project **JME21054**
Order Number **JME21054**
Samples 8

LABORATORY DETAILS

Manager Huong Crawford
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Mon 22/4/2024
Report Due Tue 30/4/2024
SGS Reference **SE264054**

SUBMISSION DETAILS

This is to confirm that 8 samples were received on Monday 22/4/2024. Results are expected to be ready by COB Tuesday 30/4/2024. Please quote SGS reference SE264054 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	22/4/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	17.1°C
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		

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

PFAS subcontracted to SGS Melbourne, Unit 10/585 Blackburn Road Notting Hill VIC 3168, NATA Accreditation Number 2562, Site number 14420

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SAMPLE RECEIPT ADVICE

SE264054

CLIENT DETAILS

Client **JM ENVIRONMENTS**

Project **JME21054**

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Per- and Polyfluoroalkyl Substances (PFAS) in	Trace Metals (Dissolved) in Water by ICPMS
001	MW4	1	59	7
002	MW5	1	59	7
003	MW6	1	59	7
004	MW7	1	59	7
005	MW8	1	59	7
006	MW9	1	59	7
007	MW10	1	59	7
008	QC2404	1	59	7

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

ME351127

CLIENT DETAILS

Contact **Huong Crawford**
Client **SGS I&E SYDNEY**
Address **Unit 16, 33 Maddox Street
Alexandria
NSW 2015**

Telephone **02 8594 0400**
Facsimile **02 8594 0499**
Email **au.environmental.sydney@sgs.com**

Project **JME21054**
Order Number **SE264054**
Samples **8**

LABORATORY DETAILS

Manager **Adam Atkinson**
Laboratory **SGS Melbourne EH&S**
Address **10/585 Blackburn Road
Notting Hill Victoria 3168**

Telephone **+61395743200**
Facsimile **+61395743399**
Email **Au.SampleReceipt.Melbourne@sgs.com**

Samples Received **Tue 23/4/2024**
Report Due **Tue 30/4/2024**
SGS Reference **ME351127**

SUBMISSION DETAILS

This is to confirm that 8 samples were received on Tuesday 23/4/2024. Results are expected to be ready by COB Tuesday 30/4/2024. Please quote SGS reference ME351127 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	23/4/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	12.4 C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	2 Ice	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	1

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

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SAMPLE RECEIPT ADVICE

ME351127

CLIENT DETAILS

Client **SGS I&E SYDNEY**

Project **JME21054**

SUMMARY OF ANALYSIS

No.	Sample ID	Per- and Polyfluoroalkyl Substances (PFAS) in
001	SE264054.001	59
002	SE264054.002	59
003	SE264054.003	59
004	SE264054.004	59
005	SE264054.005	59
006	SE264054.006	59
007	SE264054.007	59
008	SE264054.008	59

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.

CLIENT DETAILS

Contact **James McMahon**
 Client **JM ENVIRONMENTS**
 Address **37 TOOKE STREET
 COOKS HILL NSW 2300**

Telephone **0427 893 668**
 Facsimile **(Not specified)**
 Email **james@jmenvironments.com**

Project **JME21054**
 Order Number **JME21054**
 Samples **8**

LABORATORY DETAILS

Manager **Huong Crawford**
 Laboratory **SGS Alexandria Environmental**
 Address **Unit 16, 33 Maddox St
 Alexandria NSW 2015**

Telephone **+61 2 8594 0400**
 Facsimile **+61 2 8594 0499**
 Email **au.environmental.sydney@sgs.com**

SGS Reference **SE264054 R0**
 Date Received **22/4/2024**
 Date Reported **26/4/2024**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

PFAS subcontracted to SGS Melbourne, Unit 10/585 Blackburn Road Notting Hill VIC 3168, NATA Accreditation Number 2562, Site number 14420. Report No. ME351127 R0

MA-1523: Majority of surrogate recoveries within acceptance criteria.

SIGNATORIES



Kamrul AHSAN
 Senior Chemist



ANALYTICAL RESULTS

SE264054 R0

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 22/4/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			18/4/2024 SE264054.001	18/4/2024 SE264054.002	18/4/2024 SE264054.003	18/4/2024 SE264054.004	18/4/2024 SE264054.005
Arsenic	µg/L	1	1	<1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	2	<1	<1	<1	<1
Chromium	µg/L	1	3	5	3	3	1
Nickel	µg/L	1	<1	<1	<1	<1	<1
Lead	µg/L	1	<1	1	<1	<1	<1
Zinc	µg/L	5	11	12	<5	10	<5

PARAMETER	UOM	LOR	MW9	MW10	QC2404
			WATER	WATER	WATER
			18/4/2024 SE264054.006	18/4/2024 SE264054.007	18/4/2024 SE264054.008
Arsenic	µg/L	1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	<1	<1	<1
Chromium	µg/L	1	4	4	4
Nickel	µg/L	1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1
Zinc	µg/L	5	<5	<5	7

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 23/4/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER - 18/4/2024 SE264054.001	WATER - 18/4/2024 SE264054.002	WATER - 18/4/2024 SE264054.003	WATER - 18/4/2024 SE264054.004	WATER - 18/4/2024 SE264054.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

PARAMETER	UOM	LOR	MW9	MW10	QC2404
			WATER - 18/4/2024 SE264054.006	WATER - 18/4/2024 SE264054.007	WATER - 18/4/2024 SE264054.008
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples [MA-1523] Tested: 26/4/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER - 18/4/2024 SE264054.001	WATER - 18/4/2024 SE264054.002	WATER - 18/4/2024 SE264054.003	WATER - 18/4/2024 SE264054.004	WATER - 18/4/2024 SE264054.005
Perfluorobutanoic acid (PFBA)	µg/L	0.002	0.036	0.007	<0.002	0.009	0.006
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	0.024	0.006	<0.002	0.004	0.004
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.033	0.007	<0.002	0.004	0.004
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.014	<0.002	<0.002	<0.002	0.002
Perfluorooctanoic Acid (PFOA)	µg/L	0.002	0.011	0.003	<0.002	0.004	0.004
Perfluorononanoic acid (PFNA)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorodecanoic acid (PFDA)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluoroundecanoic acid (PFUnA)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorododecanoic acid (PFDoA)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorotridecanoic acid (PFTTrDA)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorohexadecanoic acid (PFHxDA)	µg/L	0.008	<0.008	<0.008	<0.008	<0.008	<0.008
Perfluorobutane sulfonate (PFBS)	µg/L	0.004	0.006	<0.004	<0.004	<0.004	<0.004
Perfluoropentane sulfonate (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonate (PFHxS)	µg/L	0.002	0.023	0.017	<0.002	0.004	<0.002
Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonate (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Sum of PFHxS and PFOS	µg/L	0.002	0.023	0.017	<0.002	0.004	<0.002
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	0.034	0.020	<0.002	0.009	0.004
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	0.011	0.003	<0.002	0.004	0.004
Perfluorononane sulfonate (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorodecane sulfonate (PFDS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorododecane sulfonate (PFDoS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorododecanesulfonic acid (10:2)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonamide (PFOSA)	µg/L	0.008	<0.008	<0.008	<0.008	<0.008	<0.008
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
2-(N-Methylperfluorooctane sulfonamido)-ethanol	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
2-(N-Ethylperfluorooctane sulfonamido)-ethanol	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
N-Methylperfluorooctanesulfonamidoacetic acid	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
N-Ethylperfluorooctanesulfonamidoacetic Acid	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total of PFAS (n=30)	µg/L	0.04	0.15	<0.04	<0.04	<0.04	<0.04

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples [MA-1523] Tested: 26/4/2024 (continued)

PARAMETER	UOM	LOR	MW9	MW10	QC2404
			WATER - 18/4/2024 SE264054.006	WATER - 18/4/2024 SE264054.007	WATER - 18/4/2024 SE264054.008
Perfluorobutanoic acid (PFBA)	µg/L	0.002	0.005	0.006	0.005
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	0.004	<0.002	0.005
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002	0.003	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctanoic Acid (PFOA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorononanoic acid (PFNA)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorodecanoic acid (PFDA)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluoroundecanoic acid (PFUnA)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorododecanoic acid (PFDoA)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorotridecanoic acid (PFTriDA)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorohexadecanoic acid (PFHxDA)	µg/L	0.008	<0.008	<0.008	<0.008
Perfluorobutane sulfonate (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluoropentane sulfonate (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonate (PFHxS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonate (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002
Sum of PFHxS and PFOS	µg/L	0.002	<0.002	<0.002	<0.002
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	<0.002	<0.002	<0.002
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorononane sulfonate (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorodecane sulfonate (PFDS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorododecane sulfonate (PFDoS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorododecanesulfonic acid (10:2)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonamide (PFOSA)	µg/L	0.008	<0.008	<0.008	<0.008
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	µg/L	0.01	<0.01	<0.01	<0.01
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	µg/L	0.01	<0.01	<0.01	<0.01
2-(N-Methylperfluorooctane sulfonamido)-ethanol	µg/L	0.01	<0.01	<0.01	<0.01
2-(N-Ethylperfluorooctane sulfonamido)-ethanol	µg/L	0.01	<0.01	<0.01	<0.01
N-Methylperfluorooctanesulfonamidoacetic acid	µg/L	0.01	<0.01	<0.01	<0.01
N-Ethylperfluorooctanesulfonamidoacetic Acid	µg/L	0.01	<0.01	<0.01	<0.01
Total of PFAS (n=30)	µg/L	0.04	<0.04	<0.04	<0.04

METHOD

METHODOLOGY SUMMARY

AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: 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.
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
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.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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Project **JME21054**
 Order Number **JME21054**
 Samples 8

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SGS Reference **SE264054 R0**
 Date Received 22 Apr 2024
 Date Reported 26 Apr 2024

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
 This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
 The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Surrogate	Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples	4 items
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SAMPLE SUMMARY

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	22/4/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	17.1°C
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		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE264054.001	LB310428	18 Apr 2024	22 Apr 2024	16 May 2024	23 Apr 2024	16 May 2024	23 Apr 2024
MW5	SE264054.002	LB310428	18 Apr 2024	22 Apr 2024	16 May 2024	23 Apr 2024	16 May 2024	23 Apr 2024
MW6	SE264054.003	LB310428	18 Apr 2024	22 Apr 2024	16 May 2024	23 Apr 2024	16 May 2024	23 Apr 2024
MW7	SE264054.004	LB310428	18 Apr 2024	22 Apr 2024	16 May 2024	23 Apr 2024	16 May 2024	23 Apr 2024
MW8	SE264054.005	LB310428	18 Apr 2024	22 Apr 2024	16 May 2024	23 Apr 2024	16 May 2024	23 Apr 2024
MW9	SE264054.006	LB310428	18 Apr 2024	22 Apr 2024	16 May 2024	23 Apr 2024	16 May 2024	23 Apr 2024
MW10	SE264054.007	LB310428	18 Apr 2024	22 Apr 2024	16 May 2024	23 Apr 2024	16 May 2024	23 Apr 2024
QC2404	SE264054.008	LB310428	18 Apr 2024	22 Apr 2024	16 May 2024	23 Apr 2024	16 May 2024	23 Apr 2024

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE264054.001	LB310344	18 Apr 2024	22 Apr 2024	15 Oct 2024	22 Apr 2024	15 Oct 2024	23 Apr 2024
MW5	SE264054.002	LB310344	18 Apr 2024	22 Apr 2024	15 Oct 2024	22 Apr 2024	15 Oct 2024	23 Apr 2024
MW6	SE264054.003	LB310344	18 Apr 2024	22 Apr 2024	15 Oct 2024	22 Apr 2024	15 Oct 2024	23 Apr 2024
MW7	SE264054.004	LB310344	18 Apr 2024	22 Apr 2024	15 Oct 2024	22 Apr 2024	15 Oct 2024	23 Apr 2024
MW8	SE264054.005	LB310344	18 Apr 2024	22 Apr 2024	15 Oct 2024	22 Apr 2024	15 Oct 2024	23 Apr 2024
MW9	SE264054.006	LB310344	18 Apr 2024	22 Apr 2024	15 Oct 2024	22 Apr 2024	15 Oct 2024	23 Apr 2024
MW10	SE264054.007	LB310344	18 Apr 2024	22 Apr 2024	15 Oct 2024	22 Apr 2024	15 Oct 2024	23 Apr 2024
QC2404	SE264054.008	LB310344	18 Apr 2024	22 Apr 2024	15 Oct 2024	22 Apr 2024	15 Oct 2024	23 Apr 2024

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: MA-1523

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %	
(13C2-PFTeDA) Isotopically Labelled Internal Recovery Standard	MW4	SE264054.001	%	10 - 150%	94	
	MW5	SE264054.002	%	10 - 150%	123	
	MW6	SE264054.003	%	10 - 150%	126	
	MW7	SE264054.004	%	10 - 150%	127	
	MW8	SE264054.005	%	10 - 150%	140	
	MW9	SE264054.006	%	10 - 150%	100	
	MW10	SE264054.007	%	10 - 150%	125	
	QC2404	SE264054.008	%	10 - 150%	126	
	(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE264054.001	%	10 - 150%	74
		MW5	SE264054.002	%	10 - 150%	84
MW6		SE264054.003	%	10 - 150%	84	
MW7		SE264054.004	%	10 - 150%	88	
MW8		SE264054.005	%	10 - 150%	83	
MW9		SE264054.006	%	10 - 150%	87	
MW10		SE264054.007	%	10 - 150%	79	
QC2404		SE264054.008	%	10 - 150%	89	
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard		MW4	SE264054.001	%	10 - 150%	61
		MW5	SE264054.002	%	10 - 150%	70
	MW6	SE264054.003	%	10 - 150%	80	
	MW7	SE264054.004	%	10 - 150%	70	
	MW8	SE264054.005	%	10 - 150%	68	
	MW9	SE264054.006	%	10 - 150%	68	
	MW10	SE264054.007	%	10 - 150%	61	
	QC2404	SE264054.008	%	10 - 150%	73	
	(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE264054.001	%	10 - 150%	66
		MW5	SE264054.002	%	10 - 150%	106
MW6		SE264054.003	%	10 - 150%	55	
MW7		SE264054.004	%	10 - 150%	74	
MW8		SE264054.005	%	10 - 150%	82	
MW9		SE264054.006	%	10 - 150%	90	
MW10		SE264054.007	%	10 - 150%	72	
QC2404		SE264054.008	%	10 - 150%	73	
(13C2-PFDoA) Isotopically Labelled Internal Recovery Standard		MW4	SE264054.001	%	10 - 150%	98
		MW5	SE264054.002	%	10 - 150%	120
	MW6	SE264054.003	%	10 - 150%	110	
	MW7	SE264054.004	%	10 - 150%	114	
	MW8	SE264054.005	%	10 - 150%	137	
	MW9	SE264054.006	%	10 - 150%	111	
	MW10	SE264054.007	%	10 - 150%	129	
	QC2404	SE264054.008	%	10 - 150%	123	
	(13C2-PFHxDA) Isotopically Labelled Internal Recovery Standard	MW4	SE264054.001	%	10 - 150%	122
		MW5	SE264054.002	%	10 - 150%	143
MW6		SE264054.003	%	10 - 150%	139	
MW7		SE264054.004	%	10 - 150%	142	
MW8		SE264054.005	%	10 - 150%	237 ↑	
MW9		SE264054.006	%	10 - 150%	127	
MW10		SE264054.007	%	10 - 150%	209 ↑	
QC2404		SE264054.008	%	10 - 150%	150	
(13C3-PFBS) Isotopically Labelled Internal Recovery Standard		MW4	SE264054.001	%	10 - 150%	95
		MW5	SE264054.002	%	10 - 150%	115
	MW6	SE264054.003	%	10 - 150%	103	
	MW7	SE264054.004	%	10 - 150%	113	
	MW8	SE264054.005	%	10 - 150%	107	
	MW9	SE264054.006	%	10 - 150%	102	
	MW10	SE264054.007	%	10 - 150%	107	
	QC2404	SE264054.008	%	10 - 150%	109	
	(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	MW4	SE264054.001	%	10 - 150%	90
		MW5	SE264054.002	%	10 - 150%	117
MW6		SE264054.003	%	10 - 150%	100	
MW7		SE264054.004	%	10 - 150%	101	
MW8		SE264054.005	%	10 - 150%	110	

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: MA-1523

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	MW9	SE264054.006	%	10 - 150%	100
	MW10	SE264054.007	%	10 - 150%	98
	QC2404	SE264054.008	%	10 - 150%	89
	MW4	SE264054.001	%	10 - 150%	98
(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	MW5	SE264054.002	%	10 - 150%	101
	MW6	SE264054.003	%	10 - 150%	80
	MW7	SE264054.004	%	10 - 150%	94
	MW8	SE264054.005	%	10 - 150%	111
	MW9	SE264054.006	%	10 - 150%	106
	MW10	SE264054.007	%	10 - 150%	95
	QC2404	SE264054.008	%	10 - 150%	98
	(13C4-PFBA) Isotopically Labelled Internal Recovery Standard	MW4	SE264054.001	%	10 - 150%
MW5		SE264054.002	%	10 - 150%	97
MW6		SE264054.003	%	10 - 150%	97
MW7		SE264054.004	%	10 - 150%	98
MW8		SE264054.005	%	10 - 150%	98
MW9		SE264054.006	%	10 - 150%	96
MW10		SE264054.007	%	10 - 150%	99
QC2404		SE264054.008	%	10 - 150%	98
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW4	SE264054.001	%	10 - 150%	107
	MW5	SE264054.002	%	10 - 150%	105
	MW6	SE264054.003	%	10 - 150%	94
	MW7	SE264054.004	%	10 - 150%	110
	MW8	SE264054.005	%	10 - 150%	114
	MW9	SE264054.006	%	10 - 150%	122
	MW10	SE264054.007	%	10 - 150%	104
	QC2404	SE264054.008	%	10 - 150%	107
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	MW4	SE264054.001	%	10 - 150%	102
	MW5	SE264054.002	%	10 - 150%	104
	MW6	SE264054.003	%	10 - 150%	96
	MW7	SE264054.004	%	10 - 150%	106
	MW8	SE264054.005	%	10 - 150%	115
	MW9	SE264054.006	%	10 - 150%	118
	MW10	SE264054.007	%	10 - 150%	100
	QC2404	SE264054.008	%	10 - 150%	117
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	MW4	SE264054.001	%	10 - 150%	105
	MW5	SE264054.002	%	10 - 150%	107
	MW6	SE264054.003	%	10 - 150%	104
	MW7	SE264054.004	%	10 - 150%	107
	MW8	SE264054.005	%	10 - 150%	106
	MW9	SE264054.006	%	10 - 150%	107
	MW10	SE264054.007	%	10 - 150%	111
	QC2404	SE264054.008	%	10 - 150%	109
(13C6-PFDA) Isotopically Labelled Internal Recovery Standard	MW4	SE264054.001	%	10 - 150%	81
	MW5	SE264054.002	%	10 - 150%	98
	MW6	SE264054.003	%	10 - 150%	102
	MW7	SE264054.004	%	10 - 150%	126
	MW8	SE264054.005	%	10 - 150%	135
	MW9	SE264054.006	%	10 - 150%	123
	MW10	SE264054.007	%	10 - 150%	110
	QC2404	SE264054.008	%	10 - 150%	112
(13C7-PFUdA) Isotopically Labelled Internal Recovery Standard	MW4	SE264054.001	%	10 - 150%	81
	MW5	SE264054.002	%	10 - 150%	101
	MW6	SE264054.003	%	10 - 150%	108
	MW7	SE264054.004	%	10 - 150%	111
	MW8	SE264054.005	%	10 - 150%	129
	MW9	SE264054.006	%	10 - 150%	105
	MW10	SE264054.007	%	10 - 150%	116
	QC2404	SE264054.008	%	10 - 150%	90
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	MW4	SE264054.001	%	10 - 150%	116
	MW5	SE264054.002	%	10 - 150%	107

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: MA-1523

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	MW6	SE264054.003	%	10 - 150%	135
	MW7	SE264054.004	%	10 - 150%	131
	MW8	SE264054.005	%	10 - 150%	98
	MW9	SE264054.006	%	10 - 150%	83
	MW10	SE264054.007	%	10 - 150%	105
	QC2404	SE264054.008	%	10 - 150%	140
(13C8-PFOSA) Isotopically Labelled Internal Recovery Standard	MW4	SE264054.001	%	10 - 150%	93
	MW5	SE264054.002	%	10 - 150%	91
	MW6	SE264054.003	%	10 - 150%	104
	MW7	SE264054.004	%	10 - 150%	111
	MW8	SE264054.005	%	10 - 150%	78
	MW9	SE264054.006	%	10 - 150%	88
	MW10	SE264054.007	%	10 - 150%	70
(13C9-PFNA) Isotopically Labelled Internal Recovery Standard	QC2404	SE264054.008	%	10 - 150%	134
	MW4	SE264054.001	%	10 - 150%	91
	MW5	SE264054.002	%	10 - 150%	91
	MW6	SE264054.003	%	10 - 150%	98
	MW7	SE264054.004	%	10 - 150%	91
	MW8	SE264054.005	%	10 - 150%	100
	MW9	SE264054.006	%	10 - 150%	98
(D3-N-MeFOSA) Isotopically Labelled Internal Recovery Standard	MW10	SE264054.007	%	10 - 150%	85
	MW10	SE264054.007	%	10 - 150%	81
	QC2404	SE264054.008	%	10 - 150%	99
	MW4	SE264054.001	%	10 - 150%	86
	MW5	SE264054.002	%	10 - 150%	82
	MW6	SE264054.003	%	10 - 150%	116
	MW7	SE264054.004	%	10 - 150%	93
(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery Standard	MW8	SE264054.005	%	10 - 150%	91
	MW9	SE264054.006	%	10 - 150%	61
	MW10	SE264054.007	%	10 - 150%	81
	QC2404	SE264054.008	%	10 - 150%	116
	MW4	SE264054.001	%	10 - 150%	101
	MW5	SE264054.002	%	10 - 150%	124
	MW6	SE264054.003	%	10 - 150%	164 †
(D5-N-EtFOSA) Isotopically Labelled Internal Recovery Standard	MW7	SE264054.004	%	10 - 150%	132
	MW8	SE264054.005	%	10 - 150%	85
	MW9	SE264054.006	%	10 - 150%	95
	MW10	SE264054.007	%	10 - 150%	94
	QC2404	SE264054.008	%	10 - 150%	194 †
	MW4	SE264054.001	%	10 - 150%	83
	MW5	SE264054.002	%	10 - 150%	98
(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery Standard	MW6	SE264054.003	%	10 - 150%	129
	MW7	SE264054.004	%	10 - 150%	96
	MW8	SE264054.005	%	10 - 150%	91
	MW9	SE264054.006	%	10 - 150%	66
	MW10	SE264054.007	%	10 - 150%	74
	QC2404	SE264054.008	%	10 - 150%	131
	(D7-N-MeFOSE) Isotopically Labelled Internal Recovery Standard	MW4	SE264054.001	%	10 - 150%
MW5		SE264054.002	%	10 - 150%	94
MW6		SE264054.003	%	10 - 150%	116
MW7		SE264054.004	%	10 - 150%	113
MW8		SE264054.005	%	10 - 150%	96
MW9		SE264054.006	%	10 - 150%	83
MW10		SE264054.007	%	10 - 150%	74
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery Standard	QC2404	SE264054.008	%	10 - 150%	124
	MW4	SE264054.001	%	10 - 150%	87
	MW5	SE264054.002	%	10 - 150%	123
	MW6	SE264054.003	%	10 - 150%	119
	MW7	SE264054.004	%	10 - 150%	94
	MW8	SE264054.005	%	10 - 150%	73
	MW9	SE264054.006	%	10 - 150%	74
MW10	SE264054.007	%	10 - 150%	83	

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: MA-1523

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery Standard	QC2404	SE264054.008	%	10 - 150%	136
(D9-N-EtFOSE) Isotopically Labelled Internal Recovery Standard	MW4	SE264054.001	%	10 - 150%	85
	MW5	SE264054.002	%	10 - 150%	115
	MW6	SE264054.003	%	10 - 150%	115
	MW7	SE264054.004	%	10 - 150%	105
	MW8	SE264054.005	%	10 - 150%	90
	MW9	SE264054.006	%	10 - 150%	84
	MW10	SE264054.007	%	10 - 150%	83
	QC2404	SE264054.008	%	10 - 150%	122

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB310428.001	Mercury	mg/L	0.0001	<0.0001

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB310344.001	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-ENVJAN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE264049.001	LB310344.014	Arsenic	µg/L	1	29	29	18	2
		Cadmium	µg/L	0.1	2.0	1.8	20	7
		Chromium	µg/L	1	5	5	37	1
		Copper	µg/L	1	<1	<1	200	0
		Lead	µg/L	1	3	3	50	2
		Nickel	µg/L	1	190	190	16	0
		Zinc	µg/L	5	290	300	17	1
SE264049.004	LB310344.018	Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	<1	<1	200	0
		Copper	µg/L	1	<1	<1	200	0
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	200	0
		Zinc	µg/L	5	<5	<5	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB310344.002	Arsenic	µg/L	1	20	20	80 - 120	102
	Cadmium	µg/L	0.1	21	20	80 - 120	106
	Chromium	µg/L	1	21	20	80 - 120	107
	Copper	µg/L	1	21	20	80 - 120	106
	Lead	µg/L	1	21	20	80 - 120	104
	Nickel	µg/L	1	21	20	80 - 120	105
	Zinc	µg/L	5	22	20	80 - 120	108

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Parth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE264053.007	LB310428.004	Mercury	mg/L	0.0001	0.0018	<0.0001	0.008	92

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE264054.001	LB310344.004	Arsenic	µg/L	1	23	1	20	110
		Cadmium	µg/L	0.1	22	<0.1	20	108
		Chromium	µg/L	1	24	3	20	105
		Copper	µg/L	1	22	2	20	104
		Lead	µg/L	1	21	<1	20	104
		Nickel	µg/L	1	21	<1	20	101
		Zinc	µg/L	5	32	11	20	106

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

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Project **JME21054**
 Order Number **SE264054**
 Samples **8**

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SGS Reference **ME351127 R0**
 Date Received **23 Apr 2024**
 Date Reported **26 Apr 2024**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562 (14420/22793/24472).

MA-1523: Majority of surrogate recoveries within acceptance criteria.

SIGNATORIES



Andrew WRIGHT
 LC/VOC Team Leader

Parameter	Units	LOR	ME351127.001	ME351127.002	ME351127.003	ME351127.004
Sample Number			ME351127.001	ME351127.002	ME351127.003	ME351127.004
Sample Matrix			Water	Water	Water	Water
Sample Date			18 Apr 2024	18 Apr 2024	18 Apr 2024	18 Apr 2024
Sample Name			SE264054.001	SE264054.002	SE264054.003	SE264054.004

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples Method: MA-1523 Tested: 24/4/2024

Perfluorobutanoic acid (PFBA)	µg/L	0.002	0.036	0.007	<0.002	0.009
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	0.024	0.006	<0.002	0.004
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.033	0.007	<0.002	0.004
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.014	<0.002	<0.002	<0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	0.011	0.003	<0.002	0.004
Perfluorononanoic acid (PFNA)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluorodecanoic acid (PFDA)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluoroundecanoic acid (PFUnA)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluorododecanoic acid (PFDoA)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluorohexadecanoic acid (PFHxDA)	µg/L	0.008	<0.008	<0.008	<0.008	<0.008
Perfluorobutane sulfonate (PFBS)	µg/L	0.004	0.006	<0.004	<0.004	<0.004
Perfluoropentane sulfonate (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonate (PFHxS)	µg/L	0.002	0.023	0.017	<0.002	0.004
Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonate (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Sum of PFHxS and PFOS	µg/L	0.002	0.023	0.017	<0.002	0.004
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	0.034	0.020	<0.002	0.009
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	0.011	0.003	<0.002	0.004
Perfluorononane sulfonate (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorodecane sulfonate (PFDS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorododecane sulfonate (PFDoS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorododecanesulfonic acid (10:2) (10:2)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonamide (PFOSA)	µg/L	0.008	<0.008	<0.008	<0.008	<0.008
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01
2-(N-Methylperfluorooctane sulfonamido)-ethanol	µg/L	0.01	<0.01	<0.01	<0.01	<0.01
2-(N-Ethylperfluorooctane sulfonamido)-ethanol	µg/L	0.01	<0.01	<0.01	<0.01	<0.01
N-Methylperfluorooctanesulfonamidoacetic acid	µg/L	0.01	<0.01	<0.01	<0.01	<0.01
N-Ethylperfluorooctanesulfonamidoacetic Acid	µg/L	0.01	<0.01	<0.01	<0.01	<0.01
Total of PFAS (n=30)	µg/L	0.04	0.15	<0.04	<0.04	<0.04
(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	97	97	97	98
(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	105	107	104	107
(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	102	104	96	106
(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	107	105	94	110
(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	98	101	80	94
(13C9-PFNA) Isotopically Labelled Internal Recovery	%	-	91	91	98	91
(13C6-PFDA) Isotopically Labelled Internal Recovery	%	-	81	98	102	126
(13C7-PFUnA) Isotopically Labelled Internal Recovery	%	-	81	101	108	111
(13C2-PFDoA) Isotopically Labelled Internal Recovery	%	-	98	120	110	114
(13C2_PFTeDA) Isotopically Labelled Internal Recovery	%	-	94	123	126	127
(13C2-PFHxDA) Isotopically Labelled Internal Recovery	%	-	122	143	139	142
(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	95	115	103	113
(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	90	117	100	101
(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	116	107	135	131
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	74	84	84	88
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	61	70	80	70
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	66	106	55	74
(13C8-PFOSA) Isotopically Labelled Internal Recovery	%	-	93	91	104	111
(D3-N-MeFOSA) Isotopically Labelled Internal Recovery	%	-	86	82	116	93
(D5-N-EtFOSA) Isotopically Labelled Internal Recovery	%	-	83	98	129	96
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery	%	-	87	123	119	94
(D9-N-EtFOSE) Isotopically Labelled Internal Recovery	%	-	85	115	115	105
(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery	%	-	101	124	164	132
(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery	%	-	104	94	116	113



ANALYTICAL REPORT

ME351127 R0

	Sample Number	ME351127.001	ME351127.002	ME351127.003	ME351127.004
	Sample Matrix	Water	Water	Water	Water
	Sample Date	18 Apr 2024	18 Apr 2024	18 Apr 2024	18 Apr 2024
	Sample Name	SE264054.001	SE264054.002	SE264054.003	SE264054.004
Parameter	Units	LOR			

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples Method: MA-1523 Tested: 24/4/2024 (continued)

Parameter	Units	LOR	ME351127.005	ME351127.006	ME351127.007	ME351127.008
Sample Number			ME351127.005	ME351127.006	ME351127.007	ME351127.008
Sample Matrix			Water	Water	Water	Water
Sample Date			18 Apr 2024	18 Apr 2024	18 Apr 2024	18 Apr 2024
Sample Name			SE264054.005	SE264054.006	SE264054.007	SE264054.008

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples Method: MA-1523 Tested: 24/4/2024

Perfluorobutanoic acid (PFBA)	µg/L	0.002	0.006	0.005	0.006	0.005
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	0.004	0.004	<0.002	0.005
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.004	<0.002	0.003	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.002	<0.002	<0.002	<0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	0.004	<0.002	<0.002	<0.002
Perfluorononanoic acid (PFNA)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluorodecanoic acid (PFDA)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluoroundecanoic acid (PFUnA)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluorododecanoic acid (PFDoA)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluorotridecanoic acid (PFTrDA)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluorohexadecanoic acid (PFHxDA)	µg/L	0.008	<0.008	<0.008	<0.008	<0.008
Perfluorobutane sulfonate (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluoropentane sulfonate (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonate (PFHxS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonate (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Sum of PFHxS and PFOS	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	0.004	<0.002	<0.002	<0.002
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	0.004	<0.002	<0.002	<0.002
Perfluorononane sulfonate (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorodecane sulfonate (PFDS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorododecane sulfonate (PFDoS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorododecanesulfonic acid (10:2) (10:2)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonamide (PFOSA)	µg/L	0.008	<0.008	<0.008	<0.008	<0.008
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01
2-(N-Methylperfluorooctane sulfonamido)-ethanol	µg/L	0.01	<0.01	<0.01	<0.01	<0.01
2-(N-Ethylperfluorooctane sulfonamido)-ethanol	µg/L	0.01	<0.01	<0.01	<0.01	<0.01
N-Methylperfluorooctanesulfonamidoacetic acid	µg/L	0.01	<0.01	<0.01	<0.01	<0.01
N-Ethylperfluorooctanesulfonamidoacetic Acid	µg/L	0.01	<0.01	<0.01	<0.01	<0.01
Total of PFAS (n=30)	µg/L	0.04	<0.04	<0.04	<0.04	<0.04
(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	98	96	99	98
(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	106	107	111	109
(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	115	118	100	117
(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	114	122	104	107
(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	111	106	95	98
(13C9-PFNA) Isotopically Labelled Internal Recovery	%	-	100	98	85	99
(13C6-PFDA) Isotopically Labelled Internal Recovery	%	-	135	123	110	112
(13C7-PFUnA) Isotopically Labelled Internal Recovery	%	-	129	105	116	90
(13C2-PFDoA) Isotopically Labelled Internal Recovery	%	-	137	111	129	123
(13C2_PFTeDA) Isotopically Labelled Internal Recovery	%	-	140	100	125	126
(13C2-PFHxDA) Isotopically Labelled Internal Recovery	%	-	237	127	209	150
(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	107	102	107	109
(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	110	100	98	89
(13C3-PFOS) Isotopically Labelled Internal Recovery	%	-	98	83	105	140
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	83	87	79	89
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	68	68	61	73
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	82	90	72	73
(13C8-PFOSA) Isotopically Labelled Internal Recovery	%	-	78	88	70	134
(D3-N-MeFOSA) Isotopically Labelled Internal Recovery	%	-	91	61	81	116
(D5-N-EtFOSA) Isotopically Labelled Internal Recovery	%	-	91	66	74	131
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery	%	-	73	74	83	136
(D9-N-EtFOSE) Isotopically Labelled Internal Recovery	%	-	90	84	83	122
(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery	%	-	85	95	94	194
(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery	%	-	96	83	74	124

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.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples Method: MA-1523

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Perfluorobutanoic acid (PFBA)	LB074552	µg/L	0.002	<0.002	0%	NA
Perfluoropentanoic acid (PFPeA)	LB074552	µg/L	0.002	<0.002	26%	NA
Perfluorohexanoic acid (PFHxA)	LB074552	µg/L	0.002	<0.002	8%	NA
Perfluoroheptanoic acid (PFHpA)	LB074552	µg/L	0.002	<0.002	0%	96%
Perfluorooctanoic Acid (PFOA)	LB074552	µg/L	0.002	<0.002	0%	94%
Perfluorononanoic acid (PFNA)	LB074552	µg/L	0.004	<0.004		90%
Perfluorodecanoic acid (PFDA)	LB074552	µg/L	0.004	<0.004		85%
Perfluoroundecanoic acid (PFUnA)	LB074552	µg/L	0.004	<0.004		109%
Perfluorododecanoic acid (PFDoA)	LB074552	µg/L	0.004	<0.004		75%
Perfluorotridecanoic acid (PFTriDA)	LB074552	µg/L	0.004	<0.004		89%
Perfluorotetradecanoic acid (PFTeDA)	LB074552	µg/L	0.004	<0.004		68%
Perfluorohexadecanoic acid (PFHxDA)	LB074552	µg/L	0.008	<0.008		NA
Perfluorobutane sulfonate (PFBS)	LB074552	µg/L	0.004	<0.004	0%	NA
Perfluoropentane sulfonate (PFPeS)	LB074552	µg/L	0.004	<0.004	0%	NA
Perfluorohexane sulfonate (PFHxS)	LB074552	µg/L	0.002	<0.002	0%	NA
Perfluoroheptane sulfonate (PFHpS)	LB074552	µg/L	0.002	<0.002	0%	NA
Perfluorooctane sulfonate (PFOS)	LB074552	µg/L	0.002	<0.002	0%	86%
Sum of PFHxS and PFOS	LB074552	µg/L	0.002	<0.002	0%	NA
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	LB074552	µg/L	0.002	<0.002		NA
Sum of US EPA PFAS (PFOS+PFOA)	LB074552	µg/L	0.002	<0.002		NA
Perfluorononane sulfonate (PFNS)	LB074552	µg/L	0.002	<0.002		NA
Perfluorodecane sulfonate (PFDS)	LB074552	µg/L	0.002	<0.002		NA
Perfluorododecane sulfonate (PFDoS)	LB074552	µg/L	0.002	<0.002		NA
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	LB074552	µg/L	0.002	<0.002	0%	NA
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	LB074552	µg/L	0.002	<0.002	0%	NA
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	LB074552	µg/L	0.002	<0.002	0%	NA
1H,1H,2H,2H-Perfluorododecanesulfonic acid (10:2) (10:2 FTSA)	LB074552	µg/L	0.002	<0.002		NA
Perfluorooctane sulfonamide (PFOSA)	LB074552	µg/L	0.008	<0.008		62%
N-Methylperfluorooctane sulfonamide (N-MeFOSA)	LB074552	µg/L	0.01	<0.01		NA
N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	LB074552	µg/L	0.01	<0.01		NA
2-(N-Methylperfluorooctane sulfonamido)-ethanol (N-MeFOSE)	LB074552	µg/L	0.01	<0.01		NA
2-(N-Ethylperfluorooctane sulfonamido)-ethanol (N-EtFOSE)	LB074552	µg/L	0.01	<0.01		NA
N-Methylperfluorooctanesulfonamidoacetic acid (N_MeFOSAA)	LB074552	µg/L	0.01	<0.01		NA
N-Ethylperfluorooctanesulfonamidoacetic Acid (N-EtFOSAA)	LB074552	µg/L	0.01	<0.01		NA
Total of PFAS (n=30)	LB074552	µg/L	0.04	<0.04		NA
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	99%	0%	97%
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	100%	2%	102%
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	125%	7%	111%
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	115%	5%	112%
(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	93%	3%	112%
(13C9-PFNA) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	98%		113%
(13C6-PFDA) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	100%		106%
(13C7-PFUdA) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	85%		92%
(13C2-PFDoA) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	98%		99%
(13C2_PFTeDA) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	76%		83%
(13C2-PFHxDA) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	83%		81%
(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	128%	22%	110%
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	95%	12%	103%
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	97%	6%	108%
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	113%	7%	85%
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	98%	30%	76%
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	104%	2%	44%
(13C8-PFOSA) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	118%		90%
(D3-N-MeFOSA) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	143%		97%
(D5-N-EtFOSA) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	132%		109%
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	118%		103%

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.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples Method: MA-1523 (continued)

				MB	DUP %RPD	LCS %Recovery
(D9-N-EiFOSE) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	107%		106%
(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	120%		98%
(D5-N-EiFOSAA) Isotopically Labelled Internal Recovery Standard	LB074552	%	-	80%		98%

METHOD

METHODOLOGY SUMMARY

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.

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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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STATEMENT OF QA/QC PERFORMANCE

ME351127 R0

CLIENT DETAILS

Contact: **Huong Crawford**
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Alexandria
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Email: **au.environmental.sydney@sgs.com**

Project: **JME21054**
Order Number: **SE264054**
Samples: **8**

LABORATORY DETAILS

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Laboratory: **SGS Melbourne EH&S**
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SGS Reference: **ME351127 R0**
Date Received: **23 Apr 2024**
Date Reported: **26 Apr 2024**

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Surrogate Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples 4 items

SAMPLE SUMMARY

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	23/4/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	12.4 C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	2 Ice	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	1

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: MA-1523

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SE264054.001	ME351127.001	LB074552	18 Apr 2024	23 Apr 2024	16 May 2024	24 Apr 2024	22 May 2024	26 Apr 2024
SE264054.002	ME351127.002	LB074552	18 Apr 2024	23 Apr 2024	16 May 2024	24 Apr 2024	22 May 2024	26 Apr 2024
SE264054.003	ME351127.003	LB074552	18 Apr 2024	23 Apr 2024	16 May 2024	24 Apr 2024	22 May 2024	26 Apr 2024
SE264054.004	ME351127.004	LB074552	18 Apr 2024	23 Apr 2024	16 May 2024	24 Apr 2024	22 May 2024	26 Apr 2024
SE264054.005	ME351127.005	LB074552	18 Apr 2024	23 Apr 2024	16 May 2024	24 Apr 2024	22 May 2024	26 Apr 2024
SE264054.006	ME351127.006	LB074552	18 Apr 2024	23 Apr 2024	16 May 2024	24 Apr 2024	22 May 2024	26 Apr 2024
SE264054.007	ME351127.007	LB074552	18 Apr 2024	23 Apr 2024	16 May 2024	24 Apr 2024	22 May 2024	26 Apr 2024
SE264054.008	ME351127.008	LB074552	18 Apr 2024	23 Apr 2024	16 May 2024	24 Apr 2024	22 May 2024	26 Apr 2024

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: MA-1523

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C2-PFTeDA) Isotopically Labelled Internal Recovery Standard	SE264054.001	ME351127.001	%	10 - 150%	94
	SE264054.002	ME351127.002	%	10 - 150%	123
	SE264054.003	ME351127.003	%	10 - 150%	126
	SE264054.004	ME351127.004	%	10 - 150%	127
	SE264054.005	ME351127.005	%	10 - 150%	140
	SE264054.006	ME351127.006	%	10 - 150%	100
	SE264054.007	ME351127.007	%	10 - 150%	125
	SE264054.008	ME351127.008	%	10 - 150%	126
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	SE264054.001	ME351127.001	%	10 - 150%	74
	SE264054.002	ME351127.002	%	10 - 150%	84
	SE264054.003	ME351127.003	%	10 - 150%	84
	SE264054.004	ME351127.004	%	10 - 150%	88
	SE264054.005	ME351127.005	%	10 - 150%	83
	SE264054.006	ME351127.006	%	10 - 150%	87
	SE264054.007	ME351127.007	%	10 - 150%	79
	SE264054.008	ME351127.008	%	10 - 150%	89
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	SE264054.001	ME351127.001	%	10 - 150%	61
	SE264054.002	ME351127.002	%	10 - 150%	70
	SE264054.003	ME351127.003	%	10 - 150%	80
	SE264054.004	ME351127.004	%	10 - 150%	70
	SE264054.005	ME351127.005	%	10 - 150%	68
	SE264054.006	ME351127.006	%	10 - 150%	68
	SE264054.007	ME351127.007	%	10 - 150%	61
	SE264054.008	ME351127.008	%	10 - 150%	73
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard	SE264054.001	ME351127.001	%	10 - 150%	66
	SE264054.002	ME351127.002	%	10 - 150%	106
	SE264054.003	ME351127.003	%	10 - 150%	55
	SE264054.004	ME351127.004	%	10 - 150%	74
	SE264054.005	ME351127.005	%	10 - 150%	82
	SE264054.006	ME351127.006	%	10 - 150%	90
	SE264054.007	ME351127.007	%	10 - 150%	72
	SE264054.008	ME351127.008	%	10 - 150%	73
(13C2-PFDoA) Isotopically Labelled Internal Recovery Standard	SE264054.001	ME351127.001	%	10 - 150%	98
	SE264054.002	ME351127.002	%	10 - 150%	120
	SE264054.003	ME351127.003	%	10 - 150%	110
	SE264054.004	ME351127.004	%	10 - 150%	114
	SE264054.005	ME351127.005	%	10 - 150%	137
	SE264054.006	ME351127.006	%	10 - 150%	111
	SE264054.007	ME351127.007	%	10 - 150%	129
	SE264054.008	ME351127.008	%	10 - 150%	123
(13C2-PFHxDA) Isotopically Labelled Internal Recovery Standard	SE264054.001	ME351127.001	%	10 - 150%	122
	SE264054.002	ME351127.002	%	10 - 150%	143
	SE264054.003	ME351127.003	%	10 - 150%	139
	SE264054.004	ME351127.004	%	10 - 150%	142
	SE264054.005	ME351127.005	%	10 - 150%	237 ↑
	SE264054.006	ME351127.006	%	10 - 150%	127
	SE264054.007	ME351127.007	%	10 - 150%	209 ↑
	SE264054.008	ME351127.008	%	10 - 150%	150
(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	SE264054.001	ME351127.001	%	10 - 150%	95
	SE264054.002	ME351127.002	%	10 - 150%	115
	SE264054.003	ME351127.003	%	10 - 150%	103
	SE264054.004	ME351127.004	%	10 - 150%	113
	SE264054.005	ME351127.005	%	10 - 150%	107
	SE264054.006	ME351127.006	%	10 - 150%	102
	SE264054.007	ME351127.007	%	10 - 150%	107
	SE264054.008	ME351127.008	%	10 - 150%	109
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	SE264054.001	ME351127.001	%	10 - 150%	90
	SE264054.002	ME351127.002	%	10 - 150%	117
	SE264054.003	ME351127.003	%	10 - 150%	100
	SE264054.004	ME351127.004	%	10 - 150%	101
	SE264054.005	ME351127.005	%	10 - 150%	110

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: MA-1523

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	SE264054.006	ME351127.006	%	10 - 150%	100
	SE264054.007	ME351127.007	%	10 - 150%	98
	SE264054.008	ME351127.008	%	10 - 150%	89
(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	SE264054.001	ME351127.001	%	10 - 150%	98
	SE264054.002	ME351127.002	%	10 - 150%	101
	SE264054.003	ME351127.003	%	10 - 150%	80
	SE264054.004	ME351127.004	%	10 - 150%	94
	SE264054.005	ME351127.005	%	10 - 150%	111
	SE264054.006	ME351127.006	%	10 - 150%	106
	SE264054.007	ME351127.007	%	10 - 150%	95
	SE264054.008	ME351127.008	%	10 - 150%	98
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard	SE264054.001	ME351127.001	%	10 - 150%	97
	SE264054.002	ME351127.002	%	10 - 150%	97
	SE264054.003	ME351127.003	%	10 - 150%	97
	SE264054.004	ME351127.004	%	10 - 150%	98
	SE264054.005	ME351127.005	%	10 - 150%	98
	SE264054.006	ME351127.006	%	10 - 150%	96
	SE264054.007	ME351127.007	%	10 - 150%	99
	SE264054.008	ME351127.008	%	10 - 150%	98
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	SE264054.001	ME351127.001	%	10 - 150%	107
	SE264054.002	ME351127.002	%	10 - 150%	105
	SE264054.003	ME351127.003	%	10 - 150%	94
	SE264054.004	ME351127.004	%	10 - 150%	110
	SE264054.005	ME351127.005	%	10 - 150%	114
	SE264054.006	ME351127.006	%	10 - 150%	122
	SE264054.007	ME351127.007	%	10 - 150%	104
	SE264054.008	ME351127.008	%	10 - 150%	107
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	SE264054.001	ME351127.001	%	10 - 150%	102
	SE264054.002	ME351127.002	%	10 - 150%	104
	SE264054.003	ME351127.003	%	10 - 150%	96
	SE264054.004	ME351127.004	%	10 - 150%	106
	SE264054.005	ME351127.005	%	10 - 150%	115
	SE264054.006	ME351127.006	%	10 - 150%	118
	SE264054.007	ME351127.007	%	10 - 150%	100
	SE264054.008	ME351127.008	%	10 - 150%	117
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	SE264054.001	ME351127.001	%	10 - 150%	105
	SE264054.002	ME351127.002	%	10 - 150%	107
	SE264054.003	ME351127.003	%	10 - 150%	104
	SE264054.004	ME351127.004	%	10 - 150%	107
	SE264054.005	ME351127.005	%	10 - 150%	106
	SE264054.006	ME351127.006	%	10 - 150%	107
	SE264054.007	ME351127.007	%	10 - 150%	111
	SE264054.008	ME351127.008	%	10 - 150%	109
(13C6-PFDA) Isotopically Labelled Internal Recovery Standard	SE264054.001	ME351127.001	%	10 - 150%	81
	SE264054.002	ME351127.002	%	10 - 150%	98
	SE264054.003	ME351127.003	%	10 - 150%	102
	SE264054.004	ME351127.004	%	10 - 150%	126
	SE264054.005	ME351127.005	%	10 - 150%	135
	SE264054.006	ME351127.006	%	10 - 150%	123
	SE264054.007	ME351127.007	%	10 - 150%	110
	SE264054.008	ME351127.008	%	10 - 150%	112
(13C7-PFUdA) Isotopically Labelled Internal Recovery Standard	SE264054.001	ME351127.001	%	10 - 150%	81
	SE264054.002	ME351127.002	%	10 - 150%	101
	SE264054.003	ME351127.003	%	10 - 150%	108
	SE264054.004	ME351127.004	%	10 - 150%	111
	SE264054.005	ME351127.005	%	10 - 150%	129
	SE264054.006	ME351127.006	%	10 - 150%	105
	SE264054.007	ME351127.007	%	10 - 150%	116
	SE264054.008	ME351127.008	%	10 - 150%	90
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	SE264054.001	ME351127.001	%	10 - 150%	116
	SE264054.002	ME351127.002	%	10 - 150%	107

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: MA-1523

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	SE264054.003	ME351127.003	%	10 - 150%	135
	SE264054.004	ME351127.004	%	10 - 150%	131
	SE264054.005	ME351127.005	%	10 - 150%	98
	SE264054.006	ME351127.006	%	10 - 150%	83
	SE264054.007	ME351127.007	%	10 - 150%	105
(13C8-PFOSA) Isotopically Labelled Internal Recovery Standard	SE264054.008	ME351127.008	%	10 - 150%	140
	SE264054.001	ME351127.001	%	10 - 150%	93
	SE264054.002	ME351127.002	%	10 - 150%	91
	SE264054.003	ME351127.003	%	10 - 150%	104
	SE264054.004	ME351127.004	%	10 - 150%	111
	SE264054.005	ME351127.005	%	10 - 150%	78
	SE264054.006	ME351127.006	%	10 - 150%	88
	SE264054.007	ME351127.007	%	10 - 150%	70
(13C9-PFNA) Isotopically Labelled Internal Recovery Standard	SE264054.008	ME351127.008	%	10 - 150%	134
	SE264054.001	ME351127.001	%	10 - 150%	91
	SE264054.002	ME351127.002	%	10 - 150%	91
	SE264054.003	ME351127.003	%	10 - 150%	98
	SE264054.004	ME351127.004	%	10 - 150%	91
	SE264054.005	ME351127.005	%	10 - 150%	100
	SE264054.006	ME351127.006	%	10 - 150%	98
(D3-N-MeFOSA) Isotopically Labelled Internal Recovery Standard	SE264054.007	ME351127.007	%	10 - 150%	85
	SE264054.008	ME351127.008	%	10 - 150%	99
	SE264054.001	ME351127.001	%	10 - 150%	86
	SE264054.002	ME351127.002	%	10 - 150%	82
	SE264054.003	ME351127.003	%	10 - 150%	116
	SE264054.004	ME351127.004	%	10 - 150%	93
	SE264054.005	ME351127.005	%	10 - 150%	91
(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery Standard	SE264054.006	ME351127.006	%	10 - 150%	61
	SE264054.007	ME351127.007	%	10 - 150%	81
	SE264054.008	ME351127.008	%	10 - 150%	116
	SE264054.001	ME351127.001	%	10 - 150%	101
	SE264054.002	ME351127.002	%	10 - 150%	124
	SE264054.003	ME351127.003	%	10 - 150%	164 †
	SE264054.004	ME351127.004	%	10 - 150%	132
(D5-N-EtFOSA) Isotopically Labelled Internal Recovery Standard	SE264054.005	ME351127.005	%	10 - 150%	85
	SE264054.006	ME351127.006	%	10 - 150%	95
	SE264054.007	ME351127.007	%	10 - 150%	94
	SE264054.008	ME351127.008	%	10 - 150%	194 †
	SE264054.001	ME351127.001	%	10 - 150%	83
	SE264054.002	ME351127.002	%	10 - 150%	98
	SE264054.003	ME351127.003	%	10 - 150%	129
(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery Standard	SE264054.004	ME351127.004	%	10 - 150%	96
	SE264054.005	ME351127.005	%	10 - 150%	91
	SE264054.006	ME351127.006	%	10 - 150%	66
	SE264054.007	ME351127.007	%	10 - 150%	74
	SE264054.008	ME351127.008	%	10 - 150%	131
	SE264054.001	ME351127.001	%	10 - 150%	104
	SE264054.002	ME351127.002	%	10 - 150%	94
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery Standard	SE264054.003	ME351127.003	%	10 - 150%	116
	SE264054.004	ME351127.004	%	10 - 150%	113
	SE264054.005	ME351127.005	%	10 - 150%	96
	SE264054.006	ME351127.006	%	10 - 150%	83
	SE264054.007	ME351127.007	%	10 - 150%	74
	SE264054.008	ME351127.008	%	10 - 150%	124
	SE264054.001	ME351127.001	%	10 - 150%	87
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery Standard	SE264054.002	ME351127.002	%	10 - 150%	123
	SE264054.003	ME351127.003	%	10 - 150%	119
	SE264054.004	ME351127.004	%	10 - 150%	94
	SE264054.005	ME351127.005	%	10 - 150%	73
	SE264054.006	ME351127.006	%	10 - 150%	74
	SE264054.007	ME351127.007	%	10 - 150%	83

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: MA-1523

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery Standard	SE264054.008	ME351127.008	%	10 - 150%	136
(D9-N-EtFOSE) Isotopically Labelled Internal Recovery Standard	SE264054.001	ME351127.001	%	10 - 150%	85
	SE264054.002	ME351127.002	%	10 - 150%	115
	SE264054.003	ME351127.003	%	10 - 150%	115
	SE264054.004	ME351127.004	%	10 - 150%	105
	SE264054.005	ME351127.005	%	10 - 150%	90
	SE264054.006	ME351127.006	%	10 - 150%	84
	SE264054.007	ME351127.007	%	10 - 150%	83
	SE264054.008	ME351127.008	%	10 - 150%	122

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: MA-1523

Sample Number	Parameter	Units	LOR	Result
LB074552.001	Perfluorobutanoic acid (PFBA)	µg/L	0.002	<0.002
	Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002
	Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002
	Perfluorooctanoic Acid (PFOA)	µg/L	0.002	<0.002
	Perfluorononanoic acid (PFNA)	µg/L	0.004	<0.004
	Perfluorodecanoic acid (PFDA)	µg/L	0.004	<0.004
	Perfluoroundecanoic acid (PFUnA)	µg/L	0.004	<0.004
	Perfluorododecanoic acid (PFDoA)	µg/L	0.004	<0.004
	Perfluorotridecanoic acid (PFTrDA)	µg/L	0.004	<0.004
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.004	<0.004
	Perfluorohexadecanoic acid (PFHxDA)	µg/L	0.008	<0.008
	Perfluorobutane sulfonate (PFBS)	µg/L	0.004	<0.004
	Perfluoropentane sulfonate (PFPeS)	µg/L	0.004	<0.004
	Perfluorohexane sulfonate (PFHxS)	µg/L	0.002	<0.002
	Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002	<0.002
	Perfluorooctane sulfonate (PFOS)	µg/L	0.002	<0.002
	Sum of PFHxS and PFOS	µg/L	0.002	<0.002
	Perfluorononane sulfonate (PFNS)	µg/L	0.002	<0.002
	Perfluorodecane sulfonate (PFDS)	µg/L	0.002	<0.002
	Perfluorododecane sulfonate (PFDoS)	µg/L	0.002	<0.002
	1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002	<0.002
	1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002	<0.002
	1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002	<0.002
	Perfluorooctane sulfonamide (PFOSA)	µg/L	0.008	<0.008
	N-Methylperfluorooctane sulfonamide (N-MeFOSA)	µg/L	0.01	<0.01
	N-Ethylperfluorooctane sulfonamide (N-EtFOSA)	µg/L	0.01	<0.01
	2-(N-Methylperfluorooctane sulfonamido)-ethanol (N-MeFOSE)	µg/L	0.01	<0.01
	2-(N-Ethylperfluorooctane sulfonamido)-ethanol (N-EtFOSE)	µg/L	0.01	<0.01
	N-Methylperfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	µg/L	0.01	<0.01
	N-Ethylperfluorooctanesulfonamidoacetic Acid (N-EtFOSAA)	µg/L	0.01	<0.01
	(13C4-PFBA) Isotopically Labelled Internal Recovery Standard	%	-	99
	(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	%	-	100
	(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	%	-	125
	(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	%	-	115
	(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	%	-	93
	(13C9-PFNA) Isotopically Labelled Internal Recovery Standard	%	-	98
	(13C6-PFDA) Isotopically Labelled Internal Recovery Standard	%	-	100
	(13C7-PFUdA) Isotopically Labelled Internal Recovery Standard	%	-	85
	(13C2-PFDoA) Isotopically Labelled Internal Recovery Standard	%	-	98
	(13C2_PFTeDA) Isotopically Labelled Internal Recovery Standard	%	-	76
	(13C2-PFHxDA) Isotopically Labelled Internal Recovery Standard	%	-	83
	(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	%	-	128
	(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	%	-	95
	(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	%	-	97
	(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	%	-	113
	(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	%	-	98
	(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard	%	-	104
	(13C8-PFOSA) Isotopically Labelled Internal Recovery Standard	%	-	118
	(D3-N-MeFOSA) Isotopically Labelled Internal Recovery Standard	%	-	143
(D5-N-EtFOSA) Isotopically Labelled Internal Recovery Standard	%	-	132	
(D7-N-MeFOSE) Isotopically Labelled Internal Recovery Standard	%	-	118	
(D9-N-EtFOSE) Isotopically Labelled Internal Recovery Standard	%	-	107	
(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery Standard	%	-	120	
(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery Standard	%	-	80	

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$
 The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$
 Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may give a different calculated RPD.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: MA-1523

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
ME351088.030	LB074552.004	Perfluorobutanoic acid (PFBA)	µg/L	0.002	0	0.0002227839	200	0
		Perfluoropentanoic acid (PFPeA)	µg/L	0.002	0.00259461490	0.018786815	200	26
		Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.00216985560	0.018030455	200	8
		Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.0005823804	0.0013919519	200	0
		Perfluorooctanoic Acid (PFOA)	µg/L	0.002	0	0	200	0
		Perfluorobutane sulfonate (PFBS)	µg/L	0.004	0.00029524290	0.0003486444	200	0
		Perfluoropentane sulfonate (PFPeS)	µg/L	0.004	0.00062632500	0.0006041388	200	0
		Perfluorohexane sulfonate (PFHxS)	µg/L	0.002	0	0	200	0
		Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002	0	0	200	0
		Perfluorooctane sulfonate (PFOS)	µg/L	0.002	0	0	200	0
		Sum of PFHxS and PFOS	µg/L	0.002	0	0	200	0
		1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002	0	0	200	0
		1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002	0	0.0001641972	200	0
		1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002	0	0	200	0
		(13C4-PFBA) Isotopically Labelled Internal Recovery	µg/L	-	9.86877177259	9.8729421023	200	0
		(13C5-PFPeA) Isotopically Labelled Internal Recovery	µg/L	-	10.45093213520	10.6603258713	200	2
		(13C5-PFHxA) Isotopically Labelled Internal Recovery	µg/L	-	12.0517081510	12.2363183470	200	7
		(13C4-PFHpA) Isotopically Labelled Internal Recovery	µg/L	-	11.9892772312	11.4002906905	200	5
		(13C4_PFOA) Isotopically Labelled Internal Recovery	µg/L	-	11.14785057510	10.8336261706	200	3
		(13C3-PFBS) Isotopically Labelled Internal Recovery	µg/L	-	10.28555617912	10.7754059585	200	22
		(13C3-PFHxS) Isotopically Labelled Internal Recovery	µg/L	-	9.222788895510	9.4436862455	200	12
		(13C8-PFOS) Isotopically Labelled Internal Recovery	µg/L	-	12.1676683814	12.4603092953	200	6
		(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	µg/L	-	9.15055780709	9.7781880225	200	7
		(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	µg/L	-	7.05547566399	7.5252089318	200	30
		(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	µg/L	-	7.665	7.531	200	2

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: MA-1523

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB074552.002	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.038	0.04	40 - 150	96
	Perfluorooctanoic Acid (PFOA)	µg/L	0.002	0.038	0.04	40 - 150	94
	Perfluorononanoic acid (PFNA)	µg/L	0.004	0.036	0.04	40 - 150	90
	Perfluorodecanoic acid (PFDA)	µg/L	0.004	0.034	0.04	40 - 150	85
	Perfluoroundecanoic acid (PFUnA)	µg/L	0.004	0.044	0.04	40 - 150	109
	Perfluorododecanoic acid (PFDoA)	µg/L	0.004	0.030	0.04	40 - 150	75
	Perfluorotridecanoic acid (PFTrDA)	µg/L	0.004	0.035	0.04	40 - 150	89
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.004	0.027	0.04	40 - 150	68
	Perfluorooctane sulfonate (PFOS)	µg/L	0.002	0.034	0.04	40 - 150	86
	Perfluorooctane sulfonamide (PFOSA)	µg/L	0.008	0.025	0.04	40 - 150	62
	(13C4-PFBA) Isotopically Labelled Internal Recovery Standard	µg/L	-	9.74	10	10 - 150	97
	(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	µg/L	-	10.2	10	10 - 150	102
	(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	µg/L	-	11.1	10	10 - 150	111
	(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	µg/L	-	11.2	10	10 - 150	112
	(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	µg/L	-	11.2	10	10 - 150	112
	(13C9-PFNA) Isotopically Labelled Internal Recovery Standard	µg/L	-	11.3	10	10 - 150	113
	(13C6-PFDA) Isotopically Labelled Internal Recovery Standard	µg/L	-	10.6	10	10 - 150	106
	(13C7-PFUdA) Isotopically Labelled Internal Recovery Standard	µg/L	-	9.18	10	10 - 150	92
	(13C2-PFDoA) Isotopically Labelled Internal Recovery Standard	µg/L	-	9.94	10	10 - 150	99
	(13C2_PFTeDA) Isotopically Labelled Internal Recovery Standard	µg/L	-	8.34	10	10 - 150	83
	(13C2-PFHxDA) Isotopically Labelled Internal Recovery Standard	µg/L	-	8.14	10	10 - 150	81
	(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	µg/L	-	10.2	9.3	10 - 150	110
	(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	µg/L	-	9.79	9.46	9 - 150	103
	(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	µg/L	-	10.1	9.28	10 - 150	108
	(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	µg/L	-	7.94	9.34	10 - 150	85
	(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	µg/L	-	7.18	9.5	10 - 150	76
	(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard	µg/L	-	4.17	9.58	10 - 150	44
	(13C8-PFOSA) Isotopically Labelled Internal Recovery Standard	µg/L	-	9.04	10	10 - 150	90
	(D3-N-MeFOSA) Isotopically Labelled Internal Recovery Standard	µg/L	-	9.72	10	10 - 150	97
	(D5-N-EtFOSA) Isotopically Labelled Internal Recovery Standard	µg/L	-	10.9	10	10 - 150	109
	(D7-N-MeFOSE) Isotopically Labelled Internal Recovery Standard	µg/L	-	10.3	10	10 - 150	103
	(D9-N-EtFOSE) Isotopically Labelled Internal Recovery Standard	µg/L	-	10.6	10	10 - 150	106
	(D3-N-MeFOSAA) Isotopically Labelled Internal Recovery Standard	µg/L	-	9.81	10	10 - 150	98
(D5-N-EtFOSAA) Isotopically Labelled Internal Recovery Standard	µg/L	-	9.75	10	10 - 150	98	

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spikes were required for this job.

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here : https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service .
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① Majority of surrogate recoveries are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- ⑪ Majority of spike recoveries are within acceptance criteria.
- † Refer to relevant report comments for further information.

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CHAIN OF CUSTODY & ANALYSIS REQUEST

Sample Date:

16/05/2024

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Company Name:	JM Environments	Project Name/No:	JME21054
Address:	37 Tooke St	Purchase Order No:	JME21054
	COOKS HILL NSW 2300	Results Required By:	Standard
Contact Name:	James McMahon	Email:	james@jmenvironments.com
Telephone	0427 893 668	Email:	admin@jmenvironments.com

Relinquished by:	Date /Time:	Received by: <i>W. S. S. [Signature]</i>	Date /Time: <i>16-5-24</i>
Relinquished by:	Date /Time:	Received by: <i>G.F. [Signature]</i>	Date /Time: <i>17-5-24 9:45</i>
Samples intact: Yes/No	Temperature:	Sample Cooler Sealed: Yes/No	Laboratory Quotation: ENV126319

Lab Sample ID	Sample ID	Water	Soil	Other	Preservative	No. of Containers	pH/CEC	BTEX/TPH/PAH/8HM	8 Heavy metals	OCP/PCB	Asbestos	PFAS short suite							Comments
<i>1</i>	MW4	X				2			x			X							Low level PFAS
<i>2</i>	MW5	X				2			x			X							Low level PFAS
<i>3</i>	MW6	X				2			x			X							Low level PFAS
<i>4</i>	MW7	X				2			x			X							Low level PFAS
<i>5</i>	MW8	X				2			x			X							Low level PFAS
<i>6</i>	MW9	X				2			x			X							Low level PFAS
<i>7</i>	MW10	X				2			x			X							Low level PFAS
<i>8</i>	QC2405	x				2			x			X							Low level PFAS

SGS EHS Sydney COC
SE265334





SAMPLE RECEIPT ADVICE

SE265334

CLIENT DETAILS

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COOKS HILL NSW 2300

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Facsimile (Not specified)
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Project **JME21054**
Order Number **JME21054**
Samples 8

LABORATORY DETAILS

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Laboratory SGS Alexandria Environmental
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Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Fri 17/5/2024
Report Due Fri 24/5/2024
SGS Reference **SE265334**

SUBMISSION DETAILS

This is to confirm that 8 samples were received on Friday 17/5/2024. Results are expected to be ready by COB Friday 24/5/2024. Please quote SGS reference SE265334 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	17/5/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	1.7°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

PFAS subcontracted to SGS Melbourne, Unit 10/585 Blackburn Road Notting Hill VIC 3168, NATA Accreditation Number 2562, Site number 14420. Results may be delayed.

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SAMPLE RECEIPT ADVICE

SE265334

CLIENT DETAILS

Client **JM ENVIRONMENTS**

Project **JME21054**

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Per- and Polyfluoroalkyl Substances (PFAS) in	Trace Metals (Dissolved) in Water by ICPMS
001	MW4	1	22	7
002	MW5	1	22	7
003	MW6	1	22	7
004	MW7	1	22	7
005	MW8	1	22	7
006	MW9	1	22	7
007	MW10	1	22	7
008	QC2405	1	22	7

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.

CLIENT DETAILS

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 Client **JM ENVIRONMENTS**
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 COOKS HILL NSW 2300**

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 Facsimile **(Not specified)**
 Email **james@jmenvironments.com**

Project **JME21054**
 Order Number **JME21054**
 Samples **8**

LABORATORY DETAILS

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 Laboratory **SGS Alexandria Environmental**
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 Alexandria NSW 2015**

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 Email **au.environmental.sydney@sgs.com**

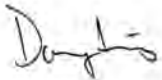
SGS Reference **SE265334 R0**
 Date Received **17/5/2024**
 Date Reported **23/5/2024**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

PFAS subcontracted to SGS Melbourne, Unit 10/585 Blackburn Road Notting Hill VIC 3168, NATA Accreditation Number 2562, Site number 14420. Report No ME351789 R0

SIGNATORIES



Dong LIANG
 Metals/Inorganics Team Leader

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 20/5/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			16/5/2024 SE265334.001	16/5/2024 SE265334.002	16/5/2024 SE265334.003	16/5/2024 SE265334.004	16/5/2024 SE265334.005
Arsenic	µg/L	1	1	<1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	3	3	<1	3	<1
Chromium	µg/L	1	2	2	3	1	2
Nickel	µg/L	1	<1	<1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1	<1	<1
Zinc	µg/L	5	47	46	<5	620	<5

PARAMETER	UOM	LOR	MW9	MW10	QC2405
			WATER	WATER	WATER
			16/5/2024 SE265334.006	16/5/2024 SE265334.007	16/5/2024 SE265334.008
Arsenic	µg/L	1	<1	2	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	<1	<1	<1
Chromium	µg/L	1	2	3	2
Nickel	µg/L	1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1
Zinc	µg/L	5	<5	46	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 20/5/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER - 16/5/2024 SE265334.001	WATER - 16/5/2024 SE265334.002	WATER - 16/5/2024 SE265334.003	WATER - 16/5/2024 SE265334.004	WATER - 16/5/2024 SE265334.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

PARAMETER	UOM	LOR	MW9	MW10	QC2405
			WATER - 16/5/2024 SE265334.006	WATER - 16/5/2024 SE265334.007	WATER - 16/5/2024 SE265334.008
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples - Low Level [MA-1523] Tested: 23/5/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			16/5/2024 SE265334.001	16/5/2024 SE265334.002	16/5/2024 SE265334.003	16/5/2024 SE265334.004	16/5/2024 SE265334.005
Perfluorobutanoic acid (PFBA)	µg/L	0.0005	0.013	0.0016	<0.0005	<0.0005	0.0007
Perfluoropentanoic acid (PFPeA)	µg/L	0.0005	0.0075	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorohexanoic acid (PFHxA)	µg/L	0.0005	0.010	0.0010	<0.0005	<0.0005	<0.0005
Perfluoroheptanoic acid (PFHpA)	µg/L	0.0005	0.0076	<0.0005	<0.0005	<0.0005	0.0006
Perfluorooctanoic Acid (PFOA)	µg/L	0.0005	0.0066	<0.0005	<0.0005	<0.0005	0.0010
Perfluorobutane sulfonate (PFBS)	µg/L	0.001	0.002	<0.001	<0.001	<0.001	<0.001
Perfluoropentane sulfonate (PFPeS)	µg/L	0.001	0.002	<0.001	<0.001	<0.001	<0.001
Perfluorohexane sulfonate (PFHxS)	µg/L	0.0002	0.014	0.0051	0.0002	<0.0002	0.0003
Perfluorooctane sulfonate (PFOS)	µg/L	0.0002	0.0068	0.0010	<0.0002	0.0006	0.0003
Sum of PFHxS and PFOS	µg/L	0.0002	0.021	0.0061	0.0002	0.0006	0.0005
Perfluorononane sulfonate (PFNS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

PARAMETER	UOM	LOR	MW9	MW10	QC2405
			WATER	WATER	WATER
			16/5/2024 SE265334.006	16/5/2024 SE265334.007	16/5/2024 SE265334.008
Perfluorobutanoic acid (PFBA)	µg/L	0.0005	0.0047	0.0021	0.0051
Perfluoropentanoic acid (PFPeA)	µg/L	0.0005	0.0020	<0.0005	0.0021
Perfluorohexanoic acid (PFHxA)	µg/L	0.0005	0.0022	0.0009	0.0022
Perfluoroheptanoic acid (PFHpA)	µg/L	0.0005	0.0005	0.0007	0.0005
Perfluorooctanoic Acid (PFOA)	µg/L	0.0005	0.0005	0.0009	0.0006
Perfluorobutane sulfonate (PFBS)	µg/L	0.001	<0.001	<0.001	<0.001
Perfluoropentane sulfonate (PFPeS)	µg/L	0.001	<0.001	<0.001	<0.001
Perfluorohexane sulfonate (PFHxS)	µg/L	0.0002	<0.0002	0.0029	0.0003
Perfluorooctane sulfonate (PFOS)	µg/L	0.0002	<0.0002	0.0027	0.0005
Sum of PFHxS and PFOS	µg/L	0.0002	<0.0002	0.0056	0.0008
Perfluorononane sulfonate (PFNS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005

METHOD

METHODOLOGY SUMMARY

AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: 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.
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
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.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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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Project **JME21054**
 Order Number **JME21054**
 Samples 8

LABORATORY DETAILS

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SGS Reference **SE265334 R0**
 Date Received 17 May 2024
 Date Reported 23 May 2024

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
 This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
 The Statement and the Analytical Report must not be reproduced except in full.
 All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	17/5/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	1.7°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE265334.001	LB312625	16 May 2024	17 May 2024	13 Jun 2024	20 May 2024	13 Jun 2024	20 May 2024
MW5	SE265334.002	LB312625	16 May 2024	17 May 2024	13 Jun 2024	20 May 2024	13 Jun 2024	20 May 2024
MW6	SE265334.003	LB312625	16 May 2024	17 May 2024	13 Jun 2024	20 May 2024	13 Jun 2024	20 May 2024
MW7	SE265334.004	LB312625	16 May 2024	17 May 2024	13 Jun 2024	20 May 2024	13 Jun 2024	20 May 2024
MW8	SE265334.005	LB312625	16 May 2024	17 May 2024	13 Jun 2024	20 May 2024	13 Jun 2024	20 May 2024
MW9	SE265334.006	LB312625	16 May 2024	17 May 2024	13 Jun 2024	20 May 2024	13 Jun 2024	20 May 2024
MW10	SE265334.007	LB312625	16 May 2024	17 May 2024	13 Jun 2024	20 May 2024	13 Jun 2024	20 May 2024
QC2405	SE265334.008	LB312625	16 May 2024	17 May 2024	13 Jun 2024	20 May 2024	13 Jun 2024	20 May 2024

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE265334.001	LB312619	16 May 2024	17 May 2024	12 Nov 2024	20 May 2024	12 Nov 2024	20 May 2024
MW5	SE265334.002	LB312619	16 May 2024	17 May 2024	12 Nov 2024	20 May 2024	12 Nov 2024	20 May 2024
MW6	SE265334.003	LB312619	16 May 2024	17 May 2024	12 Nov 2024	20 May 2024	12 Nov 2024	20 May 2024
MW7	SE265334.004	LB312619	16 May 2024	17 May 2024	12 Nov 2024	20 May 2024	12 Nov 2024	20 May 2024
MW8	SE265334.005	LB312619	16 May 2024	17 May 2024	12 Nov 2024	20 May 2024	12 Nov 2024	20 May 2024
MW9	SE265334.006	LB312619	16 May 2024	17 May 2024	12 Nov 2024	20 May 2024	12 Nov 2024	20 May 2024
MW10	SE265334.007	LB312619	16 May 2024	17 May 2024	12 Nov 2024	20 May 2024	12 Nov 2024	20 May 2024
QC2405	SE265334.008	LB312619	16 May 2024	17 May 2024	12 Nov 2024	20 May 2024	12 Nov 2024	20 May 2024

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples - Low Level

Method: MA-1523

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %	
(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	MW4	SE265334.001	%	10 - 150%	74	
	MW5	SE265334.002	%	10 - 150%	76	
	MW6	SE265334.003	%	10 - 150%	80	
	MW7	SE265334.004	%	10 - 150%	82	
	MW8	SE265334.005	%	10 - 150%	78	
	MW9	SE265334.006	%	10 - 150%	76	
	MW10	SE265334.007	%	10 - 150%	88	
	QC2405	SE265334.008	%	10 - 150%	85	
	(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	MW4	SE265334.001	%	10 - 150%	86
		MW5	SE265334.002	%	10 - 150%	87
MW6		SE265334.003	%	10 - 150%	94	
MW7		SE265334.004	%	10 - 150%	100	
MW8		SE265334.005	%	10 - 150%	92	
MW9		SE265334.006	%	10 - 150%	96	
MW10		SE265334.007	%	10 - 150%	99	
QC2405		SE265334.008	%	10 - 150%	99	
(13C4_PFOA) Isotopically Labelled Internal Recovery Standard		MW4	SE265334.001	%	10 - 150%	108
		MW5	SE265334.002	%	10 - 150%	106
	MW6	SE265334.003	%	10 - 150%	107	
	MW7	SE265334.004	%	10 - 150%	105	
	MW8	SE265334.005	%	10 - 150%	110	
	MW9	SE265334.006	%	10 - 150%	95	
	MW10	SE265334.007	%	10 - 150%	103	
	QC2405	SE265334.008	%	10 - 150%	89	
	(13C4-PFBA) Isotopically Labelled Internal Recovery Standard	MW4	SE265334.001	%	10 - 150%	101
		MW5	SE265334.002	%	10 - 150%	100
MW6		SE265334.003	%	10 - 150%	99	
MW7		SE265334.004	%	10 - 150%	102	
MW8		SE265334.005	%	10 - 150%	101	
MW9		SE265334.006	%	10 - 150%	100	
MW10		SE265334.007	%	10 - 150%	99	
QC2405		SE265334.008	%	10 - 150%	102	
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard		MW4	SE265334.001	%	10 - 150%	94
		MW5	SE265334.002	%	10 - 150%	94
	MW6	SE265334.003	%	10 - 150%	93	
	MW7	SE265334.004	%	10 - 150%	99	
	MW8	SE265334.005	%	10 - 150%	95	
	MW9	SE265334.006	%	10 - 150%	84	
	MW10	SE265334.007	%	10 - 150%	89	
	QC2405	SE265334.008	%	10 - 150%	89	
	(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	MW4	SE265334.001	%	10 - 150%	91
		MW5	SE265334.002	%	10 - 150%	84
MW6		SE265334.003	%	10 - 150%	92	
MW7		SE265334.004	%	10 - 150%	88	
MW8		SE265334.005	%	10 - 150%	86	
MW9		SE265334.006	%	10 - 150%	81	
MW10		SE265334.007	%	10 - 150%	81	
QC2405		SE265334.008	%	10 - 150%	80	
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard		MW4	SE265334.001	%	10 - 150%	101
		MW5	SE265334.002	%	10 - 150%	88
	MW6	SE265334.003	%	10 - 150%	74	
	MW7	SE265334.004	%	10 - 150%	79	
	MW8	SE265334.005	%	10 - 150%	76	
	MW9	SE265334.006	%	10 - 150%	81	
	MW10	SE265334.007	%	10 - 150%	78	
	QC2405	SE265334.008	%	10 - 150%	74	
	(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	MW4	SE265334.001	%	10 - 150%	90
		MW5	SE265334.002	%	10 - 150%	109
MW6		SE265334.003	%	10 - 150%	96	
MW7		SE265334.004	%	10 - 150%	98	
MW8		SE265334.005	%	10 - 150%	113	

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples - Low Level (continued)

Method: MA-1523

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	MW9	SE265334.006	%	10 - 150%	90
	MW10	SE265334.007	%	10 - 150%	116
	QC2405	SE265334.008	%	10 - 150%	79

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Parth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB312625.001	Mercury	mg/L	0.0001	<0.0001

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB312619.001	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5
LB312619.025	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Parth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE265336.002	LB312625.014	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE265331.001	LB312619.031	Zinc	µg/L	5	1800	1800	15	1
SE265334.006	LB312619.014	Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	2	2	66	0
		Copper	µg/L	1	<1	<1	200	0
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	200	0
SE265336.001	LB312619.028	Zinc	µg/L	5	<5	<5	200	0
		Arsenic	µg/L	1	<1	<1	146	0
		Cadmium	µg/L	0.1	<0.1	<0.1	171	0
		Chromium	µg/L	1	<1	<1	200	0
		Copper	µg/L	1	2	1	85	13
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	1	1	83	1
		Zinc	µg/L	5	120	130	19	4

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB312619.002	Arsenic	µg/L	1	21	20	80 - 120	103
	Cadmium	µg/L	0.1	21	20	80 - 120	106
	Chromium	µg/L	1	21	20	80 - 120	106
	Copper	µg/L	1	22	20	80 - 120	108
	Lead	µg/L	1	21	20	80 - 120	107
	Nickel	µg/L	1	21	20	80 - 120	104
	Zinc	µg/L	5	22	20	80 - 120	110
LB312619.026	Arsenic	µg/L	1	20	20	80 - 120	102
	Cadmium	µg/L	0.1	21	20	80 - 120	107
	Chromium	µg/L	1	21	20	80 - 120	106
	Copper	µg/L	1	21	20	80 - 120	107
	Lead	µg/L	1	21	20	80 - 120	104
	Nickel	µg/L	1	21	20	80 - 120	104
	Zinc	µg/L	5	22	20	80 - 120	108

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE265334.001	LB312625.004	Mercury	mg/L	0.0001	0.0020	<0.0001	0.008	98

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

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Project **JME21054**
 Order Number **SE265334**
 Samples **8**

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SGS Reference **ME351789 R0**
 Date Received **20 May 2024**
 Date Reported **23 May 2024**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562 (14420/22793/24472).

SIGNATORIES



Andrew WRIGHT
 LC/VOC Team Leader

Sample Number	ME351789.001	ME351789.002	ME351789.003	ME351789.004
Sample Matrix	Water	Water	Water	Water
Sample Date	16 May 2024	16 May 2024	16 May 2024	16 May 2024
Sample Name	SE265334.001	SE265334.002	SE265334.003	SE265334.004

Parameter	Units	LOR				
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Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples - Low Level Method: MA-1523 Tested: 21/5/2024

Perfluorobutanoic acid (PFBA)	µg/L	0.0005	0.013	0.0016	<0.0005	<0.0005
Perfluoropentanoic acid (PFPeA)	µg/L	0.0005	0.0075	<0.0005	<0.0005	<0.0005
Perfluorohexanoic acid (PFHxA)	µg/L	0.0005	0.010	0.0010	<0.0005	<0.0005
Perfluoroheptanoic acid (PFHpA)	µg/L	0.0005	0.0076	<0.0005	<0.0005	<0.0005
Perfluorooctanoic Acid (PFOA)	µg/L	0.0005	0.0066	<0.0005	<0.0005	<0.0005
Perfluorobutane sulfonate (PFBS)	µg/L	0.001	0.002	<0.001	<0.001	<0.001
Perfluoropentane sulfonate (PFPeS)	µg/L	0.001	0.002	<0.001	<0.001	<0.001
Perfluorohexane sulfonate (PFHxS)	µg/L	0.0002	0.014	0.0051	0.0002	<0.0002
Perfluorooctane sulfonate (PFOS)	µg/L	0.0002	0.0068	0.0010	<0.0002	0.0006
Sum of PFHxS and PFOS	µg/L	0.0002	0.021	0.0061	0.0002	0.0006
Perfluorononane sulfonate (PFNS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	101	100	99	102
(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	101	88	74	79
(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	91	84	92	88
(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	94	94	93	99
(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	108	106	107	105
(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	74	76	80	82
(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	86	87	94	100
(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	90	109	96	98

Parameter	Units	LOR	ME351789.005	ME351789.006	ME351789.007	ME351789.008
Sample Number			ME351789.005	ME351789.006	ME351789.007	ME351789.008
Sample Matrix			Water	Water	Water	Water
Sample Date			16 May 2024	16 May 2024	16 May 2024	16 May 2024
Sample Name			SE265334.005	SE265334.006	SE265334.007	SE265334.008

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples - Low Level Method: MA-1523 Tested: 21/5/2024

Parameter	Units	LOR	ME351789.005	ME351789.006	ME351789.007	ME351789.008
Perfluorobutanoic acid (PFBA)	µg/L	0.0005	0.0007	0.0047	0.0021	0.0051
Perfluoropentanoic acid (PFPeA)	µg/L	0.0005	<0.0005	0.0020	<0.0005	0.0021
Perfluorohexanoic acid (PFHxA)	µg/L	0.0005	<0.0005	0.0022	0.0009	0.0022
Perfluoroheptanoic acid (PFHpA)	µg/L	0.0005	0.0006	0.0005	0.0007	0.0005
Perfluorooctanoic Acid (PFOA)	µg/L	0.0005	0.0010	0.0005	0.0009	0.0006
Perfluorobutane sulfonate (PFBS)	µg/L	0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentane sulfonate (PFPeS)	µg/L	0.001	<0.001	<0.001	<0.001	<0.001
Perfluorohexane sulfonate (PFHxS)	µg/L	0.0002	0.0003	<0.0002	0.0029	0.0003
Perfluorooctane sulfonate (PFOS)	µg/L	0.0002	0.0003	<0.0002	0.0027	0.0005
Sum of PFHxS and PFOS	µg/L	0.0002	0.0005	<0.0002	0.0056	0.0008
Perfluorononane sulfonate (PFNS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	101	100	99	102
(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	76	81	78	74
(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	86	81	81	80
(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	95	84	89	89
(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	110	95	103	89
(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	78	76	88	85
(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	92	96	99	99
(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	113	90	116	79

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.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples - Low Level Method: MA-1523

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Perfluorobutanoic acid (PFBA)	LB075581	µg/L	0.0005	<0.0005	5%	NA
Perfluoropentanoic acid (PFPeA)	LB075581	µg/L	0.0005	<0.0005	1%	NA
Perfluorohexanoic acid (PFHxA)	LB075581	µg/L	0.0005	<0.0005	8%	NA
Perfluoroheptanoic acid (PFHpA)	LB075581	µg/L	0.0005	<0.0005	10%	67%
Perfluorooctanoic Acid (PFOA)	LB075581	µg/L	0.0005	<0.0005	9%	88%
Perfluorobutane sulfonate (PFBS)	LB075581	µg/L	0.001	<0.001	2%	NA
Perfluoropentane sulfonate (PFPeS)	LB075581	µg/L	0.001	<0.001	3%	NA
Perfluorohexane sulfonate (PFHxS)	LB075581	µg/L	0.0002	<0.0002	6%	NA
Perfluorooctane sulfonate (PFOS)	LB075581	µg/L	0.0002	<0.0002	17%	71%
Sum of PFHxS and PFOS	LB075581	µg/L	0.0002	<0.0002	10%	NA
Perfluorononane sulfonate (PFNS)	LB075581	µg/L	0.0005	<0.0005	0%	NA
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	LB075581	µg/L	0.0005	<0.0005	0%	NA
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	LB075581	µg/L	0.0005	<0.0005	0%	NA
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	LB075581	µg/L	0.0005	<0.0005	0%	NA
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard	LB075581	%	-	101%	4%	99%
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	LB075581	%	-	83%	1%	79%
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	LB075581	%	-	86%	3%	84%
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	LB075581	%	-	94%	7%	96%
(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	LB075581	%	-	99%	7%	102%
(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	LB075581	%	-	94%	22%	79%
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	LB075581	%	-	121%	14%	98%
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	LB075581	%	-	98%	0%	108%

METHOD

METHODOLOGY SUMMARY

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.

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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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CHAIN OF CUSTODY & ANALYSIS REQUEST

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Company Name: JM Environments
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COOKS HILL
 Contact Name: James McMahon

Project Name/No: JME21054
 Purchase Order No: JME21054
 Results Required By: Standard
 Telephone: 0427 893 668
 Facsimile: admin@jmenvironments.com
 Email Results: james@jmenvironments.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	PFAS Short Suite	8 HM
MW4	20/6	1	X			2	X	X
MW5		2					X	X
MW6		3					X	X
MW7		4					X	X
MW8		5					X	X
MW9		6					X	X
MW10		7					X	X
QC2406		8					X	X

SGS EHS Sydney COC
SE267122




Relinquished By: <u>[Signature]</u>	Date/Time: <u>2016 2pm</u>	Received By: N <u>SGS Newcastle</u>	Date/Time: <u>20-6-24 14:00</u>
Relinquished By:	Date/Time:	Received By: <u>G.F</u>	Date/Time: <u>21-6-24 11:00</u>
Samples Intact: <u>Yes/No</u>	Temperature: <u>Ambient / Chilled</u>	Sample Cooler Sealed: <u>Yes/No</u>	Laboratory Quotation No:
Comments:			

CHAIN OF CUSTODY RECORD

COC#: SE267122
Owner job:

Ship to: XML	Project Name:	Due date: 28/06/2024 11:00:00 AM
	Client: JM ENVIRONMENTS 3029337_9615544	Send Results to: AUENVSE
	Sampler Name: Client	
Carrier:	Airbill #:	

Field Sample ID	Client ID	Date sampling	Time	Matrix	# of Containers	Analyses Requested							Comments	
						152301	ZME_MP_TYAB B_SW	ZME_PFAS_SHO RT						
SE267122.001	MW4	6/20/2024	0:00:00	Water		X	X	X						<div style="border: 1px solid black; padding: 5px; margin: 5px auto; width: 80%;"> <p>SGS EHS Melbourne COC</p> <p>ME353558</p>  <p>SE267122 SUBCON</p> <p>Received: 21 - Jun - 2024</p> </div>
SE267122.002	MW5	6/20/2024	0:00:00	Water		X	X	X						
SE267122.003	MW6	6/20/2024	0:00:00	Water		X	X	X						
SE267122.004	MW7	6/20/2024	0:00:00	Water		X	X	X						
SE267122.005	MW8	6/20/2024	0:00:00	Water		X	X	X						
SE267122.006	MW9	6/20/2024	0:00:00	Water		X	X	X						
SE267122.007	MW10	6/20/2024	0:00:00	Water		X	X	X						
SE267122.008	QC2406	6/20/2024	0:00:00	Water		X	X	X						

Sample Condition Upon Receipt at Laboratory:	Cooler temperature:
Special Instructions/Comments: Job Booked by: DAA 21/06/2024 Job received date: 21/06/2024 Loggin Checked by: JDR 21/6/2024 PFAS price \$97.75	

#1 Released by: (Sig)	Date:	#2 Released by: (Sig)	Date:	#3 Released by: (Sig)	Date:
Company Name:	Time	Company Name:	Time	Company Name:	Time
#1 Received by: (Sig)	Date: 24/6/24	#2 Received by: (Sig)	Date:	#3 Received by: (Sig)	Date:
Company Name:	Time: 9:30AM	Company Name:	Time:	Company Name:	Time:

SGS Notting Hill Bottle Map for Water & Soil Samples

Temperature 10.5 °C Ice Brick Ice | Ice Pack Esky | Bag Box Bucket

Name + Date MADÉLINE JONG 24/6/24

Bottle Type And Preservation Type

	Sample ID	Tray #	Soil	Water	Oil	1L Unpreserved Plastic	1L HNO3 Preserved Plastic	1L Unpreserved Glass	500mL Unpreserved Plastic	500mL Unpreserved Glass	250mL Unpreserved Plastic Bottle	250mL Unpreserved Plastic Jar	250mL H2SO4 Plastic	250mL Zn acetate & NaOH Plastic	250mL Unpreserved Glass Jar	200mL Unpreserved Glass	150mL Unpreserved Plastic Jar	125mL Unpreserved Plastic Bottle	125mL HNO3 (Filtered) Plastic (Dissolved me	125mL HNO3 (Unfiltered) Plastic (Total Metals	125mL NaOH Preserved Plastic Bottle	125mL H2SO4 Plastic	125mL Unpreserved Glass Jar	100mL Unpreserved Glass	70mL Unpreserved Plastic Container	50mL Unpreserved Plastic	40mL Unpreserved Glass vial	40mL Na2S2O3 Glass vial	40mL H2SO4 Glass vial	40mL NH4Cl Glass vial	40mL Diluted HCl Glass vial	10mL Unpreserved Glass	Plastic bag	Number of labels to be printed per sample ID		
1	<u>SE267122.001, 2</u>	<u>A6</u>		<u>X</u>																															<u>1</u>	
2	<u>3, 4, 5, 6, 7, 8</u>																																			
3																																				
4																																				
5																																				
6																																				
7																																				
8																																				
9																																				
10																																				

= 8 SAMPLES

Comments:



SAMPLE RECEIPT ADVICE

SE267122

CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
COOKS HILL NSW 2300

Telephone 0427 893 668
Facsimile (Not specified)
Email james@jmenvironments.com

Project **JME 21054**
Order Number **JME 21054**
Samples 8

LABORATORY DETAILS

Manager Shane McDermott
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Fri 21/6/2024
Report Due Fri 28/6/2024
SGS Reference **SE267122**

SUBMISSION DETAILS

This is to confirm that 8 samples were received on Friday 21/6/2024. Results are expected to be ready by COB Friday 28/6/2024. Please quote SGS reference SE267122 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	21/06/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	1.6°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

PFAS subcontracted to SGS Melbourne, Unit 10/585 Blackburn Road Notting Hill VIC 3168, NATA Accreditation Number 2562, Site number 14420.

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SAMPLE RECEIPT ADVICE

SE267122

CLIENT DETAILS

Client **JM ENVIRONMENTS**

Project **JME 21054**

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Per- and Polyfluoroalkyl Substances (PFAS) in	Trace Metals (Dissolved) in Water by ICPMS
001	MW4	1	25	7
002	MW5	1	25	7
003	MW6	1	25	7
004	MW7	1	25	7
005	MW8	1	25	7
006	MW9	1	25	7
007	MW10	1	25	7
008	QC2406	1	25	7

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

ME353558

CLIENT DETAILS

Contact **Huong Crawford**
Client **SGS I&E HSE SYDNEY**
Address **Unit 16, 33 Maddox Street
Alexandria
NSW 2015**

Telephone **02 8594 0400**
Facsimile **02 8594 0499**
Email **au.environmental.sydney@sgs.com**

Project **JME 21054**
Order Number **SE267122**
Samples **8**

LABORATORY DETAILS

Manager **Adam Atkinson**
Laboratory **SGS Melbourne EH&S**
Address **10/585 Blackburn Road
Notting Hill Victoria 3168**

Telephone **+61395743200**
Facsimile **+61395743399**
Email **Au.SampleReceipt.Melbourne@sgs.com**

Samples Received **Mon 24/6/2024**
Report Due **Fri 28/6/2024**
SGS Reference **ME353558**

SUBMISSION DETAILS

This is to confirm that 8 samples were received on Monday 24/6/2024. Results are expected to be ready by COB Friday 28/6/2024. Please quote SGS reference ME353558 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	24/6/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	10.5 °C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	1 Ice	Samples clearly labelled	Yes
Complete documentation received	Yes	Number of eskies/boxes received	1

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

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SAMPLE RECEIPT ADVICE

ME353558

CLIENT DETAILS

Client **SGS I&E HSE SYDNEY**

Project **JME 21054**

SUMMARY OF ANALYSIS

No.	Sample ID	Per- and Polyfluoroalkyl Substances (PFAS) in
001	SE267122.001	25
002	SE267122.002	25
003	SE267122.003	25
004	SE267122.004	25
005	SE267122.005	25
006	SE267122.006	25
007	SE267122.007	25
008	SE267122.008	25

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.

CLIENT DETAILS

LABORATORY DETAILS

Contact **James McMahon**
 Client **JM ENVIRONMENTS**
 Address **37 TOOKE STREET
 COOKS HILL NSW 2300**

Telephone **0427 893 668**
 Facsimile **(Not specified)**
 Email **james@jmenvironments.com**

Project **JME 21054**
 Order Number **JME 21054**
 Samples **8**

Manager **Shane McDermott**
 Laboratory **SGS Alexandria Environmental**
 Address **Unit 16, 33 Maddox St
 Alexandria NSW 2015**

Telephone **+61 2 8594 0400**
 Facsimile **+61 2 8594 0499**
 Email **au.environmental.sydney@sgs.com**

SGS Reference **SE267122 R0**
 Date Received **21/6/2024**
 Date Reported **28/6/2024**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

PFAS subcontracted to SGS Melbourne, Unit 10/585 Blackburn Road Notting Hill VIC 3168, NATA Accreditation Number 2562, Site number 14420. Report No. ME353558

SIGNATORIES



Kamrul AHSAN
 Senior Chemist

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 25/6/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			20/6/2024 SE267122.001	20/6/2024 SE267122.002	20/6/2024 SE267122.003	20/6/2024 SE267122.004	20/6/2024 SE267122.005
Arsenic	µg/L	1	<1	<1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	2	2	<1	1	<1
Chromium	µg/L	1	2	2	3	2	1
Nickel	µg/L	1	<1	<1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1	<1	<1
Zinc	µg/L	5	17	36	<5	530	<5

PARAMETER	UOM	LOR	MW9	MW10	QC2406
			WATER	WATER	WATER
			20/6/2024 SE267122.006	20/6/2024 SE267122.007	20/6/2024 SE267122.008
Arsenic	µg/L	1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	<1	<1	<1
Chromium	µg/L	1	3	4	3
Nickel	µg/L	1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1
Zinc	µg/L	5	<5	10	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 24/6/2024

			MW4	MW5	MW6	MW7	MW8
			WATER -	WATER -	WATER -	WATER -	WATER -
			20/6/2024	20/6/2024	20/6/2024	20/6/2024	20/6/2024
PARAMETER	UOM	LOR	SE267122.001	SE267122.002	SE267122.003	SE267122.004	SE267122.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

			MW9	MW10	QC2406
			WATER -	WATER -	WATER -
			20/6/2024	20/6/2024	20/6/2024
PARAMETER	UOM	LOR	SE267122.006	SE267122.007	SE267122.008
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples [MA-1523] Tested: 28/6/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			20/6/2024 SE267122.001	20/6/2024 SE267122.002	20/6/2024 SE267122.003	20/6/2024 SE267122.004	20/6/2024 SE267122.005
Perfluorobutanoic acid (PFBA)	µg/L	0.002	0.008	<0.002	<0.002	<0.002	<0.002
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	0.003	<0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.006	<0.002	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.004	<0.002	<0.002	<0.002	<0.002
Perfluorooctanoic Acid (PFOA)	µg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorobutane sulfonate (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluoropentane sulfonate (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonate (PFHxS)	µg/L	0.002	0.010	0.003	<0.002	<0.002	<0.002
Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonate (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Sum of PFHxS and PFOS	µg/L	0.002	0.010	0.003	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002

PARAMETER	UOM	LOR	MW9	MW10	QC2406
			WATER	WATER	WATER
			20/6/2024 SE267122.006	20/6/2024 SE267122.007	20/6/2024 SE267122.008
Perfluorobutanoic acid (PFBA)	µg/L	0.002	0.005	<0.002	0.002
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.003	<0.002	0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctanoic Acid (PFOA)	µg/L	0.001	<0.001	<0.001	<0.001
Perfluorobutane sulfonate (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluoropentane sulfonate (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonate (PFHxS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonate (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002
Sum of PFHxS and PFOS	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002

METHOD

METHODOLOGY SUMMARY

AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: 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.
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
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.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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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CLIENT DETAILS

Contact James McMahon
 Client JM ENVIRONMENTS
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 COOKS HILL NSW 2300

Telephone 0427 893 668
 Facsimile (Not specified)
 Email james@jmenvironments.com

Project **JME 21054**
 Order Number **JME 21054**
 Samples 8

LABORATORY DETAILS

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 Laboratory SGS Alexandria Environmental
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 Alexandria NSW 2015

Telephone +61 2 8594 0400
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 Email au.environmental.sydney@sgs.com

SGS Reference **SE267122 R0**
 Date Received 21 Jun 2024
 Date Reported 28 Jun 2024

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.

This QA/QC Statement must be read in conjunction with the referenced Analytical Report.

The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	21/06/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	1.6°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE267122.001	LB315766	20 Jun 2024	21 Jun 2024	18 Jul 2024	24 Jun 2024	18 Jul 2024	25 Jun 2024
MW5	SE267122.002	LB315766	20 Jun 2024	21 Jun 2024	18 Jul 2024	24 Jun 2024	18 Jul 2024	25 Jun 2024
MW6	SE267122.003	LB315766	20 Jun 2024	21 Jun 2024	18 Jul 2024	24 Jun 2024	18 Jul 2024	25 Jun 2024
MW7	SE267122.004	LB315766	20 Jun 2024	21 Jun 2024	18 Jul 2024	24 Jun 2024	18 Jul 2024	25 Jun 2024
MW8	SE267122.005	LB315766	20 Jun 2024	21 Jun 2024	18 Jul 2024	24 Jun 2024	18 Jul 2024	25 Jun 2024
MW9	SE267122.006	LB315766	20 Jun 2024	21 Jun 2024	18 Jul 2024	24 Jun 2024	18 Jul 2024	25 Jun 2024
MW10	SE267122.007	LB315766	20 Jun 2024	21 Jun 2024	18 Jul 2024	24 Jun 2024	18 Jul 2024	25 Jun 2024
QC2406	SE267122.008	LB315766	20 Jun 2024	21 Jun 2024	18 Jul 2024	24 Jun 2024	18 Jul 2024	25 Jun 2024

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE267122.001	LB315895	20 Jun 2024	21 Jun 2024	17 Dec 2024	25 Jun 2024	17 Dec 2024	26 Jun 2024
MW5	SE267122.002	LB315895	20 Jun 2024	21 Jun 2024	17 Dec 2024	25 Jun 2024	17 Dec 2024	26 Jun 2024
MW6	SE267122.003	LB315895	20 Jun 2024	21 Jun 2024	17 Dec 2024	25 Jun 2024	17 Dec 2024	26 Jun 2024
MW7	SE267122.004	LB315895	20 Jun 2024	21 Jun 2024	17 Dec 2024	25 Jun 2024	17 Dec 2024	26 Jun 2024
MW8	SE267122.005	LB315895	20 Jun 2024	21 Jun 2024	17 Dec 2024	25 Jun 2024	17 Dec 2024	26 Jun 2024
MW9	SE267122.006	LB315895	20 Jun 2024	21 Jun 2024	17 Dec 2024	25 Jun 2024	17 Dec 2024	26 Jun 2024
MW10	SE267122.007	LB315895	20 Jun 2024	21 Jun 2024	17 Dec 2024	25 Jun 2024	17 Dec 2024	26 Jun 2024
QC2406	SE267122.008	LB315895	20 Jun 2024	21 Jun 2024	17 Dec 2024	25 Jun 2024	17 Dec 2024	26 Jun 2024

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: MA-1523

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE267122.001	%	10 - 150%	94
	MW5	SE267122.002	%	10 - 150%	98
	MW6	SE267122.003	%	10 - 150%	103
	MW7	SE267122.004	%	10 - 150%	82
	MW8	SE267122.005	%	10 - 150%	99
	MW9	SE267122.006	%	10 - 150%	94
	MW10	SE267122.007	%	10 - 150%	98
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	QC2406	SE267122.008	%	10 - 150%	75
	MW4	SE267122.001	%	10 - 150%	116
	MW5	SE267122.002	%	10 - 150%	93
	MW6	SE267122.003	%	10 - 150%	97
	MW7	SE267122.004	%	10 - 150%	95
	MW8	SE267122.005	%	10 - 150%	113
	MW9	SE267122.006	%	10 - 150%	101
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard	MW10	SE267122.007	%	10 - 150%	106
	QC2406	SE267122.008	%	10 - 150%	92
	MW4	SE267122.001	%	10 - 150%	132
	MW5	SE267122.002	%	10 - 150%	130
	MW6	SE267122.003	%	10 - 150%	125
	MW7	SE267122.004	%	10 - 150%	125
	MW8	SE267122.005	%	10 - 150%	107
(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	MW9	SE267122.006	%	10 - 150%	122
	MW10	SE267122.007	%	10 - 150%	132
	QC2406	SE267122.008	%	10 - 150%	104
	MW4	SE267122.001	%	10 - 150%	144
	MW5	SE267122.002	%	10 - 150%	137
	MW6	SE267122.003	%	10 - 150%	144
	MW7	SE267122.004	%	10 - 150%	140
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	MW8	SE267122.005	%	10 - 150%	139
	MW9	SE267122.006	%	10 - 150%	143
	MW10	SE267122.007	%	10 - 150%	134
	QC2406	SE267122.008	%	10 - 150%	117
	MW4	SE267122.001	%	10 - 150%	104
	MW5	SE267122.002	%	10 - 150%	118
	MW6	SE267122.003	%	10 - 150%	116
(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	MW7	SE267122.004	%	10 - 150%	116
	MW8	SE267122.005	%	10 - 150%	110
	MW9	SE267122.006	%	10 - 150%	120
	MW10	SE267122.007	%	10 - 150%	102
	QC2406	SE267122.008	%	10 - 150%	90
	MW4	SE267122.001	%	10 - 150%	91
	MW5	SE267122.002	%	10 - 150%	100
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard	MW6	SE267122.003	%	10 - 150%	98
	MW7	SE267122.004	%	10 - 150%	89
	MW8	SE267122.005	%	10 - 150%	92
	MW9	SE267122.006	%	10 - 150%	90
	MW10	SE267122.007	%	10 - 150%	92
	QC2406	SE267122.008	%	10 - 150%	97
	MW4	SE267122.001	%	10 - 150%	102
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW5	SE267122.002	%	10 - 150%	102
	MW6	SE267122.003	%	10 - 150%	93
	MW7	SE267122.004	%	10 - 150%	99
	MW8	SE267122.005	%	10 - 150%	99
	MW9	SE267122.006	%	10 - 150%	100
	MW10	SE267122.007	%	10 - 150%	99
	QC2406	SE267122.008	%	10 - 150%	100
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW4	SE267122.001	%	10 - 150%	113
	MW5	SE267122.002	%	10 - 150%	119
	MW6	SE267122.003	%	10 - 150%	114
	MW7	SE267122.004	%	10 - 150%	116
	MW8	SE267122.005	%	10 - 150%	107

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: MA-1523

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW9	SE267122.006	%	10 - 150%	104
	MW10	SE267122.007	%	10 - 150%	110
	QC2406	SE267122.008	%	10 - 150%	111
	MW4	SE267122.001	%	10 - 150%	147
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	MW5	SE267122.002	%	10 - 150%	146
	MW6	SE267122.003	%	10 - 150%	144
	MW7	SE267122.004	%	10 - 150%	148
	MW8	SE267122.005	%	10 - 150%	134
	MW9	SE267122.006	%	10 - 150%	140
	MW10	SE267122.007	%	10 - 150%	133
	QC2406	SE267122.008	%	10 - 150%	142
	(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	MW4	SE267122.001	%	10 - 150%
MW5		SE267122.002	%	10 - 150%	93
MW6		SE267122.003	%	10 - 150%	95
MW7		SE267122.004	%	10 - 150%	90
MW8		SE267122.005	%	10 - 150%	92
MW9		SE267122.006	%	10 - 150%	93
MW10		SE267122.007	%	10 - 150%	93
QC2406		SE267122.008	%	10 - 150%	92
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	MW4	SE267122.001	%	10 - 150%	100
	MW5	SE267122.002	%	10 - 150%	77
	MW6	SE267122.003	%	10 - 150%	88
	MW7	SE267122.004	%	10 - 150%	84
	MW8	SE267122.005	%	10 - 150%	79
	MW9	SE267122.006	%	10 - 150%	99
	MW10	SE267122.007	%	10 - 150%	95
	QC2406	SE267122.008	%	10 - 150%	101

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB315766.001	Mercury	mg/L	0.0001	<0.0001

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB315895.001	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE267219.012	LB315895.024	Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	<1	<1	200	0
		Copper	µg/L	1	<1	<1	200	0
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	200	0
		Zinc	µg/L	5	<5	<5	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB315895.002	Arsenic	µg/L	1	20	20	80 - 120	100
	Cadmium	µg/L	0.1	20	20	80 - 120	102
	Chromium	µg/L	1	21	20	80 - 120	105
	Copper	µg/L	1	21	20	80 - 120	104
	Lead	µg/L	1	20	20	80 - 120	102
	Nickel	µg/L	1	21	20	80 - 120	105
	Zinc	µg/L	5	21	20	80 - 120	106

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE267117.001	LB315766.004	Mercury	mg/L	0.0001	0.0017	<0.0001	0.008	85

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE267122.001	LB315895.004	Arsenic	µg/L	1	23	<1	20	109
		Cadmium	µg/L	0.1	21	<0.1	20	104
		Chromium	µg/L	1	23	2	20	106
		Copper	µg/L	1	22	2	20	102
		Lead	µg/L	1	20	<1	20	101
		Nickel	µg/L	1	21	<1	20	101
		Zinc	µg/L	5	38	17	20	102

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

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Project **JME 21054**
 Order Number **SE267122**
 Samples **8**

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SGS Reference **ME353558 R0**
 Date Received **24 Jun 2024**
 Date Reported **28 Jun 2024**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562 (14420/22793/24472).

SIGNATORIES



Adam ATKINSON
 Australian Chemistry Manager

Sample Number	ME353558.001	ME353558.002	ME353558.003	ME353558.004
Sample Matrix	Water	Water	Water	Water
Sample Date	20 Jun 2024	20 Jun 2024	20 Jun 2024	20 Jun 2024
Sample Name	SE267122.001	SE267122.002	SE267122.003	SE267122.004
Parameter	Units	LOR		

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples Method: MA-1523 Tested: 25/6/2024

Perfluorobutanoic acid (PFBA)	µg/L	0.002	0.008	<0.002	<0.002	<0.002
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	0.003	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.006	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.004	<0.002	<0.002	<0.002
Perfluorooctanoic Acid (PFOA)	µg/L	0.001	<0.001	<0.001	<0.001	<0.001
Perfluorobutane sulfonate (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluoropentane sulfonate (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonate (PFHxS)	µg/L	0.002	0.010	0.003	<0.002	<0.002
Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonate (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Sum of PFHxS and PFOS	µg/L	0.002	0.010	0.003	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	102	102	93	99
(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	95	93	95	90
(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	147	146	144	148
(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	113	119	114	116
(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	91	100	98	89
(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	144	137	144	140
(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	104	118	116	116
(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	100	77	88	84
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	94	98	103	82
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	116	93	97	95
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	132	130	125	125

Sample Number	ME353558.005	ME353558.006	ME353558.007	ME353558.008
Sample Matrix	Water	Water	Water	Water
Sample Date	20 Jun 2024	20 Jun 2024	20 Jun 2024	20 Jun 2024
Sample Name	SE267122.005	SE267122.006	SE267122.007	SE267122.008

Parameter Units LOR
Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples Method: MA-1523 Tested: 25/6/2024

Perfluorobutanoic acid (PFBA)	µg/L	0.002	<0.002	0.005	<0.002	0.002
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002	0.003	<0.002	0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctanoic Acid (PFOA)	µg/L	0.001	<0.001	<0.001	<0.001	<0.001
Perfluorobutane sulfonate (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluoropentane sulfonate (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonate (PFHxS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroheptane sulfonate (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonate (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
Sum of PFHxS and PFOS	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002
(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	99	100	99	100
(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	92	93	93	92
(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	134	140	133	142
(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	107	104	110	111
(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	92	90	92	97
(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	139	143	134	117
(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	110	120	102	90
(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	79	99	95	101
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	99	94	98	75
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	113	101	106	92
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	107	122	132	104

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.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples Method: MA-1523

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Perfluorobutanoic acid (PFBA)	LB076969	µg/L	0.002	<0.002	30%	NA
Perfluoropentanoic acid (PFPeA)	LB076969	µg/L	0.002	<0.002	31%	NA
Perfluorohexanoic acid (PFHxA)	LB076969	µg/L	0.002	<0.002	21%	NA
Perfluoroheptanoic acid (PFHpA)	LB076969	µg/L	0.002	<0.002	2%	63%
Perfluorooctanoic Acid (PFOA)	LB076969	µg/L	0.001	<0.001	0%	64%
Perfluorobutane sulfonate (PFBS)	LB076969	µg/L	0.004	<0.004	0%	NA
Perfluoropentane sulfonate (PFPeS)	LB076969	µg/L	0.004	<0.004	0%	NA
Perfluorohexane sulfonate (PFHxS)	LB076969	µg/L	0.002	<0.002	5%	NA
Perfluoroheptane sulfonate (PFHpS)	LB076969	µg/L	0.002	<0.002	0%	NA
Perfluorooctane sulfonate (PFOS)	LB076969	µg/L	0.002	<0.002	0%	71%
Sum of PFHxS and PFOS	LB076969	µg/L	0.002	<0.002	5%	NA
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	LB076969	µg/L	0.002	<0.002	0%	NA
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	LB076969	µg/L	0.002	<0.002	0%	NA
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	LB076969	µg/L	0.002	<0.002	0%	NA
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard	LB076969	%	-	101%	2%	100%
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	LB076969	%	-	98%	4%	92%
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	LB076969	%	-	143%	2%	145%
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	LB076969	%	-	118%	7%	118%
(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	LB076969	%	-	98%	6%	106%
(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	LB076969	%	-	148%	6%	145%
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	LB076969	%	-	112%	4%	118%
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	LB076969	%	-	112%	6%	93%
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	LB076969	%	-	107%	3%	106%
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	LB076969	%	-	108%	6%	119%
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard	LB076969	%	-	109%	10%	144%

METHOD

METHODOLOGY SUMMARY

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.

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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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CHAIN OF CUSTODY & ANALYSIS REQUEST

Sample Date:

4/07/2024

Page 1 of 1

Company Name:	JM Environments	Project Name/No:	JME21054
Address:	37 Tooke St COOKS HILL NSW 2300	Purchase Order No:	JME21054
Contact Name:	James McMahon	Results Required By:	Standard
Telephone	0427 893 668	Email:	james@jmenvironments.com
		Email:	admin@jmenvironments.com

Relinquished by: _____ Date /Time: _____ Received by: *PF Subaray*

Relinquished by: _____ Date /Time: _____

Samples intact: *Yes* Temperature: *1-7* Sample Cooler Sealed: _____ Yes/No

Lab Sample ID	Sample ID	Water	Soil	Other	Preservative	No. of Containers	pH/CEC	BTEX/TPH/PAH/ 8HM	8 Heavy metals	OCP/PCB	Asbestos	PFAS short suite	Laboratory Quotation:	Comments
1	MW4	X				2			X			X	ENV1126319	Low level PFAS
2	MW5	X				2			X			X		Low level PFAS
3	MW6	X				2			X			X		Low level PFAS
4	MW7	X				2			X			X		Low level PFAS
5	MW8	X				2			X			X		Low level PFAS
6	MW9	X				2			X			X		Low level PFAS
7	MW10	X				2			X			X		Low level PFAS
8	QC2407	X				2			X			X		Low level PFAS

SGS EHS Sydney COC
SE267793





SAMPLE RECEIPT ADVICE

SE267793

CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
COOKS HILL NSW 2300

Telephone 0427 893 668
Facsimile (Not specified)
Email james@jmenvironments.com

Project **JME21054**
Order Number **JME21054**
Samples 8

LABORATORY DETAILS

Manager Shane McDermott
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Fri 5/7/2024
Report Due Fri 12/7/2024
SGS Reference **SE267793**

SUBMISSION DETAILS

This is to confirm that 8 samples were received on Friday 5/7/2024. Results are expected to be ready by COB Friday 12/7/2024. Please quote SGS reference SE267793 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	5/7/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	1.7°C
Sample container provider	Client	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

PFAS subcontracted to SGS Melbourne, Unit 10/585 Blackburn Road Notting Hill VIC 3168, NATA Accreditation Number 2562, Site number 14420. Results may be delayed.

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SAMPLE RECEIPT ADVICE

SE267793

CLIENT DETAILS

Client **JM ENVIRONMENTS**

Project **JME21054**

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Per- and Polyfluoroalkyl Substances (PFAS) in	Trace Metals (Dissolved) in Water by ICPMS
001	MW4	1	22	7
002	MW5	1	22	7
003	MW6	1	22	7
004	MW7	1	22	7
005	MW8	1	22	7
006	MW9	1	22	7
007	MW10	1	22	7
008	QC2407	1	22	7

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.

CLIENT DETAILS

LABORATORY DETAILS

Contact **James McMahon**
 Client **JM ENVIRONMENTS**
 Address **37 TOOKE STREET
 COOKS HILL NSW 2300**

Telephone **0427 893 668**
 Facsimile **(Not specified)**
 Email **james@jmenvironments.com**

Project **JME21054**
 Order Number **JME21054**
 Samples **8**

Manager **Shane McDermott**
 Laboratory **SGS Alexandria Environmental**
 Address **Unit 16, 33 Maddox St
 Alexandria NSW 2015**

Telephone **+61 2 8594 0400**
 Facsimile **+61 2 8594 0499**
 Email **au.environmental.sydney@sgs.com**

SGS Reference **SE267793 R0**
 Date Received **5/7/2024**
 Date Reported **12/7/2024**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

PFAS subcontracted to SGS Melbourne, Unit 10/585 Blackburn Road Notting Hill VIC 3168, NATA Accreditation Number 2562, Site number 14420. Report No ME353862

SIGNATORIES



Kamrul AHSAN
 Senior Chemist



ANALYTICAL RESULTS

SE267793 R0

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 8/7/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			- 4/7/2024 SE267793.001	- 4/7/2024 SE267793.002	- 4/7/2024 SE267793.003	- 4/7/2024 SE267793.004	- 4/7/2024 SE267793.005
Arsenic	µg/L	1	2	<1	<1	<1	<1
Cadmium	µg/L	0.1	<1.0†	<1.0†	<1.0†	<1.0†	<1.0†
Copper	µg/L	1	2	<2†	<2†	<2†	<2†
Chromium	µg/L	1	8	1	3	1	2
Nickel	µg/L	1	<2†	<2†	<2†	<2†	<2†
Lead	µg/L	1	<1	<1	<1	<1	<1
Zinc	µg/L	5	23	45	<10†	770	<10†

PARAMETER	UOM	LOR	MW9	MW10	QC2407
			WATER	WATER	WATER
			- 4/7/2024 SE267793.006	- 4/7/2024 SE267793.007	- 4/7/2024 SE267793.008
Arsenic	µg/L	1	<1	2	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	<1	<1	<1
Chromium	µg/L	1	4	3	4
Nickel	µg/L	1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1
Zinc	µg/L	5	<5	58	<5



ANALYTICAL RESULTS

SE267793 R0

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 8/7/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER - 4/7/2024 SE267793.001	WATER - 4/7/2024 SE267793.002	WATER - 4/7/2024 SE267793.003	WATER - 4/7/2024 SE267793.004	WATER - 4/7/2024 SE267793.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

PARAMETER	UOM	LOR	MW9	MW10	QC2407
			WATER - 4/7/2024 SE267793.006	WATER - 4/7/2024 SE267793.007	WATER - 4/7/2024 SE267793.008
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples - Low Level [MA-1523] Tested: 12/7/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			4/7/2024 SE267793.001	4/7/2024 SE267793.002	4/7/2024 SE267793.003	4/7/2024 SE267793.004	4/7/2024 SE267793.005
Perfluorobutanoic acid (PFBA)	µg/L	0.0005	0.0084	0.013	<0.0005	<0.0005	<0.0005
Perfluoropentanoic acid (PFPeA)	µg/L	0.0005	0.0043	0.0016	<0.0005	<0.0005	<0.0005
Perfluorohexanoic acid (PFHxA)	µg/L	0.0005	0.0055	0.0017	<0.0005	<0.0005	<0.0005
Perfluoroheptanoic acid (PFHpA)	µg/L	0.0005	0.0036	<0.0005	<0.0005	0.0005	<0.0005
Perfluorooctanoic Acid (PFOA)	µg/L	0.0005	0.0029	<0.0005	<0.0005	<0.0005	<0.0005
Perfluorobutane sulfonate (PFBS)	µg/L	0.001	<0.001	0.002	<0.001	<0.001	<0.001
Perfluoropentane sulfonate (PFPeS)	µg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorohexane sulfonate (PFHxS)	µg/L	0.0002	0.0062	0.0071	<0.0002	<0.0002	0.0004
Perfluorooctane sulfonate (PFOS)	µg/L	0.0002	0.0019	0.0011	<0.0002	<0.0002	<0.0002
Sum of PFHxS and PFOS	µg/L	0.0002	0.0081	0.0082	<0.0002	<0.0002	0.0004
Perfluorononane sulfonate (PFNS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

PARAMETER	UOM	LOR	MW9	MW10	QC2407
			WATER	WATER	WATER
			4/7/2024 SE267793.006	4/7/2024 SE267793.007	4/7/2024 SE267793.008
Perfluorobutanoic acid (PFBA)	µg/L	0.0005	0.0030	0.0046	0.0028
Perfluoropentanoic acid (PFPeA)	µg/L	0.0005	<0.0005	0.0015	<0.0005
Perfluorohexanoic acid (PFHxA)	µg/L	0.0005	0.0007	0.0017	0.0007
Perfluoroheptanoic acid (PFHpA)	µg/L	0.0005	<0.0005	0.0009	<0.0005
Perfluorooctanoic Acid (PFOA)	µg/L	0.0005	<0.0005	0.0016	<0.0005
Perfluorobutane sulfonate (PFBS)	µg/L	0.001	<0.001	<0.001	<0.001
Perfluoropentane sulfonate (PFPeS)	µg/L	0.001	<0.001	<0.001	<0.001
Perfluorohexane sulfonate (PFHxS)	µg/L	0.0002	<0.0002	0.0019	<0.0002
Perfluorooctane sulfonate (PFOS)	µg/L	0.0002	<0.0002	0.0018	<0.0002
Sum of PFHxS and PFOS	µg/L	0.0002	<0.0002	0.0038	<0.0002
Perfluorononane sulfonate (PFNS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005

METHOD

METHODOLOGY SUMMARY

AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: 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.
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
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.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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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CLIENT DETAILS

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 Client JM ENVIRONMENTS
 Address 37 TOOKE STREET
 COOKS HILL NSW 2300

Telephone 0427 893 668
 Facsimile (Not specified)
 Email james@jmenvironments.com

Project **JME21054**
 Order Number **JME21054**
 Samples 8

LABORATORY DETAILS

Manager Shane McDermott
 Laboratory SGS Alexandria Environmental
 Address Unit 16, 33 Maddox St
 Alexandria NSW 2015

Telephone +61 2 8594 0400
 Facsimile +61 2 8594 0499
 Email au.environmental.sydney@sgs.com

SGS Reference **SE267793 R0**
 Date Received 05 Jul 2024
 Date Reported 12 Jul 2024

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
 This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
 The Statement and the Analytical Report must not be reproduced except in full.
 All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	5/7/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	1.7°C
Sample container provider	Client	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE267793.001	LB317039	04 Jul 2024	05 Jul 2024	01 Aug 2024	08 Jul 2024	01 Aug 2024	09 Jul 2024
MW5	SE267793.002	LB317039	04 Jul 2024	05 Jul 2024	01 Aug 2024	08 Jul 2024	01 Aug 2024	09 Jul 2024
MW6	SE267793.003	LB317039	04 Jul 2024	05 Jul 2024	01 Aug 2024	08 Jul 2024	01 Aug 2024	09 Jul 2024
MW7	SE267793.004	LB317039	04 Jul 2024	05 Jul 2024	01 Aug 2024	08 Jul 2024	01 Aug 2024	09 Jul 2024
MW8	SE267793.005	LB317039	04 Jul 2024	05 Jul 2024	01 Aug 2024	08 Jul 2024	01 Aug 2024	09 Jul 2024
MW9	SE267793.006	LB317039	04 Jul 2024	05 Jul 2024	01 Aug 2024	08 Jul 2024	01 Aug 2024	09 Jul 2024
MW10	SE267793.007	LB317039	04 Jul 2024	05 Jul 2024	01 Aug 2024	08 Jul 2024	01 Aug 2024	09 Jul 2024
QC2407	SE267793.008	LB317039	04 Jul 2024	05 Jul 2024	01 Aug 2024	08 Jul 2024	01 Aug 2024	09 Jul 2024

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE267793.001	LB317074	04 Jul 2024	05 Jul 2024	31 Dec 2024	08 Jul 2024	31 Dec 2024	09 Jul 2024
MW5	SE267793.002	LB317074	04 Jul 2024	05 Jul 2024	31 Dec 2024	08 Jul 2024	31 Dec 2024	09 Jul 2024
MW6	SE267793.003	LB317074	04 Jul 2024	05 Jul 2024	31 Dec 2024	08 Jul 2024	31 Dec 2024	09 Jul 2024
MW7	SE267793.004	LB317074	04 Jul 2024	05 Jul 2024	31 Dec 2024	08 Jul 2024	31 Dec 2024	09 Jul 2024
MW8	SE267793.005	LB317074	04 Jul 2024	05 Jul 2024	31 Dec 2024	08 Jul 2024	31 Dec 2024	09 Jul 2024
MW9	SE267793.006	LB317074	04 Jul 2024	05 Jul 2024	31 Dec 2024	08 Jul 2024	31 Dec 2024	09 Jul 2024
MW10	SE267793.007	LB317074	04 Jul 2024	05 Jul 2024	31 Dec 2024	08 Jul 2024	31 Dec 2024	09 Jul 2024
QC2407	SE267793.008	LB317074	04 Jul 2024	05 Jul 2024	31 Dec 2024	08 Jul 2024	31 Dec 2024	09 Jul 2024

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples - Low Level

Method: MA-1523

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %	
(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	MW4	SE267793.001	%	10 - 150%	100	
	MW5	SE267793.002	%	10 - 150%	96	
	MW6	SE267793.003	%	10 - 150%	100	
	MW7	SE267793.004	%	10 - 150%	102	
	MW8	SE267793.005	%	10 - 150%	96	
	MW9	SE267793.006	%	10 - 150%	99	
	MW10	SE267793.007	%	10 - 150%	101	
	QC2407	SE267793.008	%	10 - 150%	99	
	(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	MW4	SE267793.001	%	10 - 150%	99
		MW5	SE267793.002	%	10 - 150%	96
MW6		SE267793.003	%	10 - 150%	94	
MW7		SE267793.004	%	10 - 150%	98	
MW8		SE267793.005	%	10 - 150%	103	
MW9		SE267793.006	%	10 - 150%	99	
MW10		SE267793.007	%	10 - 150%	100	
QC2407		SE267793.008	%	10 - 150%	92	
(13C4_PFOA) Isotopically Labelled Internal Recovery Standard		MW4	SE267793.001	%	10 - 150%	102
		MW5	SE267793.002	%	10 - 150%	95
	MW6	SE267793.003	%	10 - 150%	102	
	MW7	SE267793.004	%	10 - 150%	94	
	MW8	SE267793.005	%	10 - 150%	108	
	MW9	SE267793.006	%	10 - 150%	106	
	MW10	SE267793.007	%	10 - 150%	95	
	QC2407	SE267793.008	%	10 - 150%	89	
	(13C4-PFBA) Isotopically Labelled Internal Recovery Standard	MW4	SE267793.001	%	10 - 150%	101
		MW5	SE267793.002	%	10 - 150%	102
MW6		SE267793.003	%	10 - 150%	101	
MW7		SE267793.004	%	10 - 150%	100	
MW8		SE267793.005	%	10 - 150%	99	
MW9		SE267793.006	%	10 - 150%	102	
MW10		SE267793.007	%	10 - 150%	99	
QC2407		SE267793.008	%	10 - 150%	101	
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard		MW4	SE267793.001	%	10 - 150%	100
		MW5	SE267793.002	%	10 - 150%	97
	MW6	SE267793.003	%	10 - 150%	97	
	MW7	SE267793.004	%	10 - 150%	97	
	MW8	SE267793.005	%	10 - 150%	101	
	MW9	SE267793.006	%	10 - 150%	105	
	MW10	SE267793.007	%	10 - 150%	98	
	QC2407	SE267793.008	%	10 - 150%	98	
	(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	MW4	SE267793.001	%	10 - 150%	120
		MW5	SE267793.002	%	10 - 150%	111
MW6		SE267793.003	%	10 - 150%	110	
MW7		SE267793.004	%	10 - 150%	109	
MW8		SE267793.005	%	10 - 150%	110	
MW9		SE267793.006	%	10 - 150%	115	
MW10		SE267793.007	%	10 - 150%	105	
QC2407		SE267793.008	%	10 - 150%	108	
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard		MW4	SE267793.001	%	10 - 150%	74
		MW5	SE267793.002	%	10 - 150%	74
	MW6	SE267793.003	%	10 - 150%	78	
	MW7	SE267793.004	%	10 - 150%	73	
	MW8	SE267793.005	%	10 - 150%	76	
	MW9	SE267793.006	%	10 - 150%	75	
	MW10	SE267793.007	%	10 - 150%	76	
	QC2407	SE267793.008	%	10 - 150%	76	
	(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	MW4	SE267793.001	%	10 - 150%	91
		MW5	SE267793.002	%	10 - 150%	125
MW6		SE267793.003	%	10 - 150%	106	
MW7		SE267793.004	%	10 - 150%	96	
MW8		SE267793.005	%	10 - 150%	92	

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples - Low Level (continued)

Method: MA-1523

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	MW9	SE267793.006	%	10 - 150%	107
	MW10	SE267793.007	%	10 - 150%	101
	QC2407	SE267793.008	%	10 - 150%	96

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB317039.001	Mercury	mg/L	0.0001	<0.0001

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB317074.001	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE267794.002	LB317039.014	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	195
SE267809.001	LB317039.018	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	199

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE267806.002	LB317074.024	Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	<1	<1	200	0
		Copper	µg/L	1	83	84	16	1
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	154	0
		Zinc	µg/L	5	6	6	98	2

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB317074.002	Arsenic	µg/L	1	20	20	80 - 120	101
	Cadmium	µg/L	0.1	20	20	80 - 120	102
	Chromium	µg/L	1	21	20	80 - 120	104
	Copper	µg/L	1	21	20	80 - 120	106
	Lead	µg/L	1	21	20	80 - 120	103
	Nickel	µg/L	1	20	20	80 - 120	100
	Zinc	µg/L	5	23	20	80 - 120	117

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE267793.001	LB317039.004	Mercury	mg/L	0.0001	0.0019	<0.0001	0.008	99

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE267794.001	LB317074.004	Arsenic	µg/L	1	25	4	20	106
		Cadmium	µg/L	0.1	21	<0.1	20	104
		Chromium	µg/L	1	21	<1	20	106
		Copper	µg/L	1	21	<1	20	104
		Lead	µg/L	1	21	<1	20	105
		Nickel	µg/L	1	20	<1	20	101
		Zinc	µg/L	5	25	<5	20	115

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

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 Project **JME21054**
 Order Number **SE267793**
 Samples **8**

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 SGS Reference **ME353862 R0**
 Date Received **08 Jul 2024**
 Date Reported **12 Jul 2024**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562 (14420/22793/24472).

SIGNATORIES



Vanessa PALAMARA
 Senior Chemist

Parameter	Units	LOR	ME353862.001	ME353862.002	ME353862.003	ME353862.004
Sample Number			ME353862.001	ME353862.002	ME353862.003	ME353862.004
Sample Matrix			Water	Water	Water	Water
Sample Date			04 Jul 2024	04 Jul 2024	04 Jul 2024	04 Jul 2024
Sample Name			SE267793.001	SE267793.002	SE267793.003	SE267793.004

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples - Low Level Method: MA-1523 Tested: 9/7/2024

Parameter	Units	LOR	ME353862.001	ME353862.002	ME353862.003	ME353862.004
Perfluorobutanoic acid (PFBA)	µg/L	0.0005	0.0084	0.013	<0.0005	<0.0005
Perfluoropentanoic acid (PFPeA)	µg/L	0.0005	0.0043	0.0016	<0.0005	<0.0005
Perfluorohexanoic acid (PFHxA)	µg/L	0.0005	0.0055	0.0017	<0.0005	<0.0005
Perfluoroheptanoic acid (PFHpA)	µg/L	0.0005	0.0036	<0.0005	<0.0005	0.0005
Perfluorooctanoic Acid (PFOA)	µg/L	0.0005	0.0029	<0.0005	<0.0005	<0.0005
Perfluorobutane sulfonate (PFBS)	µg/L	0.001	<0.001	0.002	<0.001	<0.001
Perfluoropentane sulfonate (PFPeS)	µg/L	0.001	<0.001	<0.001	<0.001	<0.001
Perfluorohexane sulfonate (PFHxS)	µg/L	0.0002	0.0062	0.0071	<0.0002	<0.0002
Perfluorooctane sulfonate (PFOS)	µg/L	0.0002	0.0019	0.0011	<0.0002	<0.0002
Sum of PFHxS and PFOS	µg/L	0.0002	0.0081	0.0082	<0.0002	<0.0002
Perfluorononane sulfonate (PFNS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	101	102	101	100
(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	74	74	78	73
(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	120	111	110	109
(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	100	97	97	97
(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	102	95	102	94
(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	100	96	100	102
(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	99	96	94	98
(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	91	125	106	96

Parameter	Units	LOR	ME353862.005	ME353862.006	ME353862.007	ME353862.008
Sample Number			ME353862.005	ME353862.006	ME353862.007	ME353862.008
Sample Matrix			Water	Water	Water	Water
Sample Date			04 Jul 2024	04 Jul 2024	04 Jul 2024	04 Jul 2024
Sample Name			SE267793.005	SE267793.006	SE267793.007	SE267793.008

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples - Low Level Method: MA-1523 Tested: 9/7/2024

Parameter	Units	LOR	ME353862.005	ME353862.006	ME353862.007	ME353862.008
Perfluorobutanoic acid (PFBA)	µg/L	0.0005	<0.0005	0.0030	0.0046	0.0028
Perfluoropentanoic acid (PFPeA)	µg/L	0.0005	<0.0005	<0.0005	0.0015	<0.0005
Perfluorohexanoic acid (PFHxA)	µg/L	0.0005	<0.0005	0.0007	0.0017	0.0007
Perfluoroheptanoic acid (PFHpA)	µg/L	0.0005	<0.0005	<0.0005	0.0009	<0.0005
Perfluorooctanoic Acid (PFOA)	µg/L	0.0005	<0.0005	<0.0005	0.0016	<0.0005
Perfluorobutane sulfonate (PFBS)	µg/L	0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentane sulfonate (PFPeS)	µg/L	0.001	<0.001	<0.001	<0.001	<0.001
Perfluorohexane sulfonate (PFHxS)	µg/L	0.0002	0.0004	<0.0002	0.0019	<0.0002
Perfluorooctane sulfonate (PFOS)	µg/L	0.0002	<0.0002	<0.0002	0.0018	<0.0002
Sum of PFHxS and PFOS	µg/L	0.0002	0.0004	<0.0002	0.0038	<0.0002
Perfluorononane sulfonate (PFNS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	µg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	99	102	99	101
(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	76	75	76	76
(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	110	115	105	108
(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	101	105	98	98
(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	108	106	95	89
(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	96	99	101	99
(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	103	99	100	92
(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	92	107	101	96

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.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples - Low Level Method: MA-1523

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Perfluorobutanoic acid (PFBA)	LB077552	µg/L	0.0005	<0.0005	1%	NA
Perfluoropentanoic acid (PFPeA)	LB077552	µg/L	0.0005	<0.0005	9%	NA
Perfluorohexanoic acid (PFHxA)	LB077552	µg/L	0.0005	<0.0005	2%	NA
Perfluoroheptanoic acid (PFHpA)	LB077552	µg/L	0.0005	<0.0005	31%	71%
Perfluorooctanoic Acid (PFOA)	LB077552	µg/L	0.0005	<0.0005	10%	89%
Perfluorobutane sulfonate (PFBS)	LB077552	µg/L	0.001	<0.001	0%	NA
Perfluoropentane sulfonate (PFPeS)	LB077552	µg/L	0.001	<0.001	0%	NA
Perfluorohexane sulfonate (PFHxS)	LB077552	µg/L	0.0002	<0.0002	8%	NA
Perfluorooctane sulfonate (PFOS)	LB077552	µg/L	0.0002	<0.0002	17%	85%
Sum of PFHxS and PFOS	LB077552	µg/L	0.0002	<0.0002	10%	NA
Perfluorononane sulfonate (PFNS)	LB077552	µg/L	0.0005	<0.0005	0%	NA
1H,1H,2H,2H-Perfluorohexane sulfonate (4:2) (4:2 FTS)	LB077552	µg/L	0.0005	<0.0005	0%	NA
1H,1H,2H,2H-Perfluorooctane sulfonate (6:2) (6:2 FTS)	LB077552	µg/L	0.0005	<0.0005	0%	NA
1H,1H,2H,2H-Perfluorodecane sulfonate (8:2) (8:2 FTS)	LB077552	µg/L	0.0005	<0.0005	0%	NA
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard	LB077552	%	-	102%	0%	106%
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	LB077552	%	-	78%	1%	83%
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	LB077552	%	-	108%	10%	116%
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	LB077552	%	-	101%	0%	104%
(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	LB077552	%	-	94%	1%	99%
(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	LB077552	%	-	100%	15%	105%
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	LB077552	%	-	92%	11%	102%
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	LB077552	%	-	112%	0%	89%

METHOD

METHODOLOGY SUMMARY

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.

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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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CHAIN OF CUSTODY & ANALYSIS REQUEST

Sample Date: 12/08/2024

Page 1 of 1

Company Name:	JIM Environments	Project Name/No:	JME21054
Address:	37 Tooke St COOKS HILL NSW 2300	Purchase Order No:	JME21054
Contact Name:	James McMahon	Results Required By:	Standard
Telephone	0427 893 668	Email:	james@jimenvironments.com
		Email:	admin@jimenvironments.com

Relinquished by: **N** **SGS Newcastle** Date /Time: 13-8-24 9:00

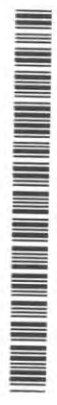
Relinquished by: *[Signature]* Date /Time: 14-8-24 11:15

Samples intact: Yes / No

Laboratory Quotation: ENVI126319

Lab Sample ID	Sample ID	Water	Soil	Other	Preservative	No. of Containers	pH/CEC	BTEX/TPH/PAH/8HM	8 Heavy metals	OCP/PCB	Asbestos	PFAS short suite	Comments
1	MW4	X				2			X			X	Low level PFAS
2	MW5	X				2			X			X	Low level PFAS
3	MW6	X				2			X			X	Low level PFAS
4	MW7	X				2			X			X	Low level PFAS
5	MW8	X				2			X			X	Low level PFAS
6	MW9	X				2			X			X	Low level PFAS
7	MW10	X				2			X			X	Low level PFAS
8	21054 2408	X				2			X			X	Low level PFAS

SGS EHS Sydney COC
SE269528



Yin, Emily (Alexandria)

From: james@jmenvironments.com
Sent: Thursday, 15 August 2024 10:41 AM
To: AU.Environmental.Sydney, AU (Sydney)
Cc: AU.SampleReceipt.Sydney, AU (Sydney); McDermott, Shane (Alexandria); Luong, Thi Song Van (Alexandria)
Subject: [EXTERNAL] RE: SE269528 - JM Environments - JM Environments - Water - PFAS LL LORS confirmation required

*** WARNING: this message is from an EXTERNAL SENDER. Please be cautious, particularly with links and attachments. ***

Hi Ritta

Low level please

Kind Regards

James McMahon

0427 893 668

james@jmenvironments.com

Licensed Asbestos Assessor LAA001286

Certified Environmental Practitioner CEnvP 1235

Site Contamination Specialist SC41110



From: AU.Environmental.Sydney, AU (Sydney) <AU.Environmental.Sydney@sgs.com>
Sent: Wednesday, August 14, 2024 1:11 PM

To: James McMahon <james@jmenvironments.com>

Cc: AU.SampleReceipt.Sydney, AU (Sydney) <AU.SampleReceipt.Sydney@sgs.com>; McDermott, Shane (Alexandria) <Shane.McDermott@sgs.com>; Luong, Thi Song Van (Alexandria) <ThiSongVan.Luong@sgs.com>

Subject: RE: SE269528 - JM Environments - JM Environments - Water - PFAS LL LORS confirmation required

Hi James,

Hope you well. Thanks for send through your Water samples for PFAS testing.

SGS Alexandria has currently been accredited by NATA for PFAS testing.

Please confirm if the below LL PFAS LOR meets your requirements for the job JME21054 submitted.

Yin, Emily (Alexandria)

From: AU.Environmental.Sydney, AU (Sydney)
Sent: Friday, 16 August 2024 12:59 PM
To: AU.SampleReceipt.Sydney, AU (Sydney)
Cc: AU.Environmental.Sydney, AU (Sydney)
Subject: FW: [EXTERNAL] RE: SE269528 - Metals Total / Dissolved.

FYA

Rita Agui

Industries and Environment
Client Services Representative

SGS Australia Pty Ltd

Unit 16, 33 Maddox Street

Alexandria, NSW, 2015

Phone: +61 (0) 2 8594 0400

Direct: +61 (0) 2 8594 3309

E-mail: Rita.azzi@sgs.com

General E-mail: au.environmental.sydney@sgs.com

Web: www.au.sgs.com

Working Monday to Friday : 10 to 6pm

From: James@jmenvironments.com <james@jmenvironments.com>
Sent: Friday, August 16, 2024 12:53 PM

To: McDermott, Shane (Alexandria) <Shane.McDermott@sgs.com>

Cc: Liang, Dong (Alexandria) <Dong.Liang@sgs.com>; AU.Environmental.Sydney, AU (Sydney)

<AU.Environmental.Sydney@sgs.com>

Subject: [EXTERNAL] RE: SE269528 - Metals Total / Dissolved.

*** WARNING: this message is from an EXTERNAL SENDER. Please be cautious, particularly with links and attachments. ***

Hi Shane,

Dissolved please, except the S1 (clearly not filtered).

Kind Regards

James McMahon

0427 893 668

james@jmenvironments.com

Licensed Asbestos Assessor LAA001286

Certified Environmental Practitioner CENVP 1235

Site Contamination Specialist SC41110



SAMPLE RECEIPT ADVICE

SE269528

CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
COOKS HILL NSW 2300

Telephone 0427 893 668
Facsimile (Not specified)
Email james@jmenvironments.com

Project **JME21054**
Order Number **JME21054**
Samples 8

LABORATORY DETAILS

Manager Shane McDermott
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Wed 14/8/2024
Report Due Wed 21/8/2024
SGS Reference **SE269528**

SUBMISSION DETAILS

This is to confirm that 8 samples were received on Wednesday 14/8/2024. Results are expected to be ready by COB Wednesday 21/8/2024. Please quote SGS reference SE269528 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	14/8/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	6.8°C
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		

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

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

CLIENT DETAILS

Client **JM ENVIRONMENTS**

Project **JME21054**

SUMMARY OF ANALYSIS

No.	Sample ID	Low Level Per- and Polyfluoroalkyl Substances	Mercury (dissolved) in Water	Mercury (total) in Water	Trace Metals (Dissolved) in Water by ICPMS	Trace Metals (Total) in Water by ICPMS
001	MW4	30	-	1	-	7
002	MW5	30	1	-	7	-
003	MW6	30	1	-	7	-
004	MW7	30	1	-	7	-
005	MW8	30	1	-	7	-
006	MW9	30	1	-	7	-
007	MW10	30	1	-	7	-
008	21054 2408	30	1	-	7	-

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.

CLIENT DETAILS

LABORATORY DETAILS

Contact **James McMahon**
 Client **JM ENVIRONMENTS**
 Address **37 TOOKE STREET
 COOKS HILL NSW 2300**

Telephone **0427 893 668**
 Facsimile **(Not specified)**
 Email **james@jmenvironments.com**

Project **JME21054**
 Order Number **JME21054**
 Samples **8**

Manager **Shane McDermott**
 Laboratory **SGS Alexandria Environmental**
 Address **Unit 16, 33 Maddox St
 Alexandria NSW 2015**

Telephone **+61 2 8594 0400**
 Facsimile **+61 2 8594 0499**
 Email **au.environmental.sydney@sgs.com**

SGS Reference **SE269528 R0**
 Date Received **14/8/2024**
 Date Reported **21/8/2024**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES



Kamrul AHSAN
 Senior Chemist



Teresa NGUYEN
 Organic Chemist



ANALYTICAL RESULTS

SE269528 R0

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 16/8/2024

PARAMETER	UOM	LOR	MW5	MW6	MW7	MW8	MW9
			WATER	WATER	WATER	WATER	WATER
			12/8/2024 SE269528.002	12/8/2024 SE269528.003	12/8/2024 SE269528.004	12/8/2024 SE269528.005	12/8/2024 SE269528.006
Arsenic	µg/L	1	<1	<1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	1	1	1	<1	<1
Chromium	µg/L	1	2	3	3	2	3
Nickel	µg/L	1	<1	<1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1	<1	<1
Zinc	µg/L	5	36	<5	240	<5	<5

PARAMETER	UOM	LOR	MW10	21054 2408
			WATER	WATER
			12/8/2024 SE269528.007	12/8/2024 SE269528.008
Arsenic	µg/L	1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1
Copper	µg/L	1	<1	<1
Chromium	µg/L	1	4	3
Nickel	µg/L	1	<1	<1
Lead	µg/L	1	<1	<1
Zinc	µg/L	5	<5	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 16/8/2024

			MW5	MW6	MW7	MW8	MW9
			WATER	WATER	WATER	WATER	WATER
			-	-	-	-	-
			12/8/2024	12/8/2024	12/8/2024	12/8/2024	12/8/2024
PARAMETER	UOM	LOR	SE269528.002	SE269528.003	SE269528.004	SE269528.005	SE269528.006
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

			MW10	21054 2408
			WATER	WATER
			-	-
			12/8/2024	12/8/2024
PARAMETER	UOM	LOR	SE269528.007	SE269528.008
Mercury	mg/L	0.0001	<0.0001	<0.0001



ANALYTICAL RESULTS

SE269528 R0

Trace Metals (Total) in Water by ICPMS [AN022/AN318] Tested: 19/8/2024

PARAMETER	UOM	LOR	MW4
			WATER - 12/8/2024 SE269528.001
Total Arsenic	µg/L	1	<1
Total Cadmium	µg/L	0.1	<0.1
Total Chromium	µg/L	1	2
Total Copper	µg/L	1	1
Total Nickel	µg/L	1	<1
Total Lead	µg/L	1	<1
Total Zinc	µg/L	5	12

Mercury (total) in Water [AN311(Perth) /AN312] Tested: 19/8/2024

			MW4
			WATER
			-
			12/8/2024
PARAMETER	UOM	LOR	SE269528.001
Total Mercury	mg/L	0.0001	<0.0001

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples [AN404] Tested: 16/8/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			12/8/2024 SE269528.001	12/8/2024 SE269528.002	12/8/2024 SE269528.003	12/8/2024 SE269528.004	12/8/2024 SE269528.005
Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	0.003	0.003	<0.002	0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.005	0.002	<0.002	0.003	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.004	0.002	<0.002	0.003	<0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002	<0.002	<0.002	0.003	<0.002
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	0.010	0.003	<0.002	<0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	0.005	0.002	<0.002	0.005	<0.002
Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005	<0.005	0.009	<0.005	0.021
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Sum of PFOS and PFHxS	µg/L	0.002	0.014	0.005	<0.002	0.005	<0.002
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	0.014	0.005	<0.002	0.008	<0.002
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	0.005	0.002	<0.002	0.008	<0.002

PARAMETER	UOM	LOR	MW9	MW10	21054 2408
			WATER	WATER	WATER
			12/8/2024 SE269528.006	12/8/2024 SE269528.007	12/8/2024 SE269528.008
Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002	0.002	<0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002	0.012	<0.002
Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2)	µg/L	0.005	<0.005	<0.005	<0.005
Sum of PFOS and PFHxS	µg/L	0.002	<0.002	0.012	<0.002
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	<0.002	0.012	<0.002
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	<0.002	0.012	<0.002

METHOD

METHODOLOGY SUMMARY

AN020

Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.

AN022/AN318

Following acid digestion of un filtered sample, determination of elements at trace level in waters by ICP-MS technique, referenced to USEPA 6020B and USEPA 200.8 (5.4).

AN022

The water sample is digested with Nitric Acid and made up to the original volume similar to APHA3030E.

AN311(Perth) /AN312

Mercury by Cold Vapour AAS in Waters: Mercury ions taken from unfiltered sample 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.

AN311(Perth)/AN312

Mercury by Cold Vapour AAS in Waters: 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.

AN318

Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).

AN404

This method covers the analysis of per- and polyfluoroalkyl substances (PFAS) in aqueous, solid and biosolid samples and solvent extracts. After spiking with isotopically labelled quantification surrogates and sample extracts are analysed by liquid chromatography/mass spectrometry (LC-MS/MS). PFAS concentrations are determined by isotope dilution quantification. PFOS and PFHXS are determined as the total of linear and branched isomers.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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This report must not be reproduced, except in full.

CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
 COOKS HILL NSW 2300

Telephone 0427 893 668
Facsimile (Not specified)
Email james@jmenvironments.com

Project **JME21054**
Order Number **JME21054**
Samples 8

LABORATORY DETAILS

Manager Shane McDermott
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
 Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

SGS Reference **SE269528 R0**
Date Received 14 Aug 2024
Date Reported 21 Aug 2024

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.

This QA/QC Statement must be read in conjunction with the referenced Analytical Report.

The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	14/8/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	6.8°C
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		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE269528.001	LB320816	12 Aug 2024	14 Aug 2024	09 Sep 2024	16 Aug 2024	13 Sep 2024	20 Aug 2024
MW5	SE269528.002	LB320816	12 Aug 2024	14 Aug 2024	09 Sep 2024	16 Aug 2024	13 Sep 2024	20 Aug 2024
MW6	SE269528.003	LB320816	12 Aug 2024	14 Aug 2024	09 Sep 2024	16 Aug 2024	13 Sep 2024	20 Aug 2024
MW7	SE269528.004	LB320816	12 Aug 2024	14 Aug 2024	09 Sep 2024	16 Aug 2024	13 Sep 2024	20 Aug 2024
MW8	SE269528.005	LB320816	12 Aug 2024	14 Aug 2024	09 Sep 2024	16 Aug 2024	13 Sep 2024	20 Aug 2024
MW9	SE269528.006	LB320816	12 Aug 2024	14 Aug 2024	09 Sep 2024	16 Aug 2024	13 Sep 2024	20 Aug 2024
MW10	SE269528.007	LB320816	12 Aug 2024	14 Aug 2024	09 Sep 2024	16 Aug 2024	13 Sep 2024	20 Aug 2024
21054 2408	SE269528.008	LB320816	12 Aug 2024	14 Aug 2024	09 Sep 2024	16 Aug 2024	13 Sep 2024	20 Aug 2024

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE269528.001	LB320806	12 Aug 2024	14 Aug 2024	09 Sep 2024	16 Aug 2024	09 Sep 2024	21 Aug 2024
MW5	SE269528.002	LB320806	12 Aug 2024	14 Aug 2024	09 Sep 2024	16 Aug 2024	09 Sep 2024	21 Aug 2024
MW6	SE269528.003	LB320806	12 Aug 2024	14 Aug 2024	09 Sep 2024	16 Aug 2024	09 Sep 2024	21 Aug 2024
MW7	SE269528.004	LB320806	12 Aug 2024	14 Aug 2024	09 Sep 2024	16 Aug 2024	09 Sep 2024	21 Aug 2024
MW8	SE269528.005	LB320806	12 Aug 2024	14 Aug 2024	09 Sep 2024	16 Aug 2024	09 Sep 2024	21 Aug 2024
MW9	SE269528.006	LB320806	12 Aug 2024	14 Aug 2024	09 Sep 2024	16 Aug 2024	09 Sep 2024	21 Aug 2024
MW10	SE269528.007	LB320806	12 Aug 2024	14 Aug 2024	09 Sep 2024	16 Aug 2024	09 Sep 2024	21 Aug 2024
21054 2408	SE269528.008	LB320806	12 Aug 2024	14 Aug 2024	09 Sep 2024	16 Aug 2024	09 Sep 2024	21 Aug 2024

Mercury (total) in Water

Method: ME-(AU)-[ENV]AN311(Perth) /AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE269528.001	LB320997	12 Aug 2024	14 Aug 2024	09 Sep 2024	19 Aug 2024	09 Sep 2024	19 Aug 2024

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE269528.001	LB320809	12 Aug 2024	14 Aug 2024	08 Feb 2025	16 Aug 2024	08 Feb 2025	19 Aug 2024
MW5	SE269528.002	LB320809	12 Aug 2024	14 Aug 2024	08 Feb 2025	16 Aug 2024	08 Feb 2025	19 Aug 2024
MW6	SE269528.003	LB320809	12 Aug 2024	14 Aug 2024	08 Feb 2025	16 Aug 2024	08 Feb 2025	19 Aug 2024
MW7	SE269528.004	LB320809	12 Aug 2024	14 Aug 2024	08 Feb 2025	16 Aug 2024	08 Feb 2025	19 Aug 2024
MW8	SE269528.005	LB320809	12 Aug 2024	14 Aug 2024	08 Feb 2025	16 Aug 2024	08 Feb 2025	19 Aug 2024
MW9	SE269528.006	LB320809	12 Aug 2024	14 Aug 2024	08 Feb 2025	16 Aug 2024	08 Feb 2025	19 Aug 2024
MW10	SE269528.007	LB320809	12 Aug 2024	14 Aug 2024	08 Feb 2025	16 Aug 2024	08 Feb 2025	19 Aug 2024
21054 2408	SE269528.008	LB320809	12 Aug 2024	14 Aug 2024	08 Feb 2025	16 Aug 2024	08 Feb 2025	19 Aug 2024

Trace Metals (Total) in Water by ICPMS

Method: ME-(AU)-[ENV]AN022/AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE269528.001	LB320980	12 Aug 2024	14 Aug 2024	08 Feb 2025	19 Aug 2024	08 Feb 2025	19 Aug 2024

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %	
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE269528.001	%	40 - 300%	131	
	MW5	SE269528.002	%	40 - 300%	136	
	MW6	SE269528.003	%	40 - 300%	135	
	MW7	SE269528.004	%	40 - 300%	119	
	MW8	SE269528.005	%	40 - 300%	119	
	MW9	SE269528.006	%	40 - 300%	131	
	MW10	SE269528.007	%	40 - 300%	138	
	21054 2408	SE269528.008	%	40 - 300%	120	
	(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE269528.001	%	40 - 300%	82
		MW5	SE269528.002	%	40 - 300%	110
		MW6	SE269528.003	%	40 - 300%	108
MW7		SE269528.004	%	40 - 300%	103	
MW8		SE269528.005	%	40 - 300%	97	
MW9		SE269528.006	%	40 - 300%	109	
MW10		SE269528.007	%	40 - 300%	109	
21054 2408		SE269528.008	%	40 - 300%	86	
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard		MW4	SE269528.001	%	40 - 300%	75
		MW5	SE269528.002	%	40 - 300%	87
		MW6	SE269528.003	%	40 - 300%	72
	MW7	SE269528.004	%	40 - 300%	70	
	MW8	SE269528.005	%	40 - 300%	69	
	MW9	SE269528.006	%	40 - 300%	73	
	MW10	SE269528.007	%	40 - 300%	86	
	21054 2408	SE269528.008	%	40 - 300%	75	
	(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	MW4	SE269528.001	%	40 - 150%	90
		MW5	SE269528.002	%	40 - 150%	94
		MW6	SE269528.003	%	40 - 150%	94
MW7		SE269528.004	%	40 - 150%	91	
MW8		SE269528.005	%	40 - 150%	89	
MW9		SE269528.006	%	40 - 150%	91	
MW10		SE269528.007	%	40 - 150%	98	
21054 2408		SE269528.008	%	40 - 150%	87	
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard		MW4	SE269528.001	%	40 - 150%	90
		MW5	SE269528.002	%	40 - 150%	103
		MW6	SE269528.003	%	40 - 150%	100
	MW7	SE269528.004	%	40 - 150%	96	
	MW8	SE269528.005	%	40 - 150%	91	
	MW9	SE269528.006	%	40 - 150%	97	
	MW10	SE269528.007	%	40 - 150%	97	
	21054 2408	SE269528.008	%	40 - 150%	90	
	(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	MW4	SE269528.001	%	40 - 150%	91
		MW5	SE269528.002	%	40 - 150%	104
		MW6	SE269528.003	%	40 - 150%	104
MW7		SE269528.004	%	40 - 150%	91	
MW8		SE269528.005	%	40 - 150%	91	
MW9		SE269528.006	%	40 - 150%	100	
MW10		SE269528.007	%	40 - 150%	104	
21054 2408		SE269528.008	%	40 - 150%	96	
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard		MW4	SE269528.001	%	5 - 150%	90
		MW5	SE269528.002	%	5 - 150%	105
		MW6	SE269528.003	%	5 - 150%	95
	MW7	SE269528.004	%	5 - 150%	92	
	MW8	SE269528.005	%	5 - 150%	95	
	MW9	SE269528.006	%	5 - 150%	98	
	MW10	SE269528.007	%	5 - 150%	98	
	21054 2408	SE269528.008	%	5 - 150%	89	
	(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW4	SE269528.001	%	40 - 150%	93
		MW5	SE269528.002	%	40 - 150%	104
		MW6	SE269528.003	%	40 - 150%	98
MW7		SE269528.004	%	40 - 150%	101	
MW8		SE269528.005	%	40 - 150%	95	

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW9	SE269528.006	%	40 - 150%	100
	MW10	SE269528.007	%	40 - 150%	101
	21054 2408	SE269528.008	%	40 - 150%	88
	MW4	SE269528.001	%	40 - 150%	88
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	MW5	SE269528.002	%	40 - 150%	98
	MW6	SE269528.003	%	40 - 150%	91
	MW7	SE269528.004	%	40 - 150%	90
	MW8	SE269528.005	%	40 - 150%	89
	MW9	SE269528.006	%	40 - 150%	94
	MW10	SE269528.007	%	40 - 150%	95
	21054 2408	SE269528.008	%	40 - 150%	86
	MW4	SE269528.001	%	35 - 150%	88
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	MW5	SE269528.002	%	35 - 150%	94
	MW6	SE269528.003	%	35 - 150%	88
	MW7	SE269528.004	%	35 - 150%	88
	MW8	SE269528.005	%	35 - 150%	85
	MW9	SE269528.006	%	35 - 150%	89
	MW10	SE269528.007	%	35 - 150%	93
	21054 2408	SE269528.008	%	35 - 150%	82
	MW4	SE269528.001	%	40 - 150%	75
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	MW5	SE269528.002	%	40 - 150%	88
	MW6	SE269528.003	%	40 - 150%	82
	MW7	SE269528.004	%	40 - 150%	75
	MW8	SE269528.005	%	40 - 150%	78
	MW9	SE269528.006	%	40 - 150%	80
	MW10	SE269528.007	%	40 - 150%	79
	21054 2408	SE269528.008	%	40 - 150%	75

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result
LB320816.001	Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01
	Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002
	Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002
	Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002
	Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	<0.002
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002
	Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002
	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	µg/L	0.005	<0.005	

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB320806.001	Mercury	mg/L	0.0001	<0.0001

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB320809.001	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5
LB320809.025	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5

Trace Metals (Total) in Water by ICPMS

Method: ME-(AU)-[ENV]AN022/AN318

Sample Number	Parameter	Units	LOR	Result
LB320980.001	Total Arsenic	µg/L	1	<1
	Total Cadmium	µg/L	0.1	<0.1
	Total Chromium	µg/L	1	<1
	Total Copper	µg/L	1	<1
	Total Lead	µg/L	1	<1
	Total Nickel	µg/L	1	<1
	Total Zinc	µg/L	5	<5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE269564.001	LB320806.014	Mercury	µg/L	0.0001	-0.016	-0.006	200	0
SE269640.020	LB320806.020	Mercury	µg/L	0.0001	-0.014	-0.02	200	0

Mercury (total) in Water

Method: ME-(AU)-[ENV]AN311(Perth) /AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE269672.001	LB320997.011	Total Mercury	µg/L	0.0001	-0.028	-0.012	200	0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE269528.008	LB320809.029	Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	3	3	46	2
		Copper	µg/L	1	<1	<1	145	0
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	200	0
		Zinc	µg/L	5	<5	<5	200	0

Trace Metals (Total) in Water by ICPMS

Method: ME-(AU)-[ENV]AN022/AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE269528.001	LB320980.013	Total Arsenic	µg/L	1	<1	<1	142	0
		Total Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Total Chromium	µg/L	1	2	2	64	6
		Total Copper	µg/L	1	1	1	87	11
		Total Lead	µg/L	1	<1	<1	200	0
		Total Nickel	µg/L	1	<1	<1	183	0
		Total Zinc	µg/L	5	12	12	57	2

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB320816.002	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.19	0.2	40 - 160	97
	Perfluorooctanoic acid (PFOA)	µg/L	0.002	0.22	0.2	40 - 160	112
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	0.21	0.2	40 - 160	107

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB320809.002	Arsenic	µg/L	1	20	20	80 - 120	100
	Cadmium	µg/L	0.1	21	20	80 - 120	105
	Chromium	µg/L	1	22	20	80 - 120	108
	Copper	µg/L	1	22	20	80 - 120	112
	Lead	µg/L	1	19	20	80 - 120	97
	Nickel	µg/L	1	22	20	80 - 120	108
	Zinc	µg/L	5	24	20	80 - 120	119
LB320809.026	Arsenic	µg/L	1	20	20	80 - 120	101
	Cadmium	µg/L	0.1	21	20	80 - 120	105
	Chromium	µg/L	1	21	20	80 - 120	106
	Copper	µg/L	1	22	20	80 - 120	109
	Lead	µg/L	1	20	20	80 - 120	98
	Nickel	µg/L	1	21	20	80 - 120	106
	Zinc	µg/L	5	23	20	80 - 120	114

Trace Metals (Total) in Water by ICPMS

Method: ME-(AU)-[ENV]AN022/AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB320980.002	Total Arsenic	µg/L	1	22	20	80 - 120	108
	Total Cadmium	µg/L	0.1	21	20	80 - 120	106
	Total Chromium	µg/L	1	21	20	80 - 120	106
	Total Copper	µg/L	1	21	20	80 - 120	107
	Total Lead	µg/L	1	20	20	80 - 120	100
	Total Nickel	µg/L	1	20	20	80 - 120	102
	Total Zinc	µg/L	5	23	20	80 - 120	114

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE269501.001	LB320809.004	Copper	µg/L	1	19	<1	20	93

Trace Metals (Total) in Water by ICPMS

Method: ME-(AU)-[ENV]AN022/AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE269602.001	LB320980.004	Total Arsenic	µg/L	1	26	0.003	20	115
		Total Cadmium	µg/L	0.1	21	<0.0001	20	104
		Total Chromium	µg/L	1	29	0.009	-	-
		Total Copper	µg/L	1	22	0.003	20	93
		Total Lead	µg/L	1	21	<0.001	20	104
		Total Nickel	µg/L	1	29	0.01	20	91
		Total Zinc	µg/L	5	25	<0.005	20	104

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

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CHAIN OF CUSTODY & ANALYSIS REQUEST

Sample Date:

18/09/2024

Company Name:	JM Environments	Project Name/No:	JME21054
Address:	37 Tooke St	Purchase Order No:	JME21054
	COOKS HILL NSW 2300	Results Required By:	Standard
Contact Name:	James McMahon	Email:	james@jmenvironments.com
Telephone	0427 893 668	Email:	admin@jmenvironments.com

Relinquished by:	Date /Time:	Received by:	N SGS Newcastle	Date /Time:	18-9-24
Relinquished by:	Date /Time:	Received by:	<i>D. Subany</i>	Date /Time:	19/09/24 @ 11:25
Samples intact: Yes/No	Temperature:	Sample Cooler Sealed: Yes/No		Laboratory Quotation:	ENVI126319

Lab Sample ID	Sample ID	Water	Soil	Other	Preservative	No. of Containers	pH/CEC	BTEX/TPH/PAH/8HM	8 Heavy metals	OCP/PCB	Asbestos	PFAS short suite	Comments
1	MW4	X				2			x			X	Low level PFAS
2	MW5	X				2			x			X	Low level PFAS
3	MW6	X				2			x			X	Low level PFAS
4	MW7	X				2			x			X	Low level PFAS
5	MW8	X				2			x			X	Low level PFAS
6	MW9	X				2			x			X	Low level PFAS
7	MW10	X				2			x			X	Low level PFAS
8	21054 2409	x				2			x			X	Low level PFAS

SGS EHS Sydney COC
SE271280





SAMPLE RECEIPT ADVICE

SE271280

CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
COOKS HILL NSW 2300

Telephone 0427 893 668
Facsimile (Not specified)
Email james@jmenvironments.com

Project **JME21054**
Order Number **JME21054**
Samples 8

LABORATORY DETAILS

Manager Shane McDermott
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Thu 19/9/2024
Report Due Thu 26/9/2024
SGS Reference **SE271280**

SUBMISSION DETAILS

This is to confirm that 8 samples were received on Thursday 19/9/2024. Results are expected to be ready by COB Thursday 26/9/2024. Please quote SGS reference SE271280 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	19/9/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	1.7°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.



SAMPLE RECEIPT ADVICE

SE271280

CLIENT DETAILS

Client **JM ENVIRONMENTS**

Project **JME21054**

SUMMARY OF ANALYSIS

No.	Sample ID	Low Level Per- and Polyfluoroalkyl Substances	Mercury (dissolved) in Water	Trace Metals (Dissolved) in Water by ICPMS
001	MW4	30	1	7
002	MW5	30	1	7
003	MW6	30	1	7
004	MW7	30	1	7
005	MW8	30	1	7
006	MW9	30	1	7
007	MW10	30	1	7
008	21054 2409	30	1	7

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.

CLIENT DETAILS

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Project **JME21054**
 Order Number **JME21054**
 Samples **8**

LABORATORY DETAILS

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SGS Reference **SE271280 R0**
 Date Received **19/9/2024**
 Date Reported **25/9/2024**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES



Dong LIANG
 Metals/Inorganics Team Leader



Kamrul AHSAN
 Senior Chemist



Teresa NGUYEN
 Organic Chemist

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 24/9/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			18/9/2024 SE271280.001	18/9/2024 SE271280.002	18/9/2024 SE271280.003	18/9/2024 SE271280.004	18/9/2024 SE271280.005
Arsenic	µg/L	1	<1	<1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	1	1	<1	<1	1
Chromium	µg/L	1	2	3	4	3	2
Nickel	µg/L	1	<1	<1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1	<1	<1
Zinc	µg/L	5	14	20	<5	41	<5

PARAMETER	UOM	LOR	MW9	MW10	21054 2409
			WATER	WATER	WATER
			18/9/2024 SE271280.006	18/9/2024 SE271280.007	18/9/2024 SE271280.008
Arsenic	µg/L	1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	<1	<1	<1
Chromium	µg/L	1	3	4	3
Nickel	µg/L	1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1
Zinc	µg/L	5	<5	6	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 20/9/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			18/9/2024 SE271280.001	18/9/2024 SE271280.002	18/9/2024 SE271280.003	18/9/2024 SE271280.004	18/9/2024 SE271280.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

PARAMETER	UOM	LOR	MW9	MW10	21054 2409
			18/9/2024 SE271280.006	18/9/2024 SE271280.007	18/9/2024 SE271280.008
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples [AN404] Tested: 20/9/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			18/9/2024 SE271280.001	18/9/2024 SE271280.002	18/9/2024 SE271280.003	18/9/2024 SE271280.004	18/9/2024 SE271280.005
Perfluorobutanoic acid (PFBA)	µg/L	0.01	0.01	<0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	0.005	0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.008	0.002	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.003	<0.002	<0.002	<0.002	<0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	0.004	<0.002	<0.002	0.002	<0.002
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	0.014	0.010	<0.002	<0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	0.006	0.005	<0.002	0.002	0.003
Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Sum of PFOS and PFHxS	µg/L	0.002	0.020	0.015	<0.002	0.002	0.003
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	0.024	0.015	<0.002	0.004	0.003
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	0.010	0.005	<0.002	0.004	0.003

PARAMETER	UOM	LOR	MW9	MW10	21054 2409
			WATER	WATER	WATER
			18/9/2024 SE271280.006	18/9/2024 SE271280.007	18/9/2024 SE271280.008
Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002	0.008	<0.002
Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2)	µg/L	0.005	<0.005	<0.005	<0.005
Sum of PFOS and PFHxS	µg/L	0.002	<0.002	0.008	<0.002
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	<0.002	0.008	<0.002
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	<0.002	0.008	<0.002

METHOD

METHODOLOGY SUMMARY

AN020

Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.

AN311(Perth)/AN312

Mercury by Cold Vapour AAS in Waters: 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.

AN318

Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).

AN404

This method covers the analysis of per- and polyfluoroalkyl substances (PFAS) in aqueous, solid and biosolid samples and solvent extracts. After spiking with isotopically labelled quantification surrogates and sample extracts are analysed by liquid chromatography/mass spectrometry (LC-MS/MS). PFAS concentrations are determined by isotope dilution quantification. PFOS and PFHXS are determined as the total of linear and branched isomers.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or

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Project **JME21054**
Order Number **JME21054**
Samples 8

LABORATORY DETAILS

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SGS Reference **SE271280 R0**
Date Received 19 Sep 2024
Date Reported 25 Sep 2024

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
 This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
 The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Matrix Spike	Trace Metals (Dissolved) in Water by ICPMS	2 items
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SAMPLE SUMMARY

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	19/9/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	1.7°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Low Level Per- and Polyfluoroalkyl Substances (PFAS) In Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE271280.001	LB324401	18 Sep 2024	19 Sep 2024	16 Oct 2024	20 Sep 2024	18 Oct 2024	23 Sep 2024
MW5	SE271280.002	LB324401	18 Sep 2024	19 Sep 2024	16 Oct 2024	20 Sep 2024	18 Oct 2024	23 Sep 2024
MW6	SE271280.003	LB324401	18 Sep 2024	19 Sep 2024	16 Oct 2024	20 Sep 2024	18 Oct 2024	23 Sep 2024
MW7	SE271280.004	LB324401	18 Sep 2024	19 Sep 2024	16 Oct 2024	20 Sep 2024	18 Oct 2024	23 Sep 2024
MW8	SE271280.005	LB324401	18 Sep 2024	19 Sep 2024	16 Oct 2024	20 Sep 2024	18 Oct 2024	23 Sep 2024
MW9	SE271280.006	LB324401	18 Sep 2024	19 Sep 2024	16 Oct 2024	20 Sep 2024	18 Oct 2024	23 Sep 2024
MW10	SE271280.007	LB324401	18 Sep 2024	19 Sep 2024	16 Oct 2024	20 Sep 2024	18 Oct 2024	23 Sep 2024
21054 2409	SE271280.008	LB324401	18 Sep 2024	19 Sep 2024	16 Oct 2024	20 Sep 2024	18 Oct 2024	23 Sep 2024

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE271280.001	LB324374	18 Sep 2024	19 Sep 2024	16 Oct 2024	20 Sep 2024	16 Oct 2024	23 Sep 2024
MW5	SE271280.002	LB324374	18 Sep 2024	19 Sep 2024	16 Oct 2024	20 Sep 2024	16 Oct 2024	23 Sep 2024
MW6	SE271280.003	LB324374	18 Sep 2024	19 Sep 2024	16 Oct 2024	20 Sep 2024	16 Oct 2024	23 Sep 2024
MW7	SE271280.004	LB324374	18 Sep 2024	19 Sep 2024	16 Oct 2024	20 Sep 2024	16 Oct 2024	23 Sep 2024
MW8	SE271280.005	LB324374	18 Sep 2024	19 Sep 2024	16 Oct 2024	20 Sep 2024	16 Oct 2024	23 Sep 2024
MW9	SE271280.006	LB324374	18 Sep 2024	19 Sep 2024	16 Oct 2024	20 Sep 2024	16 Oct 2024	23 Sep 2024
MW10	SE271280.007	LB324374	18 Sep 2024	19 Sep 2024	16 Oct 2024	20 Sep 2024	16 Oct 2024	23 Sep 2024
21054 2409	SE271280.008	LB324374	18 Sep 2024	19 Sep 2024	16 Oct 2024	20 Sep 2024	16 Oct 2024	23 Sep 2024

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE271280.001	LB324725	18 Sep 2024	19 Sep 2024	17 Mar 2025	24 Sep 2024	17 Mar 2025	25 Sep 2024
MW5	SE271280.002	LB324725	18 Sep 2024	19 Sep 2024	17 Mar 2025	24 Sep 2024	17 Mar 2025	25 Sep 2024
MW6	SE271280.003	LB324725	18 Sep 2024	19 Sep 2024	17 Mar 2025	24 Sep 2024	17 Mar 2025	25 Sep 2024
MW7	SE271280.004	LB324725	18 Sep 2024	19 Sep 2024	17 Mar 2025	24 Sep 2024	17 Mar 2025	25 Sep 2024
MW8	SE271280.005	LB324725	18 Sep 2024	19 Sep 2024	17 Mar 2025	24 Sep 2024	17 Mar 2025	25 Sep 2024
MW9	SE271280.006	LB324725	18 Sep 2024	19 Sep 2024	17 Mar 2025	24 Sep 2024	17 Mar 2025	25 Sep 2024
MW10	SE271280.007	LB324725	18 Sep 2024	19 Sep 2024	17 Mar 2025	24 Sep 2024	17 Mar 2025	25 Sep 2024
21054 2409	SE271280.008	LB324725	18 Sep 2024	19 Sep 2024	17 Mar 2025	24 Sep 2024	17 Mar 2025	25 Sep 2024

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %	
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE271280.001	%	40 - 300%	96	
	MW5	SE271280.002	%	40 - 300%	79	
	MW6	SE271280.003	%	40 - 300%	107	
	MW7	SE271280.004	%	40 - 300%	95	
	MW8	SE271280.005	%	40 - 300%	102	
	MW9	SE271280.006	%	40 - 300%	96	
	MW10	SE271280.007	%	40 - 300%	99	
	21054 2409	SE271280.008	%	40 - 300%	103	
	(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE271280.001	%	40 - 300%	103
		MW5	SE271280.002	%	40 - 300%	91
MW6		SE271280.003	%	40 - 300%	104	
MW7		SE271280.004	%	40 - 300%	97	
MW8		SE271280.005	%	40 - 300%	95	
MW9		SE271280.006	%	40 - 300%	95	
MW10		SE271280.007	%	40 - 300%	100	
21054 2409		SE271280.008	%	40 - 300%	110	
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard		MW4	SE271280.001	%	40 - 300%	55
		MW5	SE271280.002	%	40 - 300%	65
	MW6	SE271280.003	%	40 - 300%	65	
	MW7	SE271280.004	%	40 - 300%	62	
	MW8	SE271280.005	%	40 - 300%	64	
	MW9	SE271280.006	%	40 - 300%	54	
	MW10	SE271280.007	%	40 - 300%	62	
	21054 2409	SE271280.008	%	40 - 300%	55	
	(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	MW4	SE271280.001	%	40 - 150%	99
		MW5	SE271280.002	%	40 - 150%	94
MW6		SE271280.003	%	40 - 150%	98	
MW7		SE271280.004	%	40 - 150%	98	
MW8		SE271280.005	%	40 - 150%	95	
MW9		SE271280.006	%	40 - 150%	91	
MW10		SE271280.007	%	40 - 150%	95	
21054 2409		SE271280.008	%	40 - 150%	101	
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard		MW4	SE271280.001	%	40 - 150%	97
		MW5	SE271280.002	%	40 - 150%	94
	MW6	SE271280.003	%	40 - 150%	97	
	MW7	SE271280.004	%	40 - 150%	97	
	MW8	SE271280.005	%	40 - 150%	93	
	MW9	SE271280.006	%	40 - 150%	94	
	MW10	SE271280.007	%	40 - 150%	95	
	21054 2409	SE271280.008	%	40 - 150%	101	
	(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	MW4	SE271280.001	%	40 - 150%	98
		MW5	SE271280.002	%	40 - 150%	85
MW6		SE271280.003	%	40 - 150%	96	
MW7		SE271280.004	%	40 - 150%	98	
MW8		SE271280.005	%	40 - 150%	90	
MW9		SE271280.006	%	40 - 150%	89	
MW10		SE271280.007	%	40 - 150%	88	
21054 2409		SE271280.008	%	40 - 150%	97	
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard		MW4	SE271280.001	%	5 - 150%	92
		MW5	SE271280.002	%	5 - 150%	93
	MW6	SE271280.003	%	5 - 150%	94	
	MW7	SE271280.004	%	5 - 150%	97	
	MW8	SE271280.005	%	5 - 150%	92	
	MW9	SE271280.006	%	5 - 150%	92	
	MW10	SE271280.007	%	5 - 150%	92	
	21054 2409	SE271280.008	%	5 - 150%	96	
	(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW4	SE271280.001	%	40 - 150%	96
		MW5	SE271280.002	%	40 - 150%	90
MW6		SE271280.003	%	40 - 150%	96	
MW7		SE271280.004	%	40 - 150%	101	
MW8		SE271280.005	%	40 - 150%	99	

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW9	SE271280.006	%	40 - 150%	97
	MW10	SE271280.007	%	40 - 150%	95
	21054 2409	SE271280.008	%	40 - 150%	103
	MW4	SE271280.001	%	40 - 150%	100
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	MW5	SE271280.002	%	40 - 150%	97
	MW6	SE271280.003	%	40 - 150%	98
	MW7	SE271280.004	%	40 - 150%	98
	MW8	SE271280.005	%	40 - 150%	100
	MW9	SE271280.006	%	40 - 150%	97
	MW10	SE271280.007	%	40 - 150%	97
	21054 2409	SE271280.008	%	40 - 150%	102
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	MW4	SE271280.001	%	35 - 150%	101
	MW5	SE271280.002	%	35 - 150%	95
	MW6	SE271280.003	%	35 - 150%	96
	MW7	SE271280.004	%	35 - 150%	98
	MW8	SE271280.005	%	35 - 150%	98
	MW9	SE271280.006	%	35 - 150%	97
	MW10	SE271280.007	%	35 - 150%	98
	21054 2409	SE271280.008	%	35 - 150%	105
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	MW4	SE271280.001	%	40 - 150%	73
	MW5	SE271280.002	%	40 - 150%	74
	MW6	SE271280.003	%	40 - 150%	82
	MW7	SE271280.004	%	40 - 150%	78
	MW8	SE271280.005	%	40 - 150%	75
	MW9	SE271280.006	%	40 - 150%	72
	MW10	SE271280.007	%	40 - 150%	79
	21054 2409	SE271280.008	%	40 - 150%	79

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result
LB324401.001	Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01
	Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002
	Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002
	Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002
	Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	<0.002
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002
	Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002
	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	µg/L	0.005	<0.005

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB324374.001	Mercury	mg/L	0.0001	<0.0001

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB324725.001	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE271309.015	LB324374.014	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0
SE271317.012	LB324374.017	Mercury	µg/L	0.0001	<0.0001	<0.0001	176	0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE271280.007	LB324725.014	Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	4	4	40	6
		Copper	µg/L	1	<1	<1	200	0
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	200	0
SE271374.001	LB324725.024	Zinc	µg/L	5	6	5	108	10
		Arsenic	µg/L	1	<1	<1	147	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	<1	<1	200	0
		Copper	µg/L	1	1	1	101	22
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	124	0
Zinc	µg/L	5	30	29	32	3		

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB324401.002	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.18	0.2	40 - 160	89
	Perfluorooctanoic acid (PFOA)	µg/L	0.002	0.21	0.2	40 - 160	104
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	0.18	0.2	40 - 160	91

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB324725.002	Arsenic	µg/L	1	20	20	80 - 120	101
	Cadmium	µg/L	0.1	21	20	80 - 120	103
	Chromium	µg/L	1	21	20	80 - 120	105
	Copper	µg/L	1	21	20	80 - 120	107
	Lead	µg/L	1	20	20	80 - 120	99
	Nickel	µg/L	1	20	20	80 - 120	102
	Zinc	µg/L	5	23	20	80 - 120	114

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Parth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE271280.001	LB324374.004	Mercury	mg/L	0.0001	0.0020	<0.0001	0.008	98

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE271249.001	LB324725.004	Arsenic	µg/L	1	24	0.59115166	20	117
		Cadmium	µg/L	0.1	19	0.00520075	20	96
		Chromium	µg/L	1	19	0.06849598	20	97
		Copper	µg/L	1	10	-0.0342284	20	52 @
		Lead	µg/L	1	11	0.03896391	20	54 @
		Nickel	µg/L	1	24	6.34713102	20	86
		Zinc	µg/L	5	44	24.03422804	20	101

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

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CHAIN OF CUSTODY & ANALYSIS REQUEST

Sample Date: **22/11/2023**
 25/10/24
 Page 1 of 1

Company Name:	JM Environments	Project Name/No:	JME 21054
Address:	37 Tooke St COOKS HILL NSW 2300	Purchase Order No:	JME 21054
Contact Name:	James McMahon	Email:	james@jmenvironments.com
Telephone:	0427 893 668	Email:	admin@jmenvironments.com

Relinquished by:	Date /Time:	Received by:	Date /Time:
		N SGS Newcastle	23-10-24 13:15
Relinquished by:	Date /Time:	Received by:	24/10/24 11:45
Samples intact: Yes/No	Temperature: 13.2C	Sample Cooler Sealed:	Laboratory Quotation:

Lab Sample ID	Sample ID	Water	Soil	Other	Preservative	No. of Containers	pH/CEC	BTEX/TPH/PAH/8HM	8HM	OCP/PCB	Asbestos FA/AF	Chromium Suite*	VOC	PFAS short suite	ENM	Comments
1	MW 4	X			✓	2			X					X		* Pls report all parameters for Chromium suite
2	MW 5	X			✓	2								X		
3	MW 6	X			✓	2								X		
4	MW 7	X			✓	2								X		
5	MW 8	X			✓	2								X		
6	MW 9	X			✓	2								X		
7	MW 10	X			✓	2								X		
7	QC 2410				✓	2										

SGS EHS Sydney COC
SE273061

* Pls report all parameters for Chromium suite

Yin, Emily (Alexandria)

From: admin@jmenvironments.com
Sent: Thursday, 24 October 2024 6:25 PM
To: AU.SampleReceipt.Sydney, AU (Sydney); 'James McMahon'
Cc: Luong, Thi Song Van (Alexandria)
Subject: [EXTERNAL] RE: SE273061 - MW9 not received

*** WARNING: this message is from an EXTERNAL SENDER. Please be cautious, particularly with links and attachments. ***

Hi Emily,

8 - 9
Can you please call one MW4a and one MW5a and run for the same tests.

Regards,

Heather McMahon
JM Environments
admin@jmenvironments.com
0401 773 044



James A McMahon Pty Ltd trading as JM Environments

From: AU.SampleReceipt.Sydney, AU (Sydney) <AU.SampleReceipt.Sydney@sgs.com>
Sent: Thursday, 24 October 2024 6:19 PM
To: James McMahon <james@jmenvironments.com>; admin@jmenvironments.com
Cc: Luong, Thi Song Van (Alexandria) <ThiSongVan.Luong@sgs.com>
Subject: SE273061 - MW9 not received

Dear James,

Please advise if any of these samples is MW9.
Please advise as soon as possible.
Thank You.

Regards,

Emily Yin
Environment, Health & Safety
Sample Receipt

SGS Australia Pty Ltd
Unit 16, 33 Maddox Street
Alexandria NSW 2015



SAMPLE RECEIPT ADVICE

SE273061

CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
COOKS HILL NSW 2300

Telephone 0427 893 668
Facsimile (Not specified)
Email james@jmenvironments.com

Project **JME21054**
Order Number **JME21054**
Samples 9

LABORATORY DETAILS

Manager Shane McDermott
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Thu 24/10/2024
Report Due Thu 31/10/2024
SGS Reference **SE273061**

SUBMISSION DETAILS

This is to confirm that 9 samples were received on Thursday 24/10/2024. Results are expected to be ready by COB Thursday 31/10/2024. Please quote SGS reference SE273061 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	9 Water	Type of documentation received	COC
Date documentation received	24/10/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	13.4°C
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		

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

MW not received.

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CLIENT DETAILS

Client **JM ENVIRONMENTS**

Project **JME21054**

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Per- and Polyfluoroalkyl Substances (PFAS) in	Trace Metals (Dissolved) in Water by ICPMS
001	MW4	1	30	7
002	MW5	1	30	7
003	MW6	1	30	7
004	MW7	1	30	7
005	MW8	1	30	7
006	MW10	1	30	7
007	QC2410	1	30	7
008	MW4a	-	30	-
009	MW5a	1	-	7

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 .

CLIENT DETAILS

Contact **James McMahon**
 Client **JM ENVIRONMENTS**
 Address **37 TOOKE STREET
 COOKS HILL NSW 2300**

Telephone **0427 893 668**
 Facsimile **(Not specified)**
 Email **james@jmenvironments.com**

Project **JME21054**
 Order Number **JME21054**
 Samples **9**

LABORATORY DETAILS

Manager **Shane McDermott**
 Laboratory **SGS Alexandria Environmental**
 Address **Unit 16, 33 Maddox St
 Alexandria NSW 2015**

Telephone **+61 2 8594 0400**
 Facsimile **+61 2 8594 0499**
 Email **au.environmental.sydney@sgs.com**

SGS Reference **SE273061 R0**
 Date Received **24/10/2024**
 Date Reported **31/10/2024**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES



Dong LIANG
 Metals/Inorganics Team Leader



Kamrul AHSAN
 Senior Chemist



Teresa NGUYEN
 Organic Chemist

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 29/10/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			23/10/2024 SE273061.001	23/10/2024 SE273061.002	23/10/2024 SE273061.003	23/10/2024 SE273061.004	23/10/2024 SE273061.005
Arsenic	µg/L	1	<1	<1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	<1	<1	<1	<1	<1
Chromium	µg/L	1	3	3	3	3	1
Nickel	µg/L	1	<1	<1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1	<1	<1
Zinc	µg/L	5	<5	23	<5	89	<5

PARAMETER	UOM	LOR	MW10	QC2410	MW5a
			WATER	WATER	WATER
			23/10/2024 SE273061.006	23/10/2024 SE273061.007	23/10/2024 SE273061.009
Arsenic	µg/L	1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	<1	<1	<1
Chromium	µg/L	1	4	3	2
Nickel	µg/L	1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1
Zinc	µg/L	5	6	<5	11

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 25/10/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER - 23/10/2024 SE273061.001	WATER - 23/10/2024 SE273061.002	WATER - 23/10/2024 SE273061.003	WATER - 23/10/2024 SE273061.004	WATER - 23/10/2024 SE273061.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

PARAMETER	UOM	LOR	MW10	QC2410	MW5a
			WATER - 23/10/2024 SE273061.006	WATER - 23/10/2024 SE273061.007	WATER - 23/10/2024 SE273061.009
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples [AN404] Tested: 25/10/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER - 23/10/2024 SE273061.001	WATER - 23/10/2024 SE273061.002	WATER - 23/10/2024 SE273061.003	WATER - 23/10/2024 SE273061.004	WATER - 23/10/2024 SE273061.005
Perfluorobutanoic acid (PFBA)	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluoropentanoic acid (PFPeA)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorohexanoic acid (PFHxA)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanoic acid (PFOA)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononane sulfonic acid (PFNS)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sum of PFOS and PFHxS	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	MW10	QC2410	MW4a
			WATER - 23/10/2024 SE273061.006	WATER - 23/10/2024 SE273061.007	WATER - 23/10/2024 SE273061.008
Perfluorobutanoic acid (PFBA)	µg/L	0.05	<0.05	<0.05	<0.05
Perfluoropentanoic acid (PFPeA)	µg/L	0.01	<0.01	<0.01	<0.01
Perfluorohexanoic acid (PFHxA)	µg/L	0.01	<0.01	<0.01	<0.01
Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	<0.01	<0.01	<0.01
Perfluorooctanoic acid (PFOA)	µg/L	0.01	<0.01	<0.01	<0.01
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.01	<0.01	<0.01	<0.01
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	<0.01	<0.01	<0.01
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.01	<0.01	<0.01	<0.01
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	0.01
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	<0.01	<0.01	<0.01
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	<0.01	<0.01	<0.01
Perfluorononane sulfonic acid (PFNS)	µg/L	0.01	<0.01	<0.01	<0.01
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.01	<0.01	<0.01	<0.01
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.01	<0.01	<0.01	<0.01
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.01	<0.01	<0.01	<0.01
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2)	µg/L	0.01	<0.01	<0.01	<0.01
Sum of PFOS and PFHxS	µg/L	0.01	<0.01	<0.01	0.01
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.01	<0.01	<0.01	0.01
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.01	<0.01	<0.01	<0.01

METHOD

METHODOLOGY SUMMARY

AN020

Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.

AN311(Perth)/AN312

Mercury by Cold Vapour AAS in Waters: 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.

AN318

Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).

AN404

This method covers the analysis of per- and polyfluoroalkyl substances (PFAS) in aqueous, solid and biosolid samples and solvent extracts. After spiking with isotopically labelled quantification surrogates and sample extracts are analysed by liquid chromatography/mass spectrometry (LC-MS/MS). PFAS concentrations are determined by isotope dilution quantification. PFOS and PFHXS are determined as the total of linear and branched isomers.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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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Project **JME21054**
 Order Number **JME21054**
 Samples 9

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SGS Reference **SE273061 R0**
 Date Received 24 Oct 2024
 Date Reported 31 Oct 2024

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.

This QA/QC Statement must be read in conjunction with the referenced Analytical Report.

The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	9 Water	Type of documentation received	COC
Date documentation received	24/10/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	13.4°C
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		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE273061.001	LB327887	23 Oct 2024	24 Oct 2024	20 Nov 2024	25 Oct 2024	20 Nov 2024	29 Oct 2024
MW5	SE273061.002	LB327887	23 Oct 2024	24 Oct 2024	20 Nov 2024	25 Oct 2024	20 Nov 2024	29 Oct 2024
MW6	SE273061.003	LB327887	23 Oct 2024	24 Oct 2024	20 Nov 2024	25 Oct 2024	20 Nov 2024	29 Oct 2024
MW7	SE273061.004	LB327887	23 Oct 2024	24 Oct 2024	20 Nov 2024	25 Oct 2024	20 Nov 2024	29 Oct 2024
MW8	SE273061.005	LB327887	23 Oct 2024	24 Oct 2024	20 Nov 2024	25 Oct 2024	20 Nov 2024	29 Oct 2024
MW10	SE273061.006	LB327887	23 Oct 2024	24 Oct 2024	20 Nov 2024	25 Oct 2024	20 Nov 2024	29 Oct 2024
QC2410	SE273061.007	LB327887	23 Oct 2024	24 Oct 2024	20 Nov 2024	25 Oct 2024	20 Nov 2024	29 Oct 2024
MW5a	SE273061.009	LB327887	23 Oct 2024	24 Oct 2024	20 Nov 2024	25 Oct 2024	20 Nov 2024	29 Oct 2024

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE273061.001	LB327940	23 Oct 2024	24 Oct 2024	20 Nov 2024	25 Oct 2024	22 Nov 2024	30 Oct 2024
MW5	SE273061.002	LB327940	23 Oct 2024	24 Oct 2024	20 Nov 2024	25 Oct 2024	22 Nov 2024	30 Oct 2024
MW6	SE273061.003	LB327940	23 Oct 2024	24 Oct 2024	20 Nov 2024	25 Oct 2024	22 Nov 2024	30 Oct 2024
MW7	SE273061.004	LB327940	23 Oct 2024	24 Oct 2024	20 Nov 2024	25 Oct 2024	22 Nov 2024	30 Oct 2024
MW8	SE273061.005	LB327940	23 Oct 2024	24 Oct 2024	20 Nov 2024	25 Oct 2024	22 Nov 2024	30 Oct 2024
MW10	SE273061.006	LB327940	23 Oct 2024	24 Oct 2024	20 Nov 2024	25 Oct 2024	22 Nov 2024	30 Oct 2024
QC2410	SE273061.007	LB327940	23 Oct 2024	24 Oct 2024	20 Nov 2024	25 Oct 2024	22 Nov 2024	30 Oct 2024
MW4a	SE273061.008	LB327940	23 Oct 2024	24 Oct 2024	20 Nov 2024	25 Oct 2024	22 Nov 2024	30 Oct 2024

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE273061.001	LB328180	23 Oct 2024	24 Oct 2024	21 Apr 2025	29 Oct 2024	21 Apr 2025	30 Oct 2024
MW5	SE273061.002	LB328180	23 Oct 2024	24 Oct 2024	21 Apr 2025	29 Oct 2024	21 Apr 2025	30 Oct 2024
MW6	SE273061.003	LB328180	23 Oct 2024	24 Oct 2024	21 Apr 2025	29 Oct 2024	21 Apr 2025	30 Oct 2024
MW7	SE273061.004	LB328180	23 Oct 2024	24 Oct 2024	21 Apr 2025	29 Oct 2024	21 Apr 2025	30 Oct 2024
MW8	SE273061.005	LB328180	23 Oct 2024	24 Oct 2024	21 Apr 2025	29 Oct 2024	21 Apr 2025	30 Oct 2024
MW10	SE273061.006	LB328180	23 Oct 2024	24 Oct 2024	21 Apr 2025	29 Oct 2024	21 Apr 2025	30 Oct 2024
QC2410	SE273061.007	LB328180	23 Oct 2024	24 Oct 2024	21 Apr 2025	29 Oct 2024	21 Apr 2025	30 Oct 2024
MW5a	SE273061.009	LB328180	23 Oct 2024	24 Oct 2024	21 Apr 2025	29 Oct 2024	21 Apr 2025	30 Oct 2024

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE273061.001	%	40 - 300%	121
	MW5	SE273061.002	%	40 - 300%	86
	MW6	SE273061.003	%	40 - 300%	103
	MW7	SE273061.004	%	40 - 300%	98
	MW8	SE273061.005	%	40 - 300%	112
	MW10	SE273061.006	%	40 - 300%	101
	QC2410	SE273061.007	%	40 - 300%	91
	MW4a	SE273061.008	%	40 - 300%	87
(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE273061.001	%	40 - 300%	116
	MW5	SE273061.002	%	40 - 300%	84
	MW6	SE273061.003	%	40 - 300%	95
	MW7	SE273061.004	%	40 - 300%	83
	MW8	SE273061.005	%	40 - 300%	98
	MW10	SE273061.006	%	40 - 300%	92
	QC2410	SE273061.007	%	40 - 300%	84
	MW4a	SE273061.008	%	40 - 300%	85
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE273061.001	%	40 - 300%	91
	MW5	SE273061.002	%	40 - 300%	72
	MW6	SE273061.003	%	40 - 300%	74
	MW7	SE273061.004	%	40 - 300%	80
	MW8	SE273061.005	%	40 - 300%	77
	MW10	SE273061.006	%	40 - 300%	79
	QC2410	SE273061.007	%	40 - 300%	82
	MW4a	SE273061.008	%	40 - 300%	63
(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	MW4	SE273061.001	%	40 - 150%	85
	MW5	SE273061.002	%	40 - 150%	89
	MW6	SE273061.003	%	40 - 150%	89
	MW7	SE273061.004	%	40 - 150%	94
	MW8	SE273061.005	%	40 - 150%	88
	MW10	SE273061.006	%	40 - 150%	85
	QC2410	SE273061.007	%	40 - 150%	86
	MW4a	SE273061.008	%	40 - 150%	86
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard	MW4	SE273061.001	%	40 - 150%	85
	MW5	SE273061.002	%	40 - 150%	90
	MW6	SE273061.003	%	40 - 150%	89
	MW7	SE273061.004	%	40 - 150%	92
	MW8	SE273061.005	%	40 - 150%	92
	MW10	SE273061.006	%	40 - 150%	88
	QC2410	SE273061.007	%	40 - 150%	88
	MW4a	SE273061.008	%	40 - 150%	87
(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	MW4	SE273061.001	%	40 - 150%	84
	MW5	SE273061.002	%	40 - 150%	85
	MW6	SE273061.003	%	40 - 150%	84
	MW7	SE273061.004	%	40 - 150%	89
	MW8	SE273061.005	%	40 - 150%	88
	MW10	SE273061.006	%	40 - 150%	81
	QC2410	SE273061.007	%	40 - 150%	89
	MW4a	SE273061.008	%	40 - 150%	85
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard	MW4	SE273061.001	%	5 - 150%	86
	MW5	SE273061.002	%	5 - 150%	86
	MW6	SE273061.003	%	5 - 150%	86
	MW7	SE273061.004	%	5 - 150%	90
	MW8	SE273061.005	%	5 - 150%	90
	MW10	SE273061.006	%	5 - 150%	87
	QC2410	SE273061.007	%	5 - 150%	90
	MW4a	SE273061.008	%	5 - 150%	93
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW4	SE273061.001	%	40 - 150%	84
	MW5	SE273061.002	%	40 - 150%	87
	MW6	SE273061.003	%	40 - 150%	84
	MW7	SE273061.004	%	40 - 150%	83
	MW8	SE273061.005	%	40 - 150%	87

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW10	SE273061.006	%	40 - 150%	87
	QC2410	SE273061.007	%	40 - 150%	90
	MW4a	SE273061.008	%	40 - 150%	87
	MW4	SE273061.001	%	40 - 150%	85
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	MW5	SE273061.002	%	40 - 150%	86
	MW6	SE273061.003	%	40 - 150%	85
	MW7	SE273061.004	%	40 - 150%	86
	MW8	SE273061.005	%	40 - 150%	88
	MW10	SE273061.006	%	40 - 150%	84
	QC2410	SE273061.007	%	40 - 150%	90
	MW4a	SE273061.008	%	40 - 150%	87
	MW4	SE273061.001	%	35 - 150%	85
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	MW5	SE273061.002	%	35 - 150%	81
	MW6	SE273061.003	%	35 - 150%	86
	MW7	SE273061.004	%	35 - 150%	85
	MW8	SE273061.005	%	35 - 150%	86
	MW10	SE273061.006	%	35 - 150%	82
	QC2410	SE273061.007	%	35 - 150%	90
	MW4a	SE273061.008	%	35 - 150%	84
	MW4	SE273061.001	%	40 - 150%	78
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	MW5	SE273061.002	%	40 - 150%	75
	MW6	SE273061.003	%	40 - 150%	67
	MW7	SE273061.004	%	40 - 150%	80
	MW8	SE273061.005	%	40 - 150%	70
	MW10	SE273061.006	%	40 - 150%	70
	QC2410	SE273061.007	%	40 - 150%	79
	MW4a	SE273061.008	%	40 - 150%	76

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB327887.001	Mercury	mg/L	0.0001	<0.0001

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result
LB327940.001	Perfluorobutanoic acid (PFBA)	µg/L	0.05	<0.05
	Perfluoropentanoic acid (PFPeA)	µg/L	0.01	<0.01
	Perfluorohexanoic acid (PFHxA)	µg/L	0.01	<0.01
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	<0.01
	Perfluorooctanoic acid (PFOA)	µg/L	0.01	<0.01
	Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.01	<0.01
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	<0.01
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.01	<0.01
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	<0.01
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	<0.01
	Perfluorononane sulfonic acid (PFNS)	µg/L	0.01	<0.01
	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.01	<0.01
	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.01	<0.01
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.01	<0.01	
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	µg/L	0.01	<0.01	

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB328180.001	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5
LB328180.025	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE273061.009	LB327887.014	Mercury	µg/L	0.0001	<0.0001	<0.0001	134	0

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE273029.010	LB327940.021	Perfluorobutanoic acid (PFBA)	µg/L	0.05	0.00219473260.0012108980		200	0
		Perfluoropentanoic acid (PFPeA)	µg/L	0.01	0.00109736630.0008072653		200	0
		Perfluorohexanoic acid (PFHxA)	µg/L	0.01	0.00039904220.0007063572		200	0
		Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	0	0	200	0
		Perfluorooctanoic acid (PFOA)	µg/L	0.01	0.0002992817	0	200	0
		Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.01	0	0	200	0
		Perfluorobutane sulfonic acid (PFBS)	µg/L	0.01	0	0	200	0
		Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.01	0	0	200	0
		Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.00039904220.0005045408		200	0
		Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	0	0	200	0
		Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	0	0	200	0
		Perfluorononane sulfonic acid (PFNS)	µg/L	0.01	0	0	200	0
		1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.01	0	0	200	0
		1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.01	0	0	200	0
		1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.01	0	0	200	0
		1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2)	µg/L	0.01	0	0	200	0
		Sum of PFOS and PFHxS	µg/L	0.01	0	0	200	0
		Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.01	0	0	200	0
		Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.01	0	0	200	0
		(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	91.769	89.872	200	2
		(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	85.42	82.231	200	4
		(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	86.845	82.068	200	6
		(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	86.727	80.146	200	8
		(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	87.014	88.406	200	2
		(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	88.438	86.248	200	3
		(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	91.033	88.888	200	2
		(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	78.771	73.097	200	7
		(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	93.684	87.332	200	7
		(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	81.693	82.279	200	1
		(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	87.115	71.018	200	20

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE273061.007	LB328180.014	Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	3	3	48	3
		Copper	µg/L	1	<1	<1	200	0
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	200	0
		Zinc	µg/L	5	<5	<5	200	0
SE273196.045	LB328180.028	Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	<1	<1	200	0
		Copper	µg/L	1	<1	<1	200	0
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	200	0
		Zinc	µg/L	5	<5	<5	200	0
SE273210.030	LB328180.031	Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	<1	<1	200	0
		Copper	µg/L	1	<1	<1	200	0
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	200	0
		Zinc	µg/L	5	<5	<5	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB327940.002	Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	0.20	0.2	40 - 160	99
	Perfluorooctanoic acid (PFOA)	µg/L	0.01	0.21	0.2	40 - 160	107
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.01	0.18	0.2	40 - 160	91

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB328180.002	Arsenic	µg/L	1	22	20	80 - 120	110
	Cadmium	µg/L	0.1	22	20	80 - 120	109
	Chromium	µg/L	1	21	20	80 - 120	106
	Copper	µg/L	1	20	20	80 - 120	101
	Lead	µg/L	1	20	20	80 - 120	100
	Nickel	µg/L	1	21	20	80 - 120	103
	Zinc	µg/L	5	22	20	80 - 120	111
LB328180.026	Arsenic	µg/L	1	23	20	80 - 120	113
	Cadmium	µg/L	0.1	22	20	80 - 120	110
	Chromium	µg/L	1	21	20	80 - 120	106
	Copper	µg/L	1	20	20	80 - 120	101
	Lead	µg/L	1	21	20	80 - 120	103
	Nickel	µg/L	1	20	20	80 - 120	102
	Zinc	µg/L	5	23	20	80 - 120	113

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE273210.030	LB328180.030	Arsenic	µg/L	1	23	<1	20	115
		Cadmium	µg/L	0.1	22	<0.1	20	111
		Chromium	µg/L	1	22	<1	20	107
		Copper	µg/L	1	21	<1	20	102
		Lead	µg/L	1	21	<1	20	104
		Nickel	µg/L	1	21	<1	20	103
		Zinc	µg/L	5	23	<5	20	112

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

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CHAIN OF CUSTODY & ANALYSIS REQUEST

Sample Date: 18/11/2024

Company Name:	JM Environments	Project Name/No:	JME21054
Address:	37 Tooke St	Purchase Order No:	JME21054
	COOKS HILL NSW 2300	Results Required By:	Standard
Contact Name:	James McMahon	Email:	james@jmenvironments.com
Telephone	0427 893 668	Email:	admin@jmenvironments.com

Relinquished by: <i>Hew</i>	Date /Time: <i>19/11 12:30pm</i>	Received by: SGS Newcastle	Date /Time: <i>19-11-24 12:40</i>
Relinquished by:	Date /Time:	Received by: <i>[Signature]</i>	Date /Time: <i>20/11/24 @ 11:50</i>
Samples intact: Yes/No	Temperature:	Sample Cooler Sealed: Yes/No	Laboratory Quotation: ENV1126319

Lab Sample ID	Sample ID	Water	Soil	Other	Preservative	No. of Containers	pH/CEC	BTEX/TPH/PAH/8HM	8 Heavy metals	OCP/PCB	Asbestos	PFAS short suite	Comments
<i>1</i>	MW4	X				2			X			X	Low level PFAS
<i>2</i>	MW5	X				2			X			X	Low level PFAS
<i>3</i>	MW6	X				2			X			X	Low level PFAS
<i>4</i>	MW7	X				2			X			X	Low level PFAS
<i>5</i>	MW8	X				2			X			X	Low level PFAS
<i>6</i>	MW9	X				2			X			X	Low level PFAS
<i>7</i>	MW10	X				2			X			X	Low level PFAS
<i>8</i>	21054 2411	X				2			X			X	Low level PFAS

SGS EHS Sydney COC
SE274345





SAMPLE RECEIPT ADVICE

SE274345

CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
COOKS HILL NSW 2300

Telephone 0427 893 668
Facsimile (Not specified)
Email james@jmenvironments.com

Project **JME 21054**
Order Number **JME 21054**
Samples 8

LABORATORY DETAILS

Manager Shane McDermott
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Wed 20/11/2024
Report Due Wed 27/11/2024
SGS Reference **SE274345**

SUBMISSION DETAILS

This is to confirm that 8 samples were received on Wednesday 20/11/2024. Results are expected to be ready by COB Wednesday 27/11/2024. Please quote SGS reference SE274345 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	20/11/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	16.8°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

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SAMPLE RECEIPT ADVICE

SE274345

CLIENT DETAILS

Client **JM ENVIRONMENTS**

Project **JME 21054**

SUMMARY OF ANALYSIS

No.	Sample ID	Low Level Per- and Polyfluoroalkyl	Mercury (dissolved) in Water	Trace Metals (Dissolved) in Water by ICPMS
001	MW4	30	1	7
002	MW5	30	1	7
003	MW6	30	1	7
004	MW7	30	1	7
005	MW8	30	1	7
006	MW9	30	1	7
007	MW10	30	1	7
008	21054 2411	30	1	7

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 .

CLIENT DETAILS

Contact **James McMahon**
 Client **JM ENVIRONMENTS**
 Address **37 TOOKE STREET
 COOKS HILL NSW 2300**

Telephone **0427 893 668**
 Facsimile **(Not specified)**
 Email **james@jmenvironments.com**

Project **JME 21054**
 Order Number **JME 21054**
 Samples **8**

LABORATORY DETAILS

Manager **Shane McDermott**
 Laboratory **SGS Alexandria Environmental**
 Address **Unit 16, 33 Maddox St
 Alexandria NSW 2015**

Telephone **+61 2 8594 0400**
 Facsimile **+61 2 8594 0499**
 Email **au.environmental.sydney@sgs.com**

SGS Reference **SE274345 R0**
 Date Received **20/11/2024**
 Date Reported **25/11/2024**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES



Dong LIANG
 Metals/Inorganics Team Leader



Ly Kim HA
 Organic Section Head

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 20/11/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			18/11/2024 SE274345.001	18/11/2024 SE274345.002	18/11/2024 SE274345.003	18/11/2024 SE274345.004	18/11/2024 SE274345.005
Arsenic	µg/L	1	<1	<1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	<1	<1	<1	<1	<1
Chromium	µg/L	1	3	3	3	3	1
Nickel	µg/L	1	<1	<1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1	<1	<1
Zinc	µg/L	5	11	16	<5	33	<5

PARAMETER	UOM	LOR	MW9	MW10	21054 2411
			WATER	WATER	WATER
			18/11/2024 SE274345.006	18/11/2024 SE274345.007	18/11/2024 SE274345.008
Arsenic	µg/L	1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	<1	<1	<1
Chromium	µg/L	1	3	4	3
Nickel	µg/L	1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1
Zinc	µg/L	5	<5	10	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 21/11/2024

PARAMETER	UOM	LOR	MW4 WATER - 18/11/2024 SE274345.001	MW5 WATER - 18/11/2024 SE274345.002	MW6 WATER - 18/11/2024 SE274345.003	MW7 WATER - 18/11/2024 SE274345.004	MW8 WATER - 18/11/2024 SE274345.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001

PARAMETER	UOM	LOR	MW9 WATER - 18/11/2024 SE274345.006	MW10 WATER - 18/11/2024 SE274345.007	21054 2411 WATER - 18/11/2024 SE274345.008
Mercury	mg/L	0.0001	<0.0001	<0.0001	0.0002

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples [AN404] Tested: 22/11/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			18/11/2024 SE274345.001	18/11/2024 SE274345.002	18/11/2024 SE274345.003	18/11/2024 SE274345.004	18/11/2024 SE274345.005
Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.006	0.003	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	0.003	<0.002	<0.002	0.002	0.004
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	0.009	0.007	<0.002	<0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	0.005	0.004	<0.002	0.004	0.004
Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Sum of PFOS and PFHxS	µg/L	0.002	0.014	0.011	<0.002	0.004	0.004
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	0.017	0.011	<0.002	0.006	0.008
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	0.008	0.004	<0.002	0.006	0.008

PARAMETER	UOM	LOR	MW9	MW10	21054 2411
			WATER	WATER	WATER
			18/11/2024 SE274345.006	18/11/2024 SE274345.007	18/11/2024 SE274345.008
Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002	0.007	<0.002
Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2)	µg/L	0.005	<0.005	<0.005	<0.005
Sum of PFOS and PFHxS	µg/L	0.002	<0.002	0.007	<0.002
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	<0.002	0.007	<0.002
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	<0.002	0.007	<0.002

METHOD

METHODOLOGY SUMMARY

AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: 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.
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
AN404	This method covers the analysis of per- and polyfluoroalkyl substances (PFAS) in aqueous, solid and biosolid samples and solvent extracts. After spiking with isotopically labelled quantification surrogates and sample extracts are analysed by liquid chromatography/mass spectrometry (LC-MS/MS). PFAS concentrations are determined by isotope dilution quantification. PFOS and PFHXS are determined as the total of linear and branched isomers.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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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STATEMENT OF QA/QC PERFORMANCE

SE274345 R0

CLIENT DETAILS

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COOKS HILL NSW 2300

Telephone 0427 893 668
Facsimile (Not specified)
Email james@jmenvironments.com

Project **JME 21054**
Order Number **JME 21054**
Samples 8

LABORATORY DETAILS

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SGS Reference **SE274345 R0**
Date Received 20 Nov 2024
Date Reported 25 Nov 2024

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.

This QA/QC Statement must be read in conjunction with the referenced Analytical Report.

The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	20/11/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	16.8°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE274345.001	LB330689	18 Nov 2024	20 Nov 2024	16 Dec 2024	22 Nov 2024	20 Dec 2024	25 Nov 2024
MW5	SE274345.002	LB330689	18 Nov 2024	20 Nov 2024	16 Dec 2024	22 Nov 2024	20 Dec 2024	25 Nov 2024
MW6	SE274345.003	LB330689	18 Nov 2024	20 Nov 2024	16 Dec 2024	22 Nov 2024	20 Dec 2024	25 Nov 2024
MW7	SE274345.004	LB330689	18 Nov 2024	20 Nov 2024	16 Dec 2024	22 Nov 2024	20 Dec 2024	25 Nov 2024
MW8	SE274345.005	LB330689	18 Nov 2024	20 Nov 2024	16 Dec 2024	22 Nov 2024	20 Dec 2024	25 Nov 2024
MW9	SE274345.006	LB330689	18 Nov 2024	20 Nov 2024	16 Dec 2024	22 Nov 2024	20 Dec 2024	25 Nov 2024
MW10	SE274345.007	LB330689	18 Nov 2024	20 Nov 2024	16 Dec 2024	22 Nov 2024	20 Dec 2024	25 Nov 2024
21054 2411	SE274345.008	LB330689	18 Nov 2024	20 Nov 2024	16 Dec 2024	22 Nov 2024	20 Dec 2024	25 Nov 2024

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE274345.001	LB330507	18 Nov 2024	20 Nov 2024	16 Dec 2024	21 Nov 2024	16 Dec 2024	21 Nov 2024
MW5	SE274345.002	LB330507	18 Nov 2024	20 Nov 2024	16 Dec 2024	21 Nov 2024	16 Dec 2024	21 Nov 2024
MW6	SE274345.003	LB330507	18 Nov 2024	20 Nov 2024	16 Dec 2024	21 Nov 2024	16 Dec 2024	21 Nov 2024
MW7	SE274345.004	LB330507	18 Nov 2024	20 Nov 2024	16 Dec 2024	21 Nov 2024	16 Dec 2024	21 Nov 2024
MW8	SE274345.005	LB330507	18 Nov 2024	20 Nov 2024	16 Dec 2024	21 Nov 2024	16 Dec 2024	21 Nov 2024
MW9	SE274345.006	LB330507	18 Nov 2024	20 Nov 2024	16 Dec 2024	21 Nov 2024	16 Dec 2024	21 Nov 2024
MW10	SE274345.007	LB330507	18 Nov 2024	20 Nov 2024	16 Dec 2024	21 Nov 2024	16 Dec 2024	21 Nov 2024
21054 2411	SE274345.008	LB330507	18 Nov 2024	20 Nov 2024	16 Dec 2024	21 Nov 2024	16 Dec 2024	21 Nov 2024

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE274345.001	LB330449	18 Nov 2024	20 Nov 2024	17 May 2025	20 Nov 2024	17 May 2025	21 Nov 2024
MW5	SE274345.002	LB330449	18 Nov 2024	20 Nov 2024	17 May 2025	20 Nov 2024	17 May 2025	21 Nov 2024
MW6	SE274345.003	LB330449	18 Nov 2024	20 Nov 2024	17 May 2025	20 Nov 2024	17 May 2025	21 Nov 2024
MW7	SE274345.004	LB330449	18 Nov 2024	20 Nov 2024	17 May 2025	20 Nov 2024	17 May 2025	21 Nov 2024
MW8	SE274345.005	LB330449	18 Nov 2024	20 Nov 2024	17 May 2025	20 Nov 2024	17 May 2025	21 Nov 2024
MW9	SE274345.006	LB330449	18 Nov 2024	20 Nov 2024	17 May 2025	20 Nov 2024	17 May 2025	21 Nov 2024
MW10	SE274345.007	LB330449	18 Nov 2024	20 Nov 2024	17 May 2025	20 Nov 2024	17 May 2025	21 Nov 2024
21054 2411	SE274345.008	LB330449	18 Nov 2024	20 Nov 2024	17 May 2025	20 Nov 2024	17 May 2025	21 Nov 2024

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %	
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE274345.001	%	40 - 300%	111	
	MW5	SE274345.002	%	40 - 300%	104	
	MW6	SE274345.003	%	40 - 300%	98	
	MW7	SE274345.004	%	40 - 300%	112	
	MW8	SE274345.005	%	40 - 300%	103	
	MW9	SE274345.006	%	40 - 300%	109	
	MW10	SE274345.007	%	40 - 300%	112	
	21054 2411	SE274345.008	%	40 - 300%	96	
	(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE274345.001	%	40 - 300%	94
		MW5	SE274345.002	%	40 - 300%	88
MW6		SE274345.003	%	40 - 300%	96	
MW7		SE274345.004	%	40 - 300%	95	
MW8		SE274345.005	%	40 - 300%	99	
MW9		SE274345.006	%	40 - 300%	107	
MW10		SE274345.007	%	40 - 300%	89	
21054 2411		SE274345.008	%	40 - 300%	84	
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard		MW4	SE274345.001	%	40 - 300%	88
		MW5	SE274345.002	%	40 - 300%	81
	MW6	SE274345.003	%	40 - 300%	107	
	MW7	SE274345.004	%	40 - 300%	93	
	MW8	SE274345.005	%	40 - 300%	93	
	MW9	SE274345.006	%	40 - 300%	111	
	MW10	SE274345.007	%	40 - 300%	89	
	21054 2411	SE274345.008	%	40 - 300%	91	
	(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	MW4	SE274345.001	%	40 - 150%	85
		MW5	SE274345.002	%	40 - 150%	88
MW6		SE274345.003	%	40 - 150%	87	
MW7		SE274345.004	%	40 - 150%	92	
MW8		SE274345.005	%	40 - 150%	91	
MW9		SE274345.006	%	40 - 150%	92	
MW10		SE274345.007	%	40 - 150%	93	
21054 2411		SE274345.008	%	40 - 150%	94	
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard		MW4	SE274345.001	%	40 - 150%	126
		MW5	SE274345.002	%	40 - 150%	122
	MW6	SE274345.003	%	40 - 150%	127	
	MW7	SE274345.004	%	40 - 150%	130	
	MW8	SE274345.005	%	40 - 150%	129	
	MW9	SE274345.006	%	40 - 150%	132	
	MW10	SE274345.007	%	40 - 150%	131	
	21054 2411	SE274345.008	%	40 - 150%	136	
	(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	MW4	SE274345.001	%	40 - 150%	93
		MW5	SE274345.002	%	40 - 150%	93
MW6		SE274345.003	%	40 - 150%	95	
MW7		SE274345.004	%	40 - 150%	99	
MW8		SE274345.005	%	40 - 150%	98	
MW9		SE274345.006	%	40 - 150%	99	
MW10		SE274345.007	%	40 - 150%	100	
21054 2411		SE274345.008	%	40 - 150%	98	
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard		MW4	SE274345.001	%	5 - 150%	96
		MW5	SE274345.002	%	5 - 150%	93
	MW6	SE274345.003	%	5 - 150%	97	
	MW7	SE274345.004	%	5 - 150%	97	
	MW8	SE274345.005	%	5 - 150%	98	
	MW9	SE274345.006	%	5 - 150%	96	
	MW10	SE274345.007	%	5 - 150%	99	
	21054 2411	SE274345.008	%	5 - 150%	100	
	(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW4	SE274345.001	%	40 - 150%	98
		MW5	SE274345.002	%	40 - 150%	97
MW6		SE274345.003	%	40 - 150%	98	
MW7		SE274345.004	%	40 - 150%	98	
MW8		SE274345.005	%	40 - 150%	97	

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW9	SE274345.006	%	40 - 150%	98
	MW10	SE274345.007	%	40 - 150%	98
	21054 2411	SE274345.008	%	40 - 150%	99
	MW4	SE274345.001	%	40 - 150%	95
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	MW5	SE274345.002	%	40 - 150%	95
	MW6	SE274345.003	%	40 - 150%	93
	MW7	SE274345.004	%	40 - 150%	98
	MW8	SE274345.005	%	40 - 150%	98
	MW9	SE274345.006	%	40 - 150%	94
	MW10	SE274345.007	%	40 - 150%	99
	21054 2411	SE274345.008	%	40 - 150%	97
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	MW4	SE274345.001	%	35 - 150%	90
	MW5	SE274345.002	%	35 - 150%	89
	MW6	SE274345.003	%	35 - 150%	93
	MW7	SE274345.004	%	35 - 150%	93
	MW8	SE274345.005	%	35 - 150%	93
	MW9	SE274345.006	%	35 - 150%	92
	MW10	SE274345.007	%	35 - 150%	94
	21054 2411	SE274345.008	%	35 - 150%	95
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	MW4	SE274345.001	%	40 - 150%	76
	MW5	SE274345.002	%	40 - 150%	78
	MW6	SE274345.003	%	40 - 150%	84
	MW7	SE274345.004	%	40 - 150%	82
	MW8	SE274345.005	%	40 - 150%	87
	MW9	SE274345.006	%	40 - 150%	80
	MW10	SE274345.007	%	40 - 150%	75
	21054 2411	SE274345.008	%	40 - 150%	93

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result
LB330689.001	Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01
	Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002
	Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002
	Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002
	Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	<0.002
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002
	Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002
	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	µg/L	0.005	<0.005

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB330507.001	Mercury	mg/L	0.0001	<0.0001

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB330449.001	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE274345.003	LB330507.014	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE274345.008	LB330449.027	Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	3	3	48	1
		Copper	µg/L	1	<1	<1	200	0
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	200	0
		Zinc	µg/L	5	<5	<5	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB330689.002	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.18	0.2	40 - 160	89
	Perfluorooctanoic acid (PFOA)	µg/L	0.002	0.18	0.2	40 - 160	91
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	0.17	0.2	40 - 160	85

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB330449.002	Arsenic	µg/L	1	22	20	80 - 120	109
	Cadmium	µg/L	0.1	22	20	80 - 120	110
	Chromium	µg/L	1	22	20	80 - 120	109
	Copper	µg/L	1	22	20	80 - 120	108
	Lead	µg/L	1	20	20	80 - 120	100
	Nickel	µg/L	1	21	20	80 - 120	104
	Zinc	µg/L	5	23	20	80 - 120	116

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE274304.001	LB330507.004	Mercury	mg/L	0.0001	0.0022	-0.038	0.008	114

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE274320.001	LB330449.004	Chromium	µg/L	1	33	12	20	106
		Copper	µg/L	1	37	16	20	105
		Lead	µg/L	1	21	<1	20	100
		Nickel	µg/L	1	24	4	20	102
		Zinc	µg/L	5	32	12	20	100

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

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CHAIN OF CUSTODY & ANALYSIS REQUEST

Sample Date: **10/12/2024**
Page 1 of 1

Company Name:	JM Environments	Project Name/No:	JME21054
Address:	37 Tooke St	Purchase Order No:	JME21054
	COOKS HILL NSW 2300	Results Required By:	Standard
Contact Name:	James McMahon	Email:	james@jmenvironments.com
Telephone	0427 893 668	Email:	admin@jmenvironments.com

Relinquished by: <i>H2</i>	Date /Time: <i>10/12 2pm</i>	Received by:	Date /Time: <i>10-12-24 14:30</i>
Relinquished by:	Date /Time:	Received by: <i>[Signature]</i>	Date /Time: <i>11/12/24 @ 12:20</i>
Samples intact: <i>Yes</i> /No	Temperature: <i>4-1</i>	Sample Cooler Sealed: <input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No	Laboratory Quotation: ENVI126319

Lab Sample ID	Sample ID	Water	Soil	Other	Preservative	No. of Containers	pH/CEC	BTEX/TPH/PAH/ 8HM	8 Heavy metals	OCP/PCB	Asbestos	PFAS short suite	Comments
<i>1</i>	MW4	X				2			x			X	Low level PFAS
<i>2</i>	MW5	X				2			x			X	Low level PFAS
<i>3</i>	MW6	X				2			x			X	Low level PFAS
<i>4</i>	MW7	X				2			x			X	Low level PFAS
<i>5</i>	MW8	X				2			x			X	Low level PFAS
<i>6</i>	MW9	X				2			x			X	Low level PFAS
<i>7</i>	MW10	X				2			x			X	Low level PFAS
<i>8</i>	21054 2412	x				2			x			X	Low level PFAS
<i>9</i>													

SGS EHS Sydney COC
SE275631





SAMPLE RECEIPT ADVICE

SE275631

CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
COOKS HILL NSW 2300

Telephone 0427 893 668
Facsimile (Not specified)
Email james@jmenvironments.com

Project **JME21054**
Order Number **JME21054**
Samples 8

LABORATORY DETAILS

Manager Shane McDermott
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Wed 11/12/2024
Report Due Wed 18/12/2024
SGS Reference **SE275631**

SUBMISSION DETAILS

This is to confirm that 8 samples were received on Wednesday 11/12/2024. Results are expected to be ready by COB Wednesday 18/12/2024. Please quote SGS reference SE275631 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	11/12/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	4.1°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

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SAMPLE RECEIPT ADVICE

SE275631

CLIENT DETAILS

Client **JM ENVIRONMENTS**

Project **JME21054**

SUMMARY OF ANALYSIS

No.	Sample ID	Low Level Per- and Polyfluoroalkyl Substances	Mercury (dissolved) in Water	Trace Metals (Dissolved) in Water by ICPMS
001	MW4	30	1	7
002	MW5	30	1	7
003	MW6	30	1	7
004	MW7	30	1	7
005	MW8	30	1	7
006	MW9	30	1	7
007	MW10	30	1	7
008	21054 2412	30	1	7

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.

CLIENT DETAILS

Contact **James McMahon**
 Client **JM ENVIRONMENTS**
 Address **37 TOOKE STREET
 COOKS HILL NSW 2300**

Telephone **0427 893 668**
 Facsimile **(Not specified)**
 Email **james@jmenvironments.com**

Project **JME21054**
 Order Number **JME21054**
 Samples **8**

LABORATORY DETAILS

Manager **Shane McDermott**
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 Alexandria NSW 2015**

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 Facsimile **+61 2 8594 0499**
 Email **au.environmental.sydney@sgs.com**

SGS Reference **SE275631 R0**
 Date Received **11/12/2024**
 Date Reported **18/12/2024**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES



Dong LIANG
 Metals/Inorganics Team Leader



Ly Kim HA
 Organic Section Head

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples [AN404] Tested: 13/12/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			10/12/2024 SE275631.001	10/12/2024 SE275631.002	10/12/2024 SE275631.003	10/12/2024 SE275631.004	10/12/2024 SE275631.005
Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	0.002	<0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.006	0.003	<0.002	0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	0.002	<0.002	<0.002	<0.002	0.003
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	0.008	0.007	<0.002	<0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	0.006	0.008	<0.002	0.003	0.004
Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Sum of PFOS and PFHxS	µg/L	0.002	0.015	0.015	<0.002	0.003	0.004
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	0.017	0.015	<0.002	0.003	0.007
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	0.009	0.008	<0.002	0.003	0.007

PARAMETER	UOM	LOR	MW9	MW10	21054 2412
			WATER	WATER	WATER
			10/12/2024 SE275631.006	10/12/2024 SE275631.007	10/12/2024 SE275631.008
Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002	0.004	<0.002
Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2)	µg/L	0.005	<0.005	<0.005	<0.005
Sum of PFOS and PFHxS	µg/L	0.002	<0.002	0.004	<0.002
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	<0.002	0.004	<0.002
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	<0.002	0.004	<0.002

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 16/12/2024

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			10/12/2024 SE275631.001	10/12/2024 SE275631.002	10/12/2024 SE275631.003	10/12/2024 SE275631.004	10/12/2024 SE275631.005
Arsenic	µg/L	1	1	<1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	<1	<1	<1	<1	<1
Chromium	µg/L	1	3	4	2	2	1
Nickel	µg/L	1	<1	<1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1	<1	<1
Zinc	µg/L	5	9	9	<5	10	<5

PARAMETER	UOM	LOR	MW9	MW10	21054 2412
			WATER	WATER	WATER
			10/12/2024 SE275631.006	10/12/2024 SE275631.007	10/12/2024 SE275631.008
Arsenic	µg/L	1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	<1	<1	<1
Chromium	µg/L	1	3	4	3
Nickel	µg/L	1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1
Zinc	µg/L	5	<5	<5	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 13/12/2024

			MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			-	-	-	-	-
			10/12/2024	10/12/2024	10/12/2024	10/12/2024	10/12/2024
PARAMETER	UOM	LOR	SE275631.001	SE275631.002	SE275631.003	SE275631.004	SE275631.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

			MW9	MW10	21054 2412
			WATER	WATER	WATER
			-	-	-
			10/12/2024	10/12/2024	10/12/2024
PARAMETER	UOM	LOR	SE275631.006	SE275631.007	SE275631.008
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001

METHOD

METHODOLOGY SUMMARY

AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: 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.
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
AN404	This method covers the analysis of per- and polyfluoroalkyl substances (PFAS) in aqueous, solid and biosolid samples and solvent extracts. After spiking with isotopically labelled quantification surrogates and sample extracts are analysed by liquid chromatography/mass spectrometry (LC-MS/MS). PFAS concentrations are determined by isotope dilution quantification. PFOS and PFHXS are determined as the total of linear and branched isomers.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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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STATEMENT OF QA/QC PERFORMANCE

SE275631 R0

CLIENT DETAILS

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Client JM ENVIRONMENTS
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Project **JME21054**
Order Number **JME21054**
Samples 8

LABORATORY DETAILS

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SGS Reference **SE275631 R0**
Date Received 11 Dec 2024
Date Reported 18 Dec 2024

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.

This QA/QC Statement must be read in conjunction with the referenced Analytical Report.

The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	11/12/2024	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	4.1°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE275631.001	LB333196	10 Dec 2024	11 Dec 2024	07 Jan 2025	13 Dec 2024	10 Jan 2025	18 Dec 2024
MW5	SE275631.002	LB333196	10 Dec 2024	11 Dec 2024	07 Jan 2025	13 Dec 2024	10 Jan 2025	18 Dec 2024
MW6	SE275631.003	LB333196	10 Dec 2024	11 Dec 2024	07 Jan 2025	13 Dec 2024	10 Jan 2025	18 Dec 2024
MW7	SE275631.004	LB333196	10 Dec 2024	11 Dec 2024	07 Jan 2025	13 Dec 2024	10 Jan 2025	18 Dec 2024
MW8	SE275631.005	LB333196	10 Dec 2024	11 Dec 2024	07 Jan 2025	13 Dec 2024	10 Jan 2025	18 Dec 2024
MW9	SE275631.006	LB333196	10 Dec 2024	11 Dec 2024	07 Jan 2025	13 Dec 2024	10 Jan 2025	18 Dec 2024
MW10	SE275631.007	LB333196	10 Dec 2024	11 Dec 2024	07 Jan 2025	13 Dec 2024	10 Jan 2025	18 Dec 2024
21054 2412	SE275631.008	LB333196	10 Dec 2024	11 Dec 2024	07 Jan 2025	13 Dec 2024	10 Jan 2025	18 Dec 2024

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE275631.001	LB333140	10 Dec 2024	11 Dec 2024	07 Jan 2025	13 Dec 2024	07 Jan 2025	16 Dec 2024
MW5	SE275631.002	LB333140	10 Dec 2024	11 Dec 2024	07 Jan 2025	13 Dec 2024	07 Jan 2025	16 Dec 2024
MW6	SE275631.003	LB333140	10 Dec 2024	11 Dec 2024	07 Jan 2025	13 Dec 2024	07 Jan 2025	16 Dec 2024
MW7	SE275631.004	LB333140	10 Dec 2024	11 Dec 2024	07 Jan 2025	13 Dec 2024	07 Jan 2025	16 Dec 2024
MW8	SE275631.005	LB333140	10 Dec 2024	11 Dec 2024	07 Jan 2025	13 Dec 2024	07 Jan 2025	16 Dec 2024
MW9	SE275631.006	LB333140	10 Dec 2024	11 Dec 2024	07 Jan 2025	13 Dec 2024	07 Jan 2025	16 Dec 2024
MW10	SE275631.007	LB333140	10 Dec 2024	11 Dec 2024	07 Jan 2025	13 Dec 2024	07 Jan 2025	16 Dec 2024
21054 2412	SE275631.008	LB333140	10 Dec 2024	11 Dec 2024	07 Jan 2025	13 Dec 2024	07 Jan 2025	16 Dec 2024

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE275631.001	LB333324	10 Dec 2024	11 Dec 2024	08 Jun 2025	16 Dec 2024	08 Jun 2025	17 Dec 2024
MW5	SE275631.002	LB333324	10 Dec 2024	11 Dec 2024	08 Jun 2025	16 Dec 2024	08 Jun 2025	17 Dec 2024
MW6	SE275631.003	LB333324	10 Dec 2024	11 Dec 2024	08 Jun 2025	16 Dec 2024	08 Jun 2025	17 Dec 2024
MW7	SE275631.004	LB333324	10 Dec 2024	11 Dec 2024	08 Jun 2025	16 Dec 2024	08 Jun 2025	17 Dec 2024
MW8	SE275631.005	LB333324	10 Dec 2024	11 Dec 2024	08 Jun 2025	16 Dec 2024	08 Jun 2025	17 Dec 2024
MW9	SE275631.006	LB333324	10 Dec 2024	11 Dec 2024	08 Jun 2025	16 Dec 2024	08 Jun 2025	17 Dec 2024
MW10	SE275631.007	LB333324	10 Dec 2024	11 Dec 2024	08 Jun 2025	16 Dec 2024	08 Jun 2025	17 Dec 2024
21054 2412	SE275631.008	LB333324	10 Dec 2024	11 Dec 2024	08 Jun 2025	16 Dec 2024	08 Jun 2025	17 Dec 2024

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %	
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE275631.001	%	40 - 300%	80	
	MW5	SE275631.002	%	40 - 300%	63	
	MW6	SE275631.003	%	40 - 300%	76	
	MW7	SE275631.004	%	40 - 300%	73	
	MW8	SE275631.005	%	40 - 300%	92	
	MW9	SE275631.006	%	40 - 300%	71	
	MW10	SE275631.007	%	40 - 300%	79	
	21054 2412	SE275631.008	%	40 - 300%	69	
	(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE275631.001	%	40 - 300%	88
		MW5	SE275631.002	%	40 - 300%	81
MW6		SE275631.003	%	40 - 300%	93	
MW7		SE275631.004	%	40 - 300%	92	
MW8		SE275631.005	%	40 - 300%	123	
MW9		SE275631.006	%	40 - 300%	90	
MW10		SE275631.007	%	40 - 300%	95	
21054 2412		SE275631.008	%	40 - 300%	83	
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard		MW4	SE275631.001	%	40 - 300%	62
		MW5	SE275631.002	%	40 - 300%	53
	MW6	SE275631.003	%	40 - 300%	62	
	MW7	SE275631.004	%	40 - 300%	65	
	MW8	SE275631.005	%	40 - 300%	81	
	MW9	SE275631.006	%	40 - 300%	58	
	MW10	SE275631.007	%	40 - 300%	65	
	21054 2412	SE275631.008	%	40 - 300%	55	
	(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	MW4	SE275631.001	%	40 - 150%	91
		MW5	SE275631.002	%	40 - 150%	76
MW6		SE275631.003	%	40 - 150%	102	
MW7		SE275631.004	%	40 - 150%	90	
MW8		SE275631.005	%	40 - 150%	105	
MW9		SE275631.006	%	40 - 150%	93	
MW10		SE275631.007	%	40 - 150%	103	
21054 2412		SE275631.008	%	40 - 150%	91	
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard		MW4	SE275631.001	%	40 - 150%	132
		MW5	SE275631.002	%	40 - 150%	116
	MW6	SE275631.003	%	40 - 150%	134	
	MW7	SE275631.004	%	40 - 150%	125	
	MW8	SE275631.005	%	40 - 150%	144	
	MW9	SE275631.006	%	40 - 150%	125	
	MW10	SE275631.007	%	40 - 150%	135	
	21054 2412	SE275631.008	%	40 - 150%	128	
	(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	MW4	SE275631.001	%	40 - 150%	93
		MW5	SE275631.002	%	40 - 150%	91
MW6		SE275631.003	%	40 - 150%	95	
MW7		SE275631.004	%	40 - 150%	96	
MW8		SE275631.005	%	40 - 150%	103	
MW9		SE275631.006	%	40 - 150%	86	
MW10		SE275631.007	%	40 - 150%	104	
21054 2412		SE275631.008	%	40 - 150%	96	
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard		MW4	SE275631.001	%	5 - 150%	105
		MW5	SE275631.002	%	5 - 150%	92
	MW6	SE275631.003	%	5 - 150%	104	
	MW7	SE275631.004	%	5 - 150%	96	
	MW8	SE275631.005	%	5 - 150%	106	
	MW9	SE275631.006	%	5 - 150%	87	
	MW10	SE275631.007	%	5 - 150%	104	
	21054 2412	SE275631.008	%	5 - 150%	105	
	(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW4	SE275631.001	%	40 - 150%	114
		MW5	SE275631.002	%	40 - 150%	111
MW6		SE275631.003	%	40 - 150%	106	
MW7		SE275631.004	%	40 - 150%	101	
MW8		SE275631.005	%	40 - 150%	106	

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW9	SE275631.006	%	40 - 150%	94
	MW10	SE275631.007	%	40 - 150%	109
	21054 2412	SE275631.008	%	40 - 150%	103
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	MW4	SE275631.001	%	40 - 150%	102
	MW5	SE275631.002	%	40 - 150%	90
	MW6	SE275631.003	%	40 - 150%	100
	MW7	SE275631.004	%	40 - 150%	95
	MW8	SE275631.005	%	40 - 150%	104
	MW9	SE275631.006	%	40 - 150%	92
	MW10	SE275631.007	%	40 - 150%	103
	21054 2412	SE275631.008	%	40 - 150%	98
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	MW4	SE275631.001	%	35 - 150%	102
	MW5	SE275631.002	%	35 - 150%	86
	MW6	SE275631.003	%	35 - 150%	105
	MW7	SE275631.004	%	35 - 150%	96
	MW8	SE275631.005	%	35 - 150%	106
	MW9	SE275631.006	%	35 - 150%	94
	MW10	SE275631.007	%	35 - 150%	104
	21054 2412	SE275631.008	%	35 - 150%	98
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	MW4	SE275631.001	%	40 - 150%	90
	MW5	SE275631.002	%	40 - 150%	77
	MW6	SE275631.003	%	40 - 150%	79
	MW7	SE275631.004	%	40 - 150%	90
	MW8	SE275631.005	%	40 - 150%	91
	MW9	SE275631.006	%	40 - 150%	77
	MW10	SE275631.007	%	40 - 150%	89
	21054 2412	SE275631.008	%	40 - 150%	87

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result
LB333196.001	Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01
	Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002
	Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002
	Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002
	Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	<0.002
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002
	Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002
	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	µg/L	0.005	<0.005

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB333140.001	Mercury	mg/L	0.0001	<0.0001

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB333324.001	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275668.001	LB333140.014	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0
SE275719.005	LB333140.023	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE275631.004	LB333324.014	Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	2	2	57	5
		Copper	µg/L	1	<1	<1	200	0
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	200	0
		Zinc	µg/L	5	10	10	64	6
SE275639.037	LB333324.027	Lead	µg/L	1	0.005	0.008	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB333196.002	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.17	0.2	40 - 160	87
	Perfluorooctanoic acid (PFOA)	µg/L	0.002	0.17	0.2	40 - 160	87
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	0.17	0.2	40 - 160	87

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB333324.002	Arsenic	µg/L	1	20	20	80 - 120	99
	Cadmium	µg/L	0.1	22	20	80 - 120	110
	Chromium	µg/L	1	22	20	80 - 120	111
	Copper	µg/L	1	23	20	80 - 120	117
	Lead	µg/L	1	22	20	80 - 120	109
	Nickel	µg/L	1	22	20	80 - 120	109
	Zinc	µg/L	5	23	20	80 - 120	116

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE275631.001	LB333140.004	Mercury	mg/L	0.0001	0.0020	<0.0001	0.008	105

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service .
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

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CHAIN OF CUSTODY & ANALYSIS REQUEST

Sample Date: 21/01/2025

Company Name:	JM Environments	Project Name/No:	JME21054
Address:	37 Tooke St	Purchase Order No:	JME21054
	COOKS HILL NSW 2300	Results Required By:	Standard
Contact Name:	James McMahon	Email:	james@jmenvironments.com
Telephone	0427 893 668	Email:	admin@jmenvironments.com

Relinquished by:	Date /Time:	Received by:	Date /Time: 23-1-25 1:30
Relinquished by:	Date /Time:	Received by:	Date /Time:
Samples intact: <input checked="" type="checkbox"/> Yes/No	Temperature: 6.1	Sample Cooler Sealed: <input checked="" type="checkbox"/> Yes/No	Laboratory Quotation: ENV1126319

Lab Sample ID	Sample ID	Water	Soil	Other	Preservative	No. of Containers	pH/CEC	BTEX/TPH/PAH/8HM	8 Heavy metals	OCP/PCB	Asbestos	PFAS short suite	Comments
1	MW4	X				2			x			X	Low level PFAS
2	MW5	X				2			x			X	Low level PFAS
3	MW6	X				2			x			X	Low level PFAS
4	MW7	X				2			x			X	Low level PFAS
5	MW8	X				2			x			X	Low level PFAS
6	MW9	X				2			x			X	Low level PFAS
7	MW10	X				2			x			X	Low level PFAS
8	QC21054 2501	x				2			x			X	Low level PFAS

SGS EHS Sydney COC
SE277191





SAMPLE RECEIPT ADVICE

SE277191

CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
COOKS HILL NSW 2300

Telephone 0427 893 668
Facsimile (Not specified)
Email james@jmenvironments.com

Project **JME21054**
Order Number **JME21054**
Samples 8

LABORATORY DETAILS

Manager Shane McDermott
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Thu 23/1/2025
Report Due Fri 31/1/2025
SGS Reference **SE277191**

SUBMISSION DETAILS

This is to confirm that 8 samples were received on Thursday 23/1/2025. Results are expected to be ready by COB Friday 31/1/2025. Please quote SGS reference SE277191 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	23/1/2025	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	6.1°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

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SAMPLE RECEIPT ADVICE

SE277191

CLIENT DETAILS

Client **JM ENVIRONMENTS**

Project **JME21054**

SUMMARY OF ANALYSIS

No.	Sample ID	Low Level Per- and Polyfluoroalkyl Substances	Mercury (dissolved) in Water	Trace Metals (Dissolved) in Water by ICPMS
001	MW4	30	1	7
002	MW5	30	1	7
003	MW6	30	1	7
004	MW7	30	1	7
005	MW8	30	1	7
006	MW9	30	1	7
007	MW10	30	1	7
008	QC21054 2501	30	1	7

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.

CLIENT DETAILS

LABORATORY DETAILS

Contact **James McMahon**
 Client **JM ENVIRONMENTS**
 Address **37 TOOKE STREET
 COOKS HILL NSW 2300**

Telephone **0427 893 668**
 Facsimile **(Not specified)**
 Email **james@jmenvironments.com**

Project **JME21054**
 Order Number **JME21054**
 Samples **8**

Manager **Shane McDermott**
 Laboratory **SGS Alexandria Environmental**
 Address **Unit 16, 33 Maddox St
 Alexandria NSW 2015**

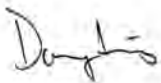
Telephone **+61 2 8594 0400**
 Facsimile **+61 2 8594 0499**
 Email **au.environmental.sydney@sgs.com**

SGS Reference **SE277191 R0**
 Date Received **23/1/2025**
 Date Reported **31/1/2025**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES



Dong LIANG
 Metals/Inorganics Team Leader



Ly Kim HA
 Organic Section Head



ANALYTICAL RESULTS

SE277191 R0

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 29/1/2025

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			- 21/1/2025 SE277191.001	- 21/1/2025 SE277191.002	- 21/1/2025 SE277191.003	- 21/1/2025 SE277191.004	- 21/1/2025 SE277191.005
Arsenic	µg/L	1	1	<1	<1	1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	2	2	<1	3	<1
Chromium	µg/L	1	4	2	2	2	2
Nickel	µg/L	1	<1	<1	<1	1	<1
Lead	µg/L	1	<1	<1	<1	<1	<1
Zinc	µg/L	5	17	31	<5	600	<5

PARAMETER	UOM	LOR	MW9	MW10	QC21054 2501
			WATER	WATER	WATER
			- 21/1/2025 SE277191.006	- 21/1/2025 SE277191.007	- 21/1/2025 SE277191.008
Arsenic	µg/L	1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	<1	<1	<1
Chromium	µg/L	1	3	4	3
Nickel	µg/L	1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1
Zinc	µg/L	5	<5	32	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 24/1/2025

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER - 21/1/2025 SE277191.001	WATER - 21/1/2025 SE277191.002	WATER - 21/1/2025 SE277191.003	WATER - 21/1/2025 SE277191.004	WATER - 21/1/2025 SE277191.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

PARAMETER	UOM	LOR	MW9	MW10	QC21054 2501
			WATER - 21/1/2025 SE277191.006	WATER - 21/1/2025 SE277191.007	WATER - 21/1/2025 SE277191.008
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples [AN404] Tested: 28/1/2025

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			21/1/2025 SE277191.001	21/1/2025 SE277191.002	21/1/2025 SE277191.003	21/1/2025 SE277191.004	21/1/2025 SE277191.005
Perfluorobutanoic acid (PFBA)	µg/L	0.01	0.03	<0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	0.015	0.009	<0.002	<0.002	0.003
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.022	0.007	<0.002	<0.002	0.003
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.008	0.003	<0.002	<0.002	0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	0.006	0.003	<0.002	<0.002	0.008
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	0.004	<0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	0.014	0.006	<0.002	<0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	0.002
Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Sum of PFOS and PFHxS	µg/L	0.002	0.014	0.006	<0.002	<0.002	0.002
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	0.020	0.009	<0.002	<0.002	0.010
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	0.006	0.003	<0.002	<0.002	0.010

PARAMETER	UOM	LOR	MW9	MW10	QC21054 2501
			WATER	WATER	WATER
			21/1/2025 SE277191.006	21/1/2025 SE277191.007	21/1/2025 SE277191.008
Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002	0.003	<0.002
Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
Sum of PFOS and PFHxS	µg/L	0.002	<0.002	0.003	<0.002
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	<0.002	0.003	<0.002
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	<0.002	0.003	<0.002

METHOD

METHODOLOGY SUMMARY

- AN020** Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
- AN311(Perth)/AN312** Mercury by Cold Vapour AAS in Waters: 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.
- AN318** Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
- AN404** This method covers the analysis of per- and polyfluoroalkyl substances (PFAS) in aqueous, solid and biosolid samples and solvent extracts. After spiking with isotopically labelled quantification surrogates and sample extracts are analysed by liquid chromatography/mass spectrometry (LC-MS/MS). PFAS concentrations are determined by isotope dilution quantification. PFOS and PFHXS are determined as the total of linear and branched isomers.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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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Project **JME21054**
 Order Number **JME21054**
 Samples **8**

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SGS Reference **SE277191 R0**
 Date Received **23 Jan 2025**
 Date Reported **31 Jan 2025**

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.

This QA/QC Statement must be read in conjunction with the referenced Analytical Report.

The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	23/1/2025	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	6.1°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE277191.001	LB336085	21 Jan 2025	23 Jan 2025	18 Feb 2025	28 Jan 2025	25 Feb 2025	29 Jan 2025
MW5	SE277191.002	LB336085	21 Jan 2025	23 Jan 2025	18 Feb 2025	28 Jan 2025	25 Feb 2025	29 Jan 2025
MW6	SE277191.003	LB336085	21 Jan 2025	23 Jan 2025	18 Feb 2025	28 Jan 2025	25 Feb 2025	29 Jan 2025
MW7	SE277191.004	LB336085	21 Jan 2025	23 Jan 2025	18 Feb 2025	28 Jan 2025	25 Feb 2025	29 Jan 2025
MW8	SE277191.005	LB336085	21 Jan 2025	23 Jan 2025	18 Feb 2025	28 Jan 2025	25 Feb 2025	29 Jan 2025
MW9	SE277191.006	LB336085	21 Jan 2025	23 Jan 2025	18 Feb 2025	28 Jan 2025	25 Feb 2025	29 Jan 2025
MW10	SE277191.007	LB336085	21 Jan 2025	23 Jan 2025	18 Feb 2025	28 Jan 2025	25 Feb 2025	29 Jan 2025
QC21054 2501	SE277191.008	LB336085	21 Jan 2025	23 Jan 2025	18 Feb 2025	28 Jan 2025	25 Feb 2025	29 Jan 2025

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE277191.001	LB335923	21 Jan 2025	23 Jan 2025	18 Feb 2025	24 Jan 2025	18 Feb 2025	28 Jan 2025
MW5	SE277191.002	LB335923	21 Jan 2025	23 Jan 2025	18 Feb 2025	24 Jan 2025	18 Feb 2025	28 Jan 2025
MW6	SE277191.003	LB335923	21 Jan 2025	23 Jan 2025	18 Feb 2025	24 Jan 2025	18 Feb 2025	28 Jan 2025
MW7	SE277191.004	LB335923	21 Jan 2025	23 Jan 2025	18 Feb 2025	24 Jan 2025	18 Feb 2025	28 Jan 2025
MW8	SE277191.005	LB335923	21 Jan 2025	23 Jan 2025	18 Feb 2025	24 Jan 2025	18 Feb 2025	28 Jan 2025
MW9	SE277191.006	LB335923	21 Jan 2025	23 Jan 2025	18 Feb 2025	24 Jan 2025	18 Feb 2025	28 Jan 2025
MW10	SE277191.007	LB335923	21 Jan 2025	23 Jan 2025	18 Feb 2025	24 Jan 2025	18 Feb 2025	28 Jan 2025
QC21054 2501	SE277191.008	LB335923	21 Jan 2025	23 Jan 2025	18 Feb 2025	24 Jan 2025	18 Feb 2025	28 Jan 2025

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE277191.001	LB336226	21 Jan 2025	23 Jan 2025	20 Jul 2025	29 Jan 2025	20 Jul 2025	30 Jan 2025
MW5	SE277191.002	LB336226	21 Jan 2025	23 Jan 2025	20 Jul 2025	29 Jan 2025	20 Jul 2025	30 Jan 2025
MW6	SE277191.003	LB336226	21 Jan 2025	23 Jan 2025	20 Jul 2025	29 Jan 2025	20 Jul 2025	30 Jan 2025
MW7	SE277191.004	LB336226	21 Jan 2025	23 Jan 2025	20 Jul 2025	29 Jan 2025	20 Jul 2025	30 Jan 2025
MW8	SE277191.005	LB336226	21 Jan 2025	23 Jan 2025	20 Jul 2025	29 Jan 2025	20 Jul 2025	30 Jan 2025
MW9	SE277191.006	LB336226	21 Jan 2025	23 Jan 2025	20 Jul 2025	29 Jan 2025	20 Jul 2025	30 Jan 2025
MW10	SE277191.007	LB336226	21 Jan 2025	23 Jan 2025	20 Jul 2025	29 Jan 2025	20 Jul 2025	30 Jan 2025
QC21054 2501	SE277191.008	LB336226	21 Jan 2025	23 Jan 2025	20 Jul 2025	29 Jan 2025	20 Jul 2025	30 Jan 2025

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %	
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE277191.001	%	40 - 300%	90	
	MW5	SE277191.002	%	40 - 300%	79	
	MW6	SE277191.003	%	40 - 300%	74	
	MW7	SE277191.004	%	40 - 300%	86	
	MW8	SE277191.005	%	40 - 300%	76	
	MW9	SE277191.006	%	40 - 300%	93	
	MW10	SE277191.007	%	40 - 300%	79	
	QC21054 2501	SE277191.008	%	40 - 300%	78	
	(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE277191.001	%	40 - 300%	73
		MW5	SE277191.002	%	40 - 300%	71
MW6		SE277191.003	%	40 - 300%	79	
MW7		SE277191.004	%	40 - 300%	85	
MW8		SE277191.005	%	40 - 300%	80	
MW9		SE277191.006	%	40 - 300%	99	
MW10		SE277191.007	%	40 - 300%	86	
QC21054 2501		SE277191.008	%	40 - 300%	80	
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard		MW4	SE277191.001	%	40 - 300%	85
		MW5	SE277191.002	%	40 - 300%	80
	MW6	SE277191.003	%	40 - 300%	96	
	MW7	SE277191.004	%	40 - 300%	91	
	MW8	SE277191.005	%	40 - 300%	83	
	MW9	SE277191.006	%	40 - 300%	100	
	MW10	SE277191.007	%	40 - 300%	80	
	QC21054 2501	SE277191.008	%	40 - 300%	101	
	(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	MW4	SE277191.001	%	40 - 150%	89
		MW5	SE277191.002	%	40 - 150%	87
MW6		SE277191.003	%	40 - 150%	93	
MW7		SE277191.004	%	40 - 150%	87	
MW8		SE277191.005	%	40 - 150%	96	
MW9		SE277191.006	%	40 - 150%	97	
MW10		SE277191.007	%	40 - 150%	86	
QC21054 2501		SE277191.008	%	40 - 150%	89	
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard		MW4	SE277191.001	%	40 - 150%	86
		MW5	SE277191.002	%	40 - 150%	86
	MW6	SE277191.003	%	40 - 150%	88	
	MW7	SE277191.004	%	40 - 150%	80	
	MW8	SE277191.005	%	40 - 150%	92	
	MW9	SE277191.006	%	40 - 150%	89	
	MW10	SE277191.007	%	40 - 150%	79	
	QC21054 2501	SE277191.008	%	40 - 150%	86	
	(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	MW4	SE277191.001	%	40 - 150%	80
		MW5	SE277191.002	%	40 - 150%	80
MW6		SE277191.003	%	40 - 150%	83	
MW7		SE277191.004	%	40 - 150%	76	
MW8		SE277191.005	%	40 - 150%	80	
MW9		SE277191.006	%	40 - 150%	87	
MW10		SE277191.007	%	40 - 150%	69	
QC21054 2501		SE277191.008	%	40 - 150%	77	
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard		MW4	SE277191.001	%	5 - 150%	94
		MW5	SE277191.002	%	5 - 150%	91
	MW6	SE277191.003	%	5 - 150%	93	
	MW7	SE277191.004	%	5 - 150%	88	
	MW8	SE277191.005	%	5 - 150%	96	
	MW9	SE277191.006	%	5 - 150%	95	
	MW10	SE277191.007	%	5 - 150%	85	
	QC21054 2501	SE277191.008	%	5 - 150%	90	
	(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW4	SE277191.001	%	40 - 150%	90
		MW5	SE277191.002	%	40 - 150%	88
MW6		SE277191.003	%	40 - 150%	90	
MW7		SE277191.004	%	40 - 150%	84	
MW8		SE277191.005	%	40 - 150%	93	

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW9	SE277191.006	%	40 - 150%	93
	MW10	SE277191.007	%	40 - 150%	83
	QC21054 2501	SE277191.008	%	40 - 150%	89
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	MW4	SE277191.001	%	40 - 150%	89
	MW5	SE277191.002	%	40 - 150%	85
	MW6	SE277191.003	%	40 - 150%	88
	MW7	SE277191.004	%	40 - 150%	83
	MW8	SE277191.005	%	40 - 150%	90
	MW9	SE277191.006	%	40 - 150%	90
	MW10	SE277191.007	%	40 - 150%	79
	QC21054 2501	SE277191.008	%	40 - 150%	86
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	MW4	SE277191.001	%	35 - 150%	88
	MW5	SE277191.002	%	35 - 150%	87
	MW6	SE277191.003	%	35 - 150%	90
	MW7	SE277191.004	%	35 - 150%	85
	MW8	SE277191.005	%	35 - 150%	91
	MW9	SE277191.006	%	35 - 150%	92
	MW10	SE277191.007	%	35 - 150%	82
	QC21054 2501	SE277191.008	%	35 - 150%	88
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	MW4	SE277191.001	%	40 - 150%	73
	MW5	SE277191.002	%	40 - 150%	77
	MW6	SE277191.003	%	40 - 150%	85
	MW7	SE277191.004	%	40 - 150%	70
	MW8	SE277191.005	%	40 - 150%	76
	MW9	SE277191.006	%	40 - 150%	84
	MW10	SE277191.007	%	40 - 150%	71
	QC21054 2501	SE277191.008	%	40 - 150%	82

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result
LB336085.001	Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01
	Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002
	Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002
	Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002
	Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	<0.002
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002
	Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002
	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	µg/L	0.005	<0.005

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB335923.001	Mercury	mg/L	0.0001	<0.0001

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB336226.001	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE277204.011	LB335923.014	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	120

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE277193.011	LB336226.014	Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	<1	<1	200	0
		Copper	µg/L	1	<1	<1	200	0
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	200	0
		Zinc	µg/L	5	<5	<5	200	0
SE277216.001	LB336226.020	Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	2	2	78	3
		Copper	µg/L	1	2	<1	82	66
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	4	2	48	36
		Zinc	µg/L	5	9	8	76	9

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB336085.002	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.17	0.2	40 - 160	87
	Perfluorooctanoic acid (PFOA)	µg/L	0.002	0.17	0.2	40 - 160	87
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	0.17	0.2	40 - 160	84

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB336226.002	Arsenic	µg/L	1	19	20	80 - 120	93
	Cadmium	µg/L	0.1	22	20	80 - 120	109
	Chromium	µg/L	1	21	20	80 - 120	107
	Copper	µg/L	1	22	20	80 - 120	112
	Lead	µg/L	1	21	20	80 - 120	105
	Nickel	µg/L	1	21	20	80 - 120	106
	Zinc	µg/L	5	23	20	80 - 120	114

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE277191.001	LB335923.004	Mercury	mg/L	0.0001	0.0020	<0.0001	0.008	106

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE277165.014	LB336226.004	Arsenic	µg/L	1	19	0.006	20	95
		Cadmium	µg/L	0.1	23	0.007	20	114
		Chromium	µg/L	1	22	-0.002	20	111
		Copper	µg/L	1	23	0.042	20	114
		Lead	µg/L	1	22	0.047	20	108
		Nickel	µg/L	1	21	0.048	20	106
		Zinc	µg/L	5	23	0.625	20	112

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

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CLIENT DETAILS

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 Client **JM ENVIRONMENTS**
 Address **37 TOOKE STREET
 COOKS HILL NSW 2300**

Telephone **0427 893 668**
 Facsimile **(Not specified)**
 Email **james@jmenvironments.com**

Project **JME21054**
 Order Number **JME21054**
 Samples **8**

LABORATORY DETAILS

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 Alexandria NSW 2015**


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SGS Reference **SE278326 R0**
 Date Received **17/2/2025**
 Date Reported **21/2/2025**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES



Dong LIANG
 Metals/Inorganics Team Leader



Ly Kim HA
 Organic Section Head

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 19/2/2025

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER - 17/2/2025 SE278326.001	WATER - 17/2/2025 SE278326.002	WATER - 17/2/2025 SE278326.003	WATER - 17/2/2025 SE278326.004	WATER - 17/2/2025 SE278326.005
Arsenic	µg/L	1	<1	<1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	1	<1	<1	<1	<1
Chromium	µg/L	1	2	3	2	3	2
Nickel	µg/L	1	<1	<1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1	<1	<1
Zinc	µg/L	5	9	20	<5	170	<5

PARAMETER	UOM	LOR	MW9	MW10	21054 2502
			WATER - 17/2/2025 SE278326.006	WATER - 17/2/2025 SE278326.007	WATER - 17/2/2025 SE278326.008
Arsenic	µg/L	1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	<1	<1	<1
Chromium	µg/L	1	3	4	3
Nickel	µg/L	1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1
Zinc	µg/L	5	<5	<5	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 18/2/2025

			MW4	MW5	MW6	MW7	MW8
			WATER -	WATER -	WATER -	WATER -	WATER -
			17/2/2025	17/2/2025	17/2/2025	17/2/2025	17/2/2025
PARAMETER	UOM	LOR	SE278326.001	SE278326.002	SE278326.003	SE278326.004	SE278326.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

			MW9	MW10	21054 2502
			WATER -	WATER -	WATER -
			17/2/2025	17/2/2025	17/2/2025
PARAMETER	UOM	LOR	SE278326.006	SE278326.007	SE278326.008
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples [AN404] Tested: 18/2/2025

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			17/2/2025 SE278326.001	17/2/2025 SE278326.002	17/2/2025 SE278326.003	17/2/2025 SE278326.004	17/2/2025 SE278326.005
Perfluorobutanoic acid (PFBA)	µg/L	0.01	0.02	<0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	0.010	0.003	<0.002	0.002	0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.014	0.003	<0.002	0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.006	<0.002	<0.002	<0.002	0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	0.004	0.002	0.002	0.002	0.008
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	0.006	<0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	0.016	0.008	<0.002	0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002	0.005	0.005
Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	0.007	0.007
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Sum of PFOS and PFHxS	µg/L	0.002	0.016	0.008	<0.002	0.007	0.005
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	0.020	0.010	0.002	0.009	0.013
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	0.004	0.002	0.002	0.007	0.013

PARAMETER	UOM	LOR	MW9	MW10	21054 2502
			WATER	WATER	WATER
			17/2/2025 SE278326.006	17/2/2025 SE278326.007	17/2/2025 SE278326.008
Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2)	µg/L	0.005	<0.005	<0.005	<0.005
Sum of PFOS and PFHxS	µg/L	0.002	<0.002	<0.002	<0.002
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	<0.002	<0.002	<0.002
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	<0.002	<0.002	<0.002

METHOD

METHODOLOGY SUMMARY

AN020

Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.

AN311(Perth)/AN312

Mercury by Cold Vapour AAS in Waters: 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.

AN318

Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).

AN404

This method covers the analysis of per- and polyfluoroalkyl substances (PFAS) in aqueous, solid and biosolid samples and solvent extracts. After spiking with isotopically labelled quantification surrogates and sample extracts are analysed by liquid chromatography/mass spectrometry (LC-MS/MS). PFAS concentrations are determined by isotope dilution quantification. PFOS and PFHXS are determined as the total of linear and branched isomers.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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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CHAIN OF CUSTODY & ANALYSIS REQUEST

Sample Date:

14/02/2025

Page 1 of 1

Company Name:	JM Environments	Project Name/No:	JME21054
Address:	37 Tooke St	Purchase Order No:	JME21054
	COOKS HILL NSW 2300	Results Required By:	Standard
Contact Name:	James McMahon	Email:	james@jmenvironments.com
Telephone	0427 893 668	Email:	admin@jmenvironments.com

Relinquished by:	Date /Time:	Received by:	Date /Time: 17/2/25 @ 10:40
Relinquished by:	Date /Time:	Received by:	Date /Time:
Samples intact: Yes/No	Temperature:	Sample Cooler Sealed: Yes/No	Laboratory Quotation: ENVI126319

Lab Sample ID	Sample ID	Water	Soil	Other	Preservative	No. of Containers	pH/CEC	BTEX/TPH/PAH/8HM	8 Heavy metals	OCP/PCB	Asbestos	PFAS short suite	Comments
1	MW4	X				2			x			X	Low level PFAS
2	MW5	X				2			x			X	Low level PFAS
3	MW6	X				2			x			X	Low level PFAS
4	MW7	X				2			x			X	Low level PFAS
5	MW8	X				2			x			X	Low level PFAS
6	MW9	X				2			x			X	Low level PFAS
7	MW10	X				2			x			X	Low level PFAS
8	21054 2502	x				2			x			X	Low level PFAS

SGS EHS Sydney COC

SE278326





SAMPLE RECEIPT ADVICE

SE278326

CLIENT DETAILS

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COOKS HILL NSW 2300

Telephone 0427 893 668
Facsimile (Not specified)
Email james@jmenvironments.com

Project **JME21054**
Order Number **JME21054**
Samples 8

LABORATORY DETAILS

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Laboratory SGS Alexandria Environmental
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Alexandria NSW 2015

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Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Mon 17/2/2025
Report Due Mon 24/2/2025
SGS Reference **SE278326**

SUBMISSION DETAILS

This is to confirm that 8 samples were received on Monday 17/2/2025. Results are expected to be ready by COB Monday 24/2/2025. Please quote SGS reference SE278326 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	17/2/2025	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	20.1°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

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SAMPLE RECEIPT ADVICE

SE278326

CLIENT DETAILS

Client **JM ENVIRONMENTS**

Project **JME21054**

SUMMARY OF ANALYSIS

No.	Sample ID	Low Level Per- and Polyfluoroalkyl	Mercury (dissolved) in Water	Trace Metals (Dissolved) in Water by ICPMS
001	MW4	30	1	7
002	MW5	30	1	7
003	MW6	30	1	7
004	MW7	30	1	7
005	MW8	30	1	7
006	MW9	30	1	7
007	MW10	30	1	7
008	21054 2502	30	1	7

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 .



STATEMENT OF QA/QC PERFORMANCE

SE278326 R0

CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
COOKS HILL NSW 2300

Telephone 0427 893 668
Facsimile (Not specified)
Email james@jmenvironments.com

Project **JME21054**
Order Number **JME21054**
Samples 8

LABORATORY DETAILS

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Laboratory SGS Alexandria Environmental
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Alexandria NSW 2015

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Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

SGS Reference **SE278326 R0**
Date Received 17 Feb 2025
Date Reported 21 Feb 2025

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.

This QA/QC Statement must be read in conjunction with the referenced Analytical Report.

The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	17/2/2025	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	20.1°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE278326.001	LB338124	17 Feb 2025	17 Feb 2025	17 Mar 2025	18 Feb 2025	18 Mar 2025	19 Feb 2025
MW5	SE278326.002	LB338124	17 Feb 2025	17 Feb 2025	17 Mar 2025	18 Feb 2025	18 Mar 2025	19 Feb 2025
MW6	SE278326.003	LB338124	17 Feb 2025	17 Feb 2025	17 Mar 2025	18 Feb 2025	18 Mar 2025	19 Feb 2025
MW7	SE278326.004	LB338124	17 Feb 2025	17 Feb 2025	17 Mar 2025	18 Feb 2025	18 Mar 2025	19 Feb 2025
MW8	SE278326.005	LB338124	17 Feb 2025	17 Feb 2025	17 Mar 2025	18 Feb 2025	18 Mar 2025	19 Feb 2025
MW9	SE278326.006	LB338124	17 Feb 2025	17 Feb 2025	17 Mar 2025	18 Feb 2025	18 Mar 2025	19 Feb 2025
MW10	SE278326.007	LB338124	17 Feb 2025	17 Feb 2025	17 Mar 2025	18 Feb 2025	18 Mar 2025	19 Feb 2025
21054 2502	SE278326.008	LB338124	17 Feb 2025	17 Feb 2025	17 Mar 2025	18 Feb 2025	18 Mar 2025	19 Feb 2025

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE278326.001	LB338082	17 Feb 2025	17 Feb 2025	17 Mar 2025	18 Feb 2025	17 Mar 2025	18 Feb 2025
MW5	SE278326.002	LB338082	17 Feb 2025	17 Feb 2025	17 Mar 2025	18 Feb 2025	17 Mar 2025	18 Feb 2025
MW6	SE278326.003	LB338082	17 Feb 2025	17 Feb 2025	17 Mar 2025	18 Feb 2025	17 Mar 2025	18 Feb 2025
MW7	SE278326.004	LB338082	17 Feb 2025	17 Feb 2025	17 Mar 2025	18 Feb 2025	17 Mar 2025	18 Feb 2025
MW8	SE278326.005	LB338082	17 Feb 2025	17 Feb 2025	17 Mar 2025	18 Feb 2025	17 Mar 2025	18 Feb 2025
MW9	SE278326.006	LB338082	17 Feb 2025	17 Feb 2025	17 Mar 2025	18 Feb 2025	17 Mar 2025	18 Feb 2025
MW10	SE278326.007	LB338082	17 Feb 2025	17 Feb 2025	17 Mar 2025	18 Feb 2025	17 Mar 2025	18 Feb 2025
21054 2502	SE278326.008	LB338082	17 Feb 2025	17 Feb 2025	17 Mar 2025	18 Feb 2025	17 Mar 2025	18 Feb 2025

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE278326.001	LB338232	17 Feb 2025	17 Feb 2025	16 Aug 2025	19 Feb 2025	16 Aug 2025	20 Feb 2025
MW5	SE278326.002	LB338232	17 Feb 2025	17 Feb 2025	16 Aug 2025	19 Feb 2025	16 Aug 2025	20 Feb 2025
MW6	SE278326.003	LB338232	17 Feb 2025	17 Feb 2025	16 Aug 2025	19 Feb 2025	16 Aug 2025	20 Feb 2025
MW7	SE278326.004	LB338232	17 Feb 2025	17 Feb 2025	16 Aug 2025	19 Feb 2025	16 Aug 2025	20 Feb 2025
MW8	SE278326.005	LB338232	17 Feb 2025	17 Feb 2025	16 Aug 2025	19 Feb 2025	16 Aug 2025	20 Feb 2025
MW9	SE278326.006	LB338232	17 Feb 2025	17 Feb 2025	16 Aug 2025	19 Feb 2025	16 Aug 2025	20 Feb 2025
MW10	SE278326.007	LB338232	17 Feb 2025	17 Feb 2025	16 Aug 2025	19 Feb 2025	16 Aug 2025	20 Feb 2025
21054 2502	SE278326.008	LB338232	17 Feb 2025	17 Feb 2025	16 Aug 2025	19 Feb 2025	16 Aug 2025	20 Feb 2025

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %	
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE278326.001	%	40 - 300%	99	
	MW5	SE278326.002	%	40 - 300%	89	
	MW6	SE278326.003	%	40 - 300%	91	
	MW7	SE278326.004	%	40 - 300%	103	
	MW8	SE278326.005	%	40 - 300%	86	
	MW9	SE278326.006	%	40 - 300%	100	
	MW10	SE278326.007	%	40 - 300%	102	
	21054 2502	SE278326.008	%	40 - 300%	97	
	(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE278326.001	%	40 - 300%	100
		MW5	SE278326.002	%	40 - 300%	91
MW6		SE278326.003	%	40 - 300%	114	
MW7		SE278326.004	%	40 - 300%	104	
MW8		SE278326.005	%	40 - 300%	92	
MW9		SE278326.006	%	40 - 300%	103	
MW10		SE278326.007	%	40 - 300%	105	
21054 2502		SE278326.008	%	40 - 300%	108	
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard		MW4	SE278326.001	%	40 - 300%	108
		MW5	SE278326.002	%	40 - 300%	86
	MW6	SE278326.003	%	40 - 300%	141	
	MW7	SE278326.004	%	40 - 300%	107	
	MW8	SE278326.005	%	40 - 300%	105	
	MW9	SE278326.006	%	40 - 300%	120	
	MW10	SE278326.007	%	40 - 300%	122	
	21054 2502	SE278326.008	%	40 - 300%	126	
	(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	MW4	SE278326.001	%	40 - 150%	116
		MW5	SE278326.002	%	40 - 150%	110
MW6		SE278326.003	%	40 - 150%	131	
MW7		SE278326.004	%	40 - 150%	120	
MW8		SE278326.005	%	40 - 150%	123	
MW9		SE278326.006	%	40 - 150%	134	
MW10		SE278326.007	%	40 - 150%	137	
21054 2502		SE278326.008	%	40 - 150%	137	
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard		MW4	SE278326.001	%	40 - 150%	101
		MW5	SE278326.002	%	40 - 150%	101
	MW6	SE278326.003	%	40 - 150%	103	
	MW7	SE278326.004	%	40 - 150%	100	
	MW8	SE278326.005	%	40 - 150%	97	
	MW9	SE278326.006	%	40 - 150%	104	
	MW10	SE278326.007	%	40 - 150%	106	
	21054 2502	SE278326.008	%	40 - 150%	105	
	(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	MW4	SE278326.001	%	40 - 150%	94
		MW5	SE278326.002	%	40 - 150%	86
MW6		SE278326.003	%	40 - 150%	103	
MW7		SE278326.004	%	40 - 150%	93	
MW8		SE278326.005	%	40 - 150%	91	
MW9		SE278326.006	%	40 - 150%	97	
MW10		SE278326.007	%	40 - 150%	101	
21054 2502		SE278326.008	%	40 - 150%	112	
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard		MW4	SE278326.001	%	5 - 150%	122
		MW5	SE278326.002	%	5 - 150%	125
	MW6	SE278326.003	%	5 - 150%	141	
	MW7	SE278326.004	%	5 - 150%	132	
	MW8	SE278326.005	%	5 - 150%	144	
	MW9	SE278326.006	%	5 - 150%	143	
	MW10	SE278326.007	%	5 - 150%	134	
	21054 2502	SE278326.008	%	5 - 150%	138	
	(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW4	SE278326.001	%	40 - 150%	86
		MW5	SE278326.002	%	40 - 150%	89
MW6		SE278326.003	%	40 - 150%	98	
MW7		SE278326.004	%	40 - 150%	91	
MW8		SE278326.005	%	40 - 150%	94	

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW9	SE278326.006	%	40 - 150%	97
	MW10	SE278326.007	%	40 - 150%	99
	21054 2502	SE278326.008	%	40 - 150%	98
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	MW4	SE278326.001	%	40 - 150%	92
	MW5	SE278326.002	%	40 - 150%	93
	MW6	SE278326.003	%	40 - 150%	98
	MW7	SE278326.004	%	40 - 150%	93
	MW8	SE278326.005	%	40 - 150%	93
	MW9	SE278326.006	%	40 - 150%	97
	MW10	SE278326.007	%	40 - 150%	102
	21054 2502	SE278326.008	%	40 - 150%	99
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	MW4	SE278326.001	%	35 - 150%	89
	MW5	SE278326.002	%	35 - 150%	88
	MW6	SE278326.003	%	35 - 150%	93
	MW7	SE278326.004	%	35 - 150%	88
	MW8	SE278326.005	%	35 - 150%	89
	MW9	SE278326.006	%	35 - 150%	90
	MW10	SE278326.007	%	35 - 150%	94
	21054 2502	SE278326.008	%	35 - 150%	93
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	MW4	SE278326.001	%	40 - 150%	63
	MW5	SE278326.002	%	40 - 150%	63
	MW6	SE278326.003	%	40 - 150%	68
	MW7	SE278326.004	%	40 - 150%	70
	MW8	SE278326.005	%	40 - 150%	65
	MW9	SE278326.006	%	40 - 150%	71
	MW10	SE278326.007	%	40 - 150%	78
	21054 2502	SE278326.008	%	40 - 150%	71

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result
LB338124.001	Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01
	Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002
	Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002
	Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002
	Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	<0.002
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002
	Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002
	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	µg/L	0.005	<0.005

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB338082.001	Mercury	mg/L	0.0001	<0.0001

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB338232.001	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE278326.006	LB338124.015	(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	143	138	200	3
		(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	90	93	200	4
		(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	97	99	200	2
		(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	97	98	200	1
		(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	97	112	200	14
		(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	134	137	200	2
		(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	104	105	200	1
		(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	71	71	200	1
		(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	100	97	200	3
		(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	103	108	200	5
		(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	120	126	200	5

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE278365.044	LB338082.014	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	40

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE278326.002	LB338232.014	Arsenic	µg/L	1	<1	<1	149	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	3	3	44	2
		Copper	µg/L	1	<1	<1	157	0
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	200	0
		Zinc	µg/L	5	20	21	39	3
SE278349.036	LB338232.024	Arsenic	µg/L	1	0.017	0.016	200	0
		Cadmium	µg/L	0.1	0.038	0.051	200	0
		Chromium	µg/L	1	0.019	0.009	200	0
		Copper	µg/L	1	159.899	159.483	16	0
		Lead	µg/L	1	0.014	0.017	200	0
		Nickel	µg/L	1	27.313	27.346	19	0
		Zinc	µg/L	5	340	340	16	1

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB338124.002	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.16	0.2	40 - 160	79
	Perfluorooctanoic acid (PFOA)	µg/L	0.002	0.13	0.2	40 - 160	67
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	0.15	0.2	40 - 160	73

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB338232.002	Arsenic	µg/L	1	20	20	80 - 120	102
	Cadmium	µg/L	0.1	22	20	80 - 120	112
	Chromium	µg/L	1	22	20	80 - 120	110
	Copper	µg/L	1	23	20	80 - 120	113
	Lead	µg/L	1	22	20	80 - 120	109
	Nickel	µg/L	1	21	20	80 - 120	107
	Zinc	µg/L	5	22	20	80 - 120	110

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE277476B.017	LB338082.004	Mercury	mg/L	0.0001	0.0017	<0.0001	0.008	86

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE278325.001	LB338232.004	Zinc	µg/L	5	43	21	20	109

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

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 Order Number **JME21054**
 Samples **8**

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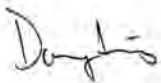
SGS Reference **SE278326 R1**
 Date Received **17/2/2025**
 Date Reported **24/2/2025**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

This report cancels and supersedes the report No. SE278326 R0 dated 21.02.2025 due to amended sampling date.

SIGNATORIES



Dong LIANG
 Metals/Inorganics Team Leader



Ly Kim HA
 Organic Section Head



ANALYTICAL RESULTS

SE278326 R1

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 19/2/2025

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			- 14/2/2025 SE278326.001	- 14/2/2025 SE278326.002	- 14/2/2025 SE278326.003	- 14/2/2025 SE278326.004	- 14/2/2025 SE278326.005
Arsenic	µg/L	1	<1	<1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	1	<1	<1	<1	<1
Chromium	µg/L	1	2	3	2	3	2
Nickel	µg/L	1	<1	<1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1	<1	<1
Zinc	µg/L	5	9	20	<5	170	<5

PARAMETER	UOM	LOR	MW9	MW10	21054 2502
			WATER	WATER	WATER
			- 14/2/2025 SE278326.006	- 14/2/2025 SE278326.007	- 14/2/2025 SE278326.008
Arsenic	µg/L	1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	<1	<1	<1
Chromium	µg/L	1	3	4	3
Nickel	µg/L	1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1
Zinc	µg/L	5	<5	<5	<5



ANALYTICAL RESULTS

SE278326 R1

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 18/2/2025

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER - 14/2/2025 SE278326.001	WATER - 14/2/2025 SE278326.002	WATER - 14/2/2025 SE278326.003	WATER - 14/2/2025 SE278326.004	WATER - 14/2/2025 SE278326.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

PARAMETER	UOM	LOR	MW9	MW10	21054 2502
			WATER - 14/2/2025 SE278326.006	WATER - 14/2/2025 SE278326.007	WATER - 14/2/2025 SE278326.008
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001



ANALYTICAL RESULTS

SE278326 R1

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples [AN404] Tested: 18/2/2025

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			14/2/2025 SE278326.001	14/2/2025 SE278326.002	14/2/2025 SE278326.003	14/2/2025 SE278326.004	14/2/2025 SE278326.005
Perfluorobutanoic acid (PFBA)	µg/L	0.01	0.02	<0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	0.010	0.003	<0.002	0.002	0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.014	0.003	<0.002	0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.006	<0.002	<0.002	<0.002	0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	0.004	0.002	0.002	0.002	0.008
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	0.006	<0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	0.016	0.008	<0.002	0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002	0.005	0.005
Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	0.007	0.007
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Sum of PFOS and PFHxS	µg/L	0.002	0.016	0.008	<0.002	0.007	0.005
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	0.020	0.010	0.002	0.009	0.013
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	0.004	0.002	0.002	0.007	0.013

PARAMETER	UOM	LOR	MW9	MW10	21054 2502
			WATER	WATER	WATER
			14/2/2025 SE278326.006	14/2/2025 SE278326.007	14/2/2025 SE278326.008
Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2)	µg/L	0.005	<0.005	<0.005	<0.005
Sum of PFOS and PFHxS	µg/L	0.002	<0.002	<0.002	<0.002
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	<0.002	<0.002	<0.002
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	<0.002	<0.002	<0.002

METHOD

METHODOLOGY SUMMARY

- AN020** Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
- AN311(Perth)/AN312** Mercury by Cold Vapour AAS in Waters: 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.
- AN318** Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
- AN404** This method covers the analysis of per- and polyfluoroalkyl substances (PFAS) in aqueous, solid and biosolid samples and solvent extracts. After spiking with isotopically labelled quantification surrogates and sample extracts are analysed by liquid chromatography/mass spectrometry (LC-MS/MS). PFAS concentrations are determined by isotope dilution quantification. PFOS and PFHXS are determined as the total of linear and branched isomers.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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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Project **JME21054**
Order Number **JME21054**
Samples 8

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SGS Reference **SE278326 R1**
Date Received 17 Feb 2025
Date Reported 24 Feb 2025

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
 This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
 The Statement and the Analytical Report must not be reproduced except in full.
 All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	17/2/2025	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	20.1°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE278326.001	LB338124	14 Feb 2025	17 Feb 2025	14 Mar 2025	18 Feb 2025	18 Mar 2025	19 Feb 2025
MW5	SE278326.002	LB338124	14 Feb 2025	17 Feb 2025	14 Mar 2025	18 Feb 2025	18 Mar 2025	19 Feb 2025
MW6	SE278326.003	LB338124	14 Feb 2025	17 Feb 2025	14 Mar 2025	18 Feb 2025	18 Mar 2025	19 Feb 2025
MW7	SE278326.004	LB338124	14 Feb 2025	17 Feb 2025	14 Mar 2025	18 Feb 2025	18 Mar 2025	19 Feb 2025
MW8	SE278326.005	LB338124	14 Feb 2025	17 Feb 2025	14 Mar 2025	18 Feb 2025	18 Mar 2025	19 Feb 2025
MW9	SE278326.006	LB338124	14 Feb 2025	17 Feb 2025	14 Mar 2025	18 Feb 2025	18 Mar 2025	19 Feb 2025
MW10	SE278326.007	LB338124	14 Feb 2025	17 Feb 2025	14 Mar 2025	18 Feb 2025	18 Mar 2025	19 Feb 2025
21054 2502	SE278326.008	LB338124	14 Feb 2025	17 Feb 2025	14 Mar 2025	18 Feb 2025	18 Mar 2025	19 Feb 2025

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE278326.001	LB338082	14 Feb 2025	17 Feb 2025	14 Mar 2025	18 Feb 2025	14 Mar 2025	18 Feb 2025
MW5	SE278326.002	LB338082	14 Feb 2025	17 Feb 2025	14 Mar 2025	18 Feb 2025	14 Mar 2025	18 Feb 2025
MW6	SE278326.003	LB338082	14 Feb 2025	17 Feb 2025	14 Mar 2025	18 Feb 2025	14 Mar 2025	18 Feb 2025
MW7	SE278326.004	LB338082	14 Feb 2025	17 Feb 2025	14 Mar 2025	18 Feb 2025	14 Mar 2025	18 Feb 2025
MW8	SE278326.005	LB338082	14 Feb 2025	17 Feb 2025	14 Mar 2025	18 Feb 2025	14 Mar 2025	18 Feb 2025
MW9	SE278326.006	LB338082	14 Feb 2025	17 Feb 2025	14 Mar 2025	18 Feb 2025	14 Mar 2025	18 Feb 2025
MW10	SE278326.007	LB338082	14 Feb 2025	17 Feb 2025	14 Mar 2025	18 Feb 2025	14 Mar 2025	18 Feb 2025
21054 2502	SE278326.008	LB338082	14 Feb 2025	17 Feb 2025	14 Mar 2025	18 Feb 2025	14 Mar 2025	18 Feb 2025

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE278326.001	LB338232	14 Feb 2025	17 Feb 2025	13 Aug 2025	19 Feb 2025	13 Aug 2025	20 Feb 2025
MW5	SE278326.002	LB338232	14 Feb 2025	17 Feb 2025	13 Aug 2025	19 Feb 2025	13 Aug 2025	20 Feb 2025
MW6	SE278326.003	LB338232	14 Feb 2025	17 Feb 2025	13 Aug 2025	19 Feb 2025	13 Aug 2025	20 Feb 2025
MW7	SE278326.004	LB338232	14 Feb 2025	17 Feb 2025	13 Aug 2025	19 Feb 2025	13 Aug 2025	20 Feb 2025
MW8	SE278326.005	LB338232	14 Feb 2025	17 Feb 2025	13 Aug 2025	19 Feb 2025	13 Aug 2025	20 Feb 2025
MW9	SE278326.006	LB338232	14 Feb 2025	17 Feb 2025	13 Aug 2025	19 Feb 2025	13 Aug 2025	20 Feb 2025
MW10	SE278326.007	LB338232	14 Feb 2025	17 Feb 2025	13 Aug 2025	19 Feb 2025	13 Aug 2025	20 Feb 2025
21054 2502	SE278326.008	LB338232	14 Feb 2025	17 Feb 2025	13 Aug 2025	19 Feb 2025	13 Aug 2025	20 Feb 2025

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %	
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE278326.001	%	40 - 300%	99	
	MW5	SE278326.002	%	40 - 300%	89	
	MW6	SE278326.003	%	40 - 300%	91	
	MW7	SE278326.004	%	40 - 300%	103	
	MW8	SE278326.005	%	40 - 300%	86	
	MW9	SE278326.006	%	40 - 300%	100	
	MW10	SE278326.007	%	40 - 300%	102	
	21054 2502	SE278326.008	%	40 - 300%	97	
	(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE278326.001	%	40 - 300%	100
		MW5	SE278326.002	%	40 - 300%	91
MW6		SE278326.003	%	40 - 300%	114	
MW7		SE278326.004	%	40 - 300%	104	
MW8		SE278326.005	%	40 - 300%	92	
MW9		SE278326.006	%	40 - 300%	103	
MW10		SE278326.007	%	40 - 300%	105	
21054 2502		SE278326.008	%	40 - 300%	108	
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard		MW4	SE278326.001	%	40 - 300%	108
		MW5	SE278326.002	%	40 - 300%	86
	MW6	SE278326.003	%	40 - 300%	141	
	MW7	SE278326.004	%	40 - 300%	107	
	MW8	SE278326.005	%	40 - 300%	105	
	MW9	SE278326.006	%	40 - 300%	120	
	MW10	SE278326.007	%	40 - 300%	122	
	21054 2502	SE278326.008	%	40 - 300%	126	
	(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	MW4	SE278326.001	%	40 - 150%	116
		MW5	SE278326.002	%	40 - 150%	110
MW6		SE278326.003	%	40 - 150%	131	
MW7		SE278326.004	%	40 - 150%	120	
MW8		SE278326.005	%	40 - 150%	123	
MW9		SE278326.006	%	40 - 150%	134	
MW10		SE278326.007	%	40 - 150%	137	
21054 2502		SE278326.008	%	40 - 150%	137	
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard		MW4	SE278326.001	%	40 - 150%	101
		MW5	SE278326.002	%	40 - 150%	101
	MW6	SE278326.003	%	40 - 150%	103	
	MW7	SE278326.004	%	40 - 150%	100	
	MW8	SE278326.005	%	40 - 150%	97	
	MW9	SE278326.006	%	40 - 150%	104	
	MW10	SE278326.007	%	40 - 150%	106	
	21054 2502	SE278326.008	%	40 - 150%	105	
	(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	MW4	SE278326.001	%	40 - 150%	94
		MW5	SE278326.002	%	40 - 150%	86
MW6		SE278326.003	%	40 - 150%	103	
MW7		SE278326.004	%	40 - 150%	93	
MW8		SE278326.005	%	40 - 150%	91	
MW9		SE278326.006	%	40 - 150%	97	
MW10		SE278326.007	%	40 - 150%	101	
21054 2502		SE278326.008	%	40 - 150%	112	
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard		MW4	SE278326.001	%	5 - 150%	122
		MW5	SE278326.002	%	5 - 150%	125
	MW6	SE278326.003	%	5 - 150%	141	
	MW7	SE278326.004	%	5 - 150%	132	
	MW8	SE278326.005	%	5 - 150%	144	
	MW9	SE278326.006	%	5 - 150%	143	
	MW10	SE278326.007	%	5 - 150%	134	
	21054 2502	SE278326.008	%	5 - 150%	138	
	(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW4	SE278326.001	%	40 - 150%	86
		MW5	SE278326.002	%	40 - 150%	89
MW6		SE278326.003	%	40 - 150%	98	
MW7		SE278326.004	%	40 - 150%	91	
MW8		SE278326.005	%	40 - 150%	94	

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW9	SE278326.006	%	40 - 150%	97
	MW10	SE278326.007	%	40 - 150%	99
	21054 2502	SE278326.008	%	40 - 150%	98
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	MW4	SE278326.001	%	40 - 150%	92
	MW5	SE278326.002	%	40 - 150%	93
	MW6	SE278326.003	%	40 - 150%	98
	MW7	SE278326.004	%	40 - 150%	93
	MW8	SE278326.005	%	40 - 150%	93
	MW9	SE278326.006	%	40 - 150%	97
	MW10	SE278326.007	%	40 - 150%	102
	21054 2502	SE278326.008	%	40 - 150%	99
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	MW4	SE278326.001	%	35 - 150%	89
	MW5	SE278326.002	%	35 - 150%	88
	MW6	SE278326.003	%	35 - 150%	93
	MW7	SE278326.004	%	35 - 150%	88
	MW8	SE278326.005	%	35 - 150%	89
	MW9	SE278326.006	%	35 - 150%	90
	MW10	SE278326.007	%	35 - 150%	94
	21054 2502	SE278326.008	%	35 - 150%	93
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	MW4	SE278326.001	%	40 - 150%	63
	MW5	SE278326.002	%	40 - 150%	63
	MW6	SE278326.003	%	40 - 150%	68
	MW7	SE278326.004	%	40 - 150%	70
	MW8	SE278326.005	%	40 - 150%	65
	MW9	SE278326.006	%	40 - 150%	71
	MW10	SE278326.007	%	40 - 150%	78
	21054 2502	SE278326.008	%	40 - 150%	71

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result
LB338124.001	Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01
	Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002
	Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002
	Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002
	Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	<0.002
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002
	Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002
	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	µg/L	0.005	<0.005

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB338082.001	Mercury	mg/L	0.0001	<0.0001

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB338232.001	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE278326.006	LB338124.015	(13C4-PFBA) Isotopically Labelled Internal Recovery	%	-	143	138	200	3
		(13C5-PFPeA) Isotopically Labelled Internal Recovery	%	-	90	93	200	4
		(13C5-PFHxA) Isotopically Labelled Internal Recovery	%	-	97	99	200	2
		(13C4-PFHpA) Isotopically Labelled Internal Recovery	%	-	97	98	200	1
		(13C4_PFOA) Isotopically Labelled Internal Recovery	%	-	97	112	200	14
		(13C3-PFBS) Isotopically Labelled Internal Recovery	%	-	134	137	200	2
		(13C3-PFHxS) Isotopically Labelled Internal Recovery	%	-	104	105	200	1
		(13C8-PFOS) Isotopically Labelled Internal Recovery	%	-	71	71	200	1
		(13C2-4:2 FTS) Isotopically Labelled Internal Recovery	%	-	100	97	200	3
		(13C2-6:2 FTS) Isotopically Labelled Internal Recovery	%	-	103	108	200	5
		(13C2-8:2 FTS) Isotopically Labelled Internal Recovery	%	-	120	126	200	5

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE278365.044	LB338082.014	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	40

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE278326.002	LB338232.014	Arsenic	µg/L	1	<1	<1	149	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	3	3	44	2
		Copper	µg/L	1	<1	<1	157	0
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	200	0
SE278349.036	LB338232.024	Zinc	µg/L	5	20	21	39	3
		Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	<1	<1	200	0
		Copper	µg/L	1	160	160	16	0
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	27	27	19	0
Zinc	µg/L	5	340	340	16	1		

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB338124.002	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.16	0.2	40 - 160	79
	Perfluorooctanoic acid (PFOA)	µg/L	0.002	0.13	0.2	40 - 160	67
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	0.15	0.2	40 - 160	73

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB338232.002	Arsenic	µg/L	1	20	20	80 - 120	102
	Cadmium	µg/L	0.1	22	20	80 - 120	112
	Chromium	µg/L	1	22	20	80 - 120	110
	Copper	µg/L	1	23	20	80 - 120	113
	Lead	µg/L	1	22	20	80 - 120	109
	Nickel	µg/L	1	21	20	80 - 120	107
	Zinc	µg/L	5	22	20	80 - 120	110

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE277476B.017	LB338082.004	Mercury	mg/L	0.0001	0.0017	<0.0001	0.008	86

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE278325.001	LB338232.004	Zinc	µg/L	5	43	21	20	109

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

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CHAIN OF CUSTODY & ANALYSIS REQUEST

Sample Date: 13/03/2025

Page 1 of 1

Company Name:	JM Environments	Project Name/No:	JME21054
Address:	37 Tooke St	Purchase Order No:	JME21054
	COOKS HILL NSW 2300	Results Required By:	Standard
Contact Name:	James McMahon	Email:	james@jmenvironments.com
Telephone	0427 893 668	Email:	admin@jmenvironments.com

Relinquished by:	Date /Time:	Received by:	Date /Time:
Relinquished by:	Date /Time:	Received by: <i>AS Suban</i>	Date /Time: 13-3-25 11:00
Samples intact: <u>Yes</u> /No	Temperature:	Sample Cooler Sealed: Yes/No	Laboratory Quotation: ENV1126319

Lab Sample ID	Sample ID	Water	Soil	Other	Preservative	No. of Containers	pH/CEC	BTEX/TPH/PAH/8HM	8 Heavy metals	OCPI/PCB	Asbestos	PFAS short suite	Comments
<i>1</i>	MW4	X				2			x			X	Low level PFAS
<i>2</i>	MW5	X				2			x			X	Low level PFAS
<i>3</i>	MW6	X				2			x			X	Low level PFAS
<i>4</i>	MW7	X				2			x			X	Low level PFAS
<i>5</i>	MW8	X				2			x			X	Low level PFAS
<i>6</i>	MW9	X				2			x			X	Low level PFAS
<i>7</i>	MW10	X				2			x			X	Low level PFAS
<i>8</i>	21054 2503	x				2			x			X	Low level PFAS

SGS EHS Sydney COC
SE279812





SAMPLE RECEIPT ADVICE

SE279812

CLIENT DETAILS

Contact James McMahon
Client JM ENVIRONMENTS
Address 37 TOOKE STREET
COOKS HILL NSW 2300

Telephone 0427 893 668
Facsimile (Not specified)
Email james@jmenvironments.com

Project **JME21054**
Order Number **JME21054**
Samples 8

LABORATORY DETAILS

Manager Shane McDermott
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Fri 14/3/2025
Report Due Fri 21/3/2025
SGS Reference **SE279812**

SUBMISSION DETAILS

This is to confirm that 8 samples were received on Friday 14/3/2025. Results are expected to be ready by COB Friday 21/3/2025. Please quote SGS reference SE279812 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	14/3/2025	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	5.3°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

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CLIENT DETAILS

Client **JM ENVIRONMENTS**

Project **JME21054**

SUMMARY OF ANALYSIS

No.	Sample ID	Low Level Per- and Polyfluoroalkyl Substances	Mercury (dissolved) in Water	Trace Metals (Dissolved) in Water by ICPMS
001	MW4	30	1	7
002	MW5	30	1	7
003	MW6	30	1	7
004	MW7	30	1	7
005	MW8	30	1	7
006	MW9	30	1	7
007	MW10	30	1	7
008	21054 2503	30	1	7

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.

CLIENT DETAILS

Contact **James McMahon**
 Client **JM ENVIRONMENTS**
 Address **37 TOOKE STREET
 COOKS HILL NSW 2300**

Telephone **0427 893 668**
 Facsimile **(Not specified)**
 Email **james@jmenvironments.com**

Project **JME21054**
 Order Number **JME21054**
 Samples **8**

LABORATORY DETAILS

Manager **Shane McDermott**
 Laboratory **SGS Alexandria Environmental**
 Address **Unit 16, 33 Maddox St
 Alexandria NSW 2015**

Telephone **+61 2 8594 0400**
 Facsimile **+61 2 8594 0499**
 Email **au.environmental.sydney@sgs.com**

SGS Reference **SE279812 R0**
 Date Received **14/3/2025**
 Date Reported **21/3/2025**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES



Bennet LO
Senior Chemist



Dong LIANG
Metals/Inorganics Team Leader



Ly Kim HA
Organic Section Head

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples [AN404] Tested: 17/3/2025

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			13/3/2025 SE279812.001	13/3/2025 SE279812.002	13/3/2025 SE279812.003	13/3/2025 SE279812.004	13/3/2025 SE279812.005
Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01	0.03	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	0.006	0.036	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	0.007	0.028	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002	0.010	<0.002	<0.002	<0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002	0.035	<0.002	<0.002	0.006
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	0.011	0.010	<0.002	<0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	0.004	0.009	<0.002	<0.002	0.006
Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005	0.012	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2)	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Sum of PFOS and PFHxS	µg/L	0.002	0.015	0.018	<0.002	<0.002	0.006
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	0.015	0.053	<0.002	<0.002	0.012
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	0.004	0.044	<0.002	<0.002	0.012

PARAMETER	UOM	LOR	MW9	MW10	21054 2503
			WATER	WATER	WATER
			13/3/2025 SE279812.006	13/3/2025 SE279812.007	13/3/2025 SE279812.008
Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004	<0.004	<0.004
Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002	<0.002	<0.002
Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002	<0.002	<0.002
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005	<0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2)	µg/L	0.005	<0.005	<0.005	<0.005
Sum of PFOS and PFHxS	µg/L	0.002	<0.002	<0.002	<0.002
Sum of enHealth PFAS (PFHxS+PFOS+PFOA)	µg/L	0.002	<0.002	<0.002	<0.002
Sum of US EPA PFAS (PFOS+PFOA)	µg/L	0.002	<0.002	<0.002	<0.002

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 19/3/2025

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			WATER	WATER	WATER	WATER	WATER
			13/3/2025 SE279812.001	13/3/2025 SE279812.002	13/3/2025 SE279812.003	13/3/2025 SE279812.004	13/3/2025 SE279812.005
Arsenic	µg/L	1	1	<1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	<1	3	2	2	<1
Chromium	µg/L	1	3	1	3	2	2
Nickel	µg/L	1	7	<1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1	<1	<1
Zinc	µg/L	5	10	15	<5	200	<5

PARAMETER	UOM	LOR	MW9	MW10	21054 2503
			WATER	WATER	WATER
			13/3/2025 SE279812.006	13/3/2025 SE279812.007	13/3/2025 SE279812.008
Arsenic	µg/L	1	<1	<1	<1
Cadmium	µg/L	0.1	<0.1	<0.1	<0.1
Copper	µg/L	1	2	<1	2
Chromium	µg/L	1	4	4	4
Nickel	µg/L	1	<1	<1	<1
Lead	µg/L	1	<1	<1	<1
Zinc	µg/L	5	<5	<5	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 17/3/2025

PARAMETER	UOM	LOR	MW4	MW5	MW6	MW7	MW8
			13/3/2025 SE279812.001	13/3/2025 SE279812.002	13/3/2025 SE279812.003	13/3/2025 SE279812.004	13/3/2025 SE279812.005
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

PARAMETER	UOM	LOR	MW9	MW10	21054 2503
			13/3/2025 SE279812.006	13/3/2025 SE279812.007	13/3/2025 SE279812.008
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001

METHOD

METHODOLOGY SUMMARY

AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: 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.
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
AN404	This method covers the analysis of per- and polyfluoroalkyl substances (PFAS) in aqueous, solid and biosolid samples and solvent extracts. After spiking with isotopically labelled quantification surrogates and sample extracts are analysed by liquid chromatography/mass spectrometry (LC-MS/MS). PFAS concentrations are determined by isotope dilution quantification. PFOS and PFHXS are determined as the total of linear and branched isomers.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
		IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
***	Indicates that both * and ** apply.	LNR	Sample listed, but not received.		

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:

- a. 1 Bq is equivalent to 27 pCi
- b. 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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CLIENT DETAILS

LABORATORY DETAILS

Contact	James McMahon	Manager	Shane McDermott
Client	JM ENVIRONMENTS	Laboratory	SGS Alexandria Environmental
Address	37 TOOKE STREET COOKS HILL NSW 2300	Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	0427 893 668	Telephone	+61 2 8594 0400
Facsimile	(Not specified)	Facsimile	+61 2 8594 0499
Email	james@jmenvironments.com	Email	au.environmental.sydney@sgs.com
Project	JME21054	SGS Reference	SE279812 R0
Order Number	JME21054	Date Received	14 Mar 2025
Samples	8	Date Reported	21 Mar 2025

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
 This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
 The Statement and the Analytical Report must not be reproduced except in full.
 All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	8 Water	Type of documentation received	COC
Date documentation received	14/3/2025	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	5.3°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice	Samples clearly labelled	Yes
Complete documentation received	Yes		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE279812.001	LB341104	13 Mar 2025	14 Mar 2025	10 Apr 2025	17 Mar 2025	14 Apr 2025	18 Mar 2025
MW5	SE279812.002	LB341104	13 Mar 2025	14 Mar 2025	10 Apr 2025	17 Mar 2025	14 Apr 2025	18 Mar 2025
MW6	SE279812.003	LB341104	13 Mar 2025	14 Mar 2025	10 Apr 2025	17 Mar 2025	14 Apr 2025	18 Mar 2025
MW7	SE279812.004	LB341104	13 Mar 2025	14 Mar 2025	10 Apr 2025	17 Mar 2025	14 Apr 2025	18 Mar 2025
MW8	SE279812.005	LB341104	13 Mar 2025	14 Mar 2025	10 Apr 2025	17 Mar 2025	14 Apr 2025	18 Mar 2025
MW9	SE279812.006	LB341104	13 Mar 2025	14 Mar 2025	10 Apr 2025	17 Mar 2025	14 Apr 2025	18 Mar 2025
MW10	SE279812.007	LB341104	13 Mar 2025	14 Mar 2025	10 Apr 2025	17 Mar 2025	14 Apr 2025	18 Mar 2025
21054 2503	SE279812.008	LB341104	13 Mar 2025	14 Mar 2025	10 Apr 2025	17 Mar 2025	14 Apr 2025	18 Mar 2025

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE279812.001	LB341047	13 Mar 2025	14 Mar 2025	10 Apr 2025	17 Mar 2025	10 Apr 2025	18 Mar 2025
MW5	SE279812.002	LB341047	13 Mar 2025	14 Mar 2025	10 Apr 2025	17 Mar 2025	10 Apr 2025	18 Mar 2025
MW6	SE279812.003	LB341047	13 Mar 2025	14 Mar 2025	10 Apr 2025	17 Mar 2025	10 Apr 2025	18 Mar 2025
MW7	SE279812.004	LB341047	13 Mar 2025	14 Mar 2025	10 Apr 2025	17 Mar 2025	10 Apr 2025	18 Mar 2025
MW8	SE279812.005	LB341047	13 Mar 2025	14 Mar 2025	10 Apr 2025	17 Mar 2025	10 Apr 2025	18 Mar 2025
MW9	SE279812.006	LB341047	13 Mar 2025	14 Mar 2025	10 Apr 2025	17 Mar 2025	10 Apr 2025	18 Mar 2025
MW10	SE279812.007	LB341047	13 Mar 2025	14 Mar 2025	10 Apr 2025	17 Mar 2025	10 Apr 2025	18 Mar 2025
21054 2503	SE279812.008	LB341047	13 Mar 2025	14 Mar 2025	10 Apr 2025	17 Mar 2025	10 Apr 2025	18 Mar 2025

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW4	SE279812.001	LB341415	13 Mar 2025	14 Mar 2025	09 Sep 2025	19 Mar 2025	09 Sep 2025	20 Mar 2025
MW5	SE279812.002	LB341415	13 Mar 2025	14 Mar 2025	09 Sep 2025	19 Mar 2025	09 Sep 2025	20 Mar 2025
MW6	SE279812.003	LB341415	13 Mar 2025	14 Mar 2025	09 Sep 2025	19 Mar 2025	09 Sep 2025	20 Mar 2025
MW7	SE279812.004	LB341415	13 Mar 2025	14 Mar 2025	09 Sep 2025	19 Mar 2025	09 Sep 2025	20 Mar 2025
MW8	SE279812.005	LB341415	13 Mar 2025	14 Mar 2025	09 Sep 2025	19 Mar 2025	09 Sep 2025	20 Mar 2025
MW9	SE279812.006	LB341415	13 Mar 2025	14 Mar 2025	09 Sep 2025	19 Mar 2025	09 Sep 2025	20 Mar 2025
MW10	SE279812.007	LB341415	13 Mar 2025	14 Mar 2025	09 Sep 2025	19 Mar 2025	09 Sep 2025	20 Mar 2025
21054 2503	SE279812.008	LB341415	13 Mar 2025	14 Mar 2025	09 Sep 2025	19 Mar 2025	09 Sep 2025	20 Mar 2025

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %	
(13C2-4:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE279812.001	%	40 - 300%	108	
	MW5	SE279812.002	%	40 - 300%	97	
	MW6	SE279812.003	%	40 - 300%	76	
	MW7	SE279812.004	%	40 - 300%	112	
	MW8	SE279812.005	%	40 - 300%	93	
	MW9	SE279812.006	%	40 - 300%	82	
	MW10	SE279812.007	%	40 - 300%	118	
	21054 2503	SE279812.008	%	40 - 300%	103	
	(13C2-6:2 FTS) Isotopically Labelled Internal Recovery Standard	MW4	SE279812.001	%	40 - 300%	85
		MW5	SE279812.002	%	40 - 300%	94
MW6		SE279812.003	%	40 - 300%	87	
MW7		SE279812.004	%	40 - 300%	84	
MW8		SE279812.005	%	40 - 300%	88	
MW9		SE279812.006	%	40 - 300%	85	
MW10		SE279812.007	%	40 - 300%	96	
21054 2503		SE279812.008	%	40 - 300%	87	
(13C2-8:2 FTS) Isotopically Labelled Internal Recovery Standard		MW4	SE279812.001	%	40 - 300%	66
		MW5	SE279812.002	%	40 - 300%	56
	MW6	SE279812.003	%	40 - 300%	69	
	MW7	SE279812.004	%	40 - 300%	70	
	MW8	SE279812.005	%	40 - 300%	83	
	MW9	SE279812.006	%	40 - 300%	81	
	MW10	SE279812.007	%	40 - 300%	77	
	21054 2503	SE279812.008	%	40 - 300%	85	
	(13C3-PFBS) Isotopically Labelled Internal Recovery Standard	MW4	SE279812.001	%	40 - 150%	82
		MW5	SE279812.002	%	40 - 150%	92
MW6		SE279812.003	%	40 - 150%	88	
MW7		SE279812.004	%	40 - 150%	90	
MW8		SE279812.005	%	40 - 150%	91	
MW9		SE279812.006	%	40 - 150%	84	
MW10		SE279812.007	%	40 - 150%	85	
21054 2503		SE279812.008	%	40 - 150%	95	
(13C3-PFHxS) Isotopically Labelled Internal Recovery Standard		MW4	SE279812.001	%	40 - 150%	85
		MW5	SE279812.002	%	40 - 150%	91
	MW6	SE279812.003	%	40 - 150%	88	
	MW7	SE279812.004	%	40 - 150%	89	
	MW8	SE279812.005	%	40 - 150%	87	
	MW9	SE279812.006	%	40 - 150%	83	
	MW10	SE279812.007	%	40 - 150%	85	
	21054 2503	SE279812.008	%	40 - 150%	94	
	(13C4_PFOA) Isotopically Labelled Internal Recovery Standard	MW4	SE279812.001	%	40 - 150%	92
		MW5	SE279812.002	%	40 - 150%	99
MW6		SE279812.003	%	40 - 150%	92	
MW7		SE279812.004	%	40 - 150%	95	
MW8		SE279812.005	%	40 - 150%	87	
MW9		SE279812.006	%	40 - 150%	88	
MW10		SE279812.007	%	40 - 150%	97	
21054 2503		SE279812.008	%	40 - 150%	102	
(13C4-PFBA) Isotopically Labelled Internal Recovery Standard		MW4	SE279812.001	%	5 - 150%	116
		MW5	SE279812.002	%	5 - 150%	108
	MW6	SE279812.003	%	5 - 150%	96	
	MW7	SE279812.004	%	5 - 150%	107	
	MW8	SE279812.005	%	5 - 150%	102	
	MW9	SE279812.006	%	5 - 150%	97	
	MW10	SE279812.007	%	5 - 150%	114	
	21054 2503	SE279812.008	%	5 - 150%	107	
	(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW4	SE279812.001	%	40 - 150%	103
		MW5	SE279812.002	%	40 - 150%	107
MW6		SE279812.003	%	40 - 150%	100	
MW7		SE279812.004	%	40 - 150%	103	
MW8		SE279812.005	%	40 - 150%	103	

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples (continued)

Method: ME-(AU)-[ENV]AN404

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
(13C4-PFHpA) Isotopically Labelled Internal Recovery Standard	MW9	SE279812.006	%	40 - 150%	99
	MW10	SE279812.007	%	40 - 150%	105
	21054 2503	SE279812.008	%	40 - 150%	105
(13C5-PFHxA) Isotopically Labelled Internal Recovery Standard	MW4	SE279812.001	%	40 - 150%	97
	MW5	SE279812.002	%	40 - 150%	99
	MW6	SE279812.003	%	40 - 150%	94
	MW7	SE279812.004	%	40 - 150%	97
	MW8	SE279812.005	%	40 - 150%	98
	MW9	SE279812.006	%	40 - 150%	94
	MW10	SE279812.007	%	40 - 150%	99
	21054 2503	SE279812.008	%	40 - 150%	102
(13C5-PFPeA) Isotopically Labelled Internal Recovery Standard	MW4	SE279812.001	%	35 - 150%	64
	MW5	SE279812.002	%	35 - 150%	75
	MW6	SE279812.003	%	35 - 150%	80
	MW7	SE279812.004	%	35 - 150%	75
	MW8	SE279812.005	%	35 - 150%	77
	MW9	SE279812.006	%	35 - 150%	74
	MW10	SE279812.007	%	35 - 150%	77
	21054 2503	SE279812.008	%	35 - 150%	79
(13C8-PFOS) Isotopically Labelled Internal Recovery Standard	MW4	SE279812.001	%	40 - 150%	70
	MW5	SE279812.002	%	40 - 150%	69
	MW6	SE279812.003	%	40 - 150%	63
	MW7	SE279812.004	%	40 - 150%	69
	MW8	SE279812.005	%	40 - 150%	71
	MW9	SE279812.006	%	40 - 150%	72
	MW10	SE279812.007	%	40 - 150%	72
	21054 2503	SE279812.008	%	40 - 150%	70

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result
LB341104.001	Perfluorobutanoic acid (PFBA)	µg/L	0.01	<0.01
	Perfluoropentanoic acid (PFPeA)	µg/L	0.002	<0.002
	Perfluorohexanoic acid (PFHxA)	µg/L	0.002	<0.002
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	<0.002
	Perfluorooctanoic acid (PFOA)	µg/L	0.002	<0.002
	Perfluoropropane sulfonic acid (PFPrS)	µg/L	0.004	<0.004
	Perfluorobutane sulfonic acid (PFBS)	µg/L	0.004	<0.004
	Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.002	<0.002
	Perfluoropentane sulfonic acid (PFPeS)	µg/L	0.004	<0.004
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.002	<0.002
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	<0.002
	Perfluorononane sulfonic acid (PFNS)	µg/L	0.002	<0.002
	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	µg/L	0.005	<0.005
	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	µg/L	0.005	<0.005
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	µg/L	0.005	<0.005	

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB341047.001	Mercury	mg/L	0.0001	<0.0001

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB341415.001	Arsenic	µg/L	1	<1
	Cadmium	µg/L	0.1	<0.1
	Chromium	µg/L	1	<1
	Copper	µg/L	1	<1
	Lead	µg/L	1	<1
	Nickel	µg/L	1	<1
	Zinc	µg/L	5	<5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE279812.008	LB341047.014	Mercury	µg/L	0.0001	<0.0001	0.0000	187	21
SE279839.003	LB341047.023	Mercury	µg/L	0.0001	<0.0001	<0.0001	167	42

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE279812.008	LB341415.012	Arsenic	µg/L	1	<1	<1	200	0
		Cadmium	µg/L	0.1	<0.1	<0.1	200	0
		Chromium	µg/L	1	4	4	41	2
		Copper	µg/L	1	2	2	65	4
		Lead	µg/L	1	<1	<1	200	0
		Nickel	µg/L	1	<1	<1	200	0
		Zinc	µg/L	5	<5	<5	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Low Level Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous Samples

Method: ME-(AU)-[ENV]AN404

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB341104.002	Perfluoroheptanoic acid (PFHpA)	µg/L	0.002	0.17	0.2	40 - 160	86
	Perfluorooctanoic acid (PFOA)	µg/L	0.002	0.24	0.2	40 - 160	118
	Perfluorooctane sulfonic acid (PFOS)	µg/L	0.002	0.21	0.2	40 - 160	106

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB341415.002	Arsenic	µg/L	1	20	20	80 - 120	100
	Cadmium	µg/L	0.1	23	20	80 - 120	116
	Chromium	µg/L	1	23	20	80 - 120	114
	Copper	µg/L	1	24	20	80 - 120	119
	Lead	µg/L	1	20	20	80 - 120	102
	Nickel	µg/L	1	22	20	80 - 120	112
	Zinc	µg/L	5	22	20	80 - 120	112

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE279812.001	LB341415.004	Arsenic	µg/L	1	22	1	20	103
		Cadmium	µg/L	0.1	23	<0.1	20	113
		Chromium	µg/L	1	25	3	20	110
		Copper	µg/L	1	22	<1	20	108
		Lead	µg/L	1	20	<1	20	96
		Nickel	µg/L	1	22	7	20	76
		Zinc	µg/L	5	31	10	20	105

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = |OriginalResult - ReplicateResult| \times 100 / Mean$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times SDL / Mean + LR$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

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