Government of **Western Australia**
Department of **Transport**
and Major Infrastructure

Empowering a thriving community

Koombana Bay Marine Structures
Compliance Assessment Report

Prepared by Maritime Environmental Services

Objective number A22785833

Version control

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Introduction

The South West Development Commission (SWDC) is the proponent for the Koombana Bay Marine Structures (KBMS) strategic proposal approved under Ministerial Statement 1226 (MS 1226).

On 31 July 2024, via a Section 45B notice, the Department of Transport (now Department of Transport and Major Infrastructure (DTMI)) was approved to implement the Derived Proposal Casuarina Boat Harbour (CBH).

Condition D2-2 of MS 1226 requires the first Compliance Assessment Report (CAR) (this document) to be submitted within 15 months from the issue date of MS 1226 (issued 28 June 2024). Condition D2-1 of MS 1226 requires the CAR to be submitted annually thereafter.

Both DTMI and SWDC submitted Compliance Assessment Plans (CAP) that were approved by the Department of Water and Environmental Regulation (DWER) on 9 December 2024 and 29 July 2025 respectively. This CAR incorporates and reports against the requirements from both CAPs.

There are four environmental management plans referenced within the MS 1226 that are relevant to the status of the proposal:

- Marine Construction Monitoring and Management Plan Rev 4, March 2024 (updated from Rev 2, 2023 in MS 1226) – construction phase monitoring and management
- Marine Environmental Quality Management Plan (Only Casuarina Boat Harbour Development) Rev 4, January 2024 – operational phase monitoring and management
- Coastal Processes Management Plan (Only Casuarina Boat Harbour Development) Rev 1, October 2023 – operational phase monitoring and management
- Marine Fauna Management Plan Rev 3, January 2024 - construction and operational monitoring and management

Status of Implementation of the Proposal

Construction works associated with the CBH Derived Proposal started on 15 August 2024, with capital dredging occurring until 12 November 2024. Construction of the northern breakwater at CBH will be completed in October 2025.

No construction has taken place for the Koombana Bay Sailing Club (KBSC) Marina or the Dolphin Discovery Centre Finger Jetty.

Statement of Compliance with MS 1226

The compliance status for each condition has been summarised in Table 1 for the current reporting period from the published date of the MS 1226 on 2 July 2024 through until 18 September 2025.

Table 1: Audit Table MS 1226

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
1226: A1	Proposal Implementation	When implementing the proposal, the proponent must not exceed the authorised extent of the proposal as defined in Table 1 of Part A of MS 1226, unless amendments to the proposal and the authorised extent of the proposal have been approved under the EP Act.	Aerial photo of the breakwater footprint shows the disturbance footprint well within the development envelope and not more than the approved extent.	Difference plot (pre vs post construction)	Overall	Ongoing	C	Appendix A shows the aerial photo with the development envelope overlaid.
1226: B1-1	Marine Environmental Quality	The proponent must ensure implementation of the proposal achieves the following environmental protection outcomes: (1) no adverse impacts on the marine environmental values of Ecosystem Health, Fishing and Aquaculture, Recreation and Aesthetics, Industrial Water Supply, and Cultural and Spiritual outside the Moderate Ecological Protection Area; (2) the levels of ecological protection to be achieved inside of the: a. Moderate Ecological Protection Area; and b. High Ecological Protection Area; are consistent with the corresponding levels of ecological protection described in Appendix 1, Table 1 of the Marine Water Quality Technical Guidance, including the method used to derive Environmental Quality Guidelines and Environmental Quality Standards; and (3) within one (1) month following cessation of marine construction activities required for proposals in Tables 1 or 2, water quality will return to a level of High Ecological Protection and at least Moderate Ecological Protection as spatially defined in Figure 2 in the MS 1226.	Implement: • Marine Construction Monitoring and Management Plan (Revision 4, RPS 2024)	Investigations occurred when water quality thresholds were exceeded but concluded that the variations were not attributable to the Project, with details provided in the MCMMP Water Quality Monitoring summary in Appendix C.	Construction	Annual, by 28 September each year	C	A summary of baseline monitoring results is presented in Appendix B. A summary of construction water quality monitoring results is presented in Appendix C. A summary of other monitoring actions undertaken per the MCMMP is included in Appendix D.
1226: B1-2		The proponent must not conduct (1) dredging; or (2) reclamation, during the period of 1 December and 31 March (inclusive) or conduct these activities on separate proposals at the same time.	Implement: • Marine Construction Monitoring and Management Plan	Dredging work for the Northern Breakwater took place between 15 August and 12	Construction	Annual, by 28 September each year	C	A summary of monitoring actions undertaken per the MCMMP is

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
			(Revision 4, RPS 2024) • Dredge Spoil Disposal Management Plan Rev 1, February 2023	November 2024. No reclamation (using dredge spoil to create land) to date. Dredge spoil was disposed offshore in accordance with Sea Dumping Permit SD2022-4034 and Dredge Spoil Disposal Management Plan (DSDMP, Cardno 2023).				included in Appendix D. Annual report submitted to DCCEEW on 31 January in accordance with SD2022-4034.
1226: B1-3		The proponent must implement the environmental management plan Marine Environmental Quality Management Plan (Only Casuarina Boat Harbour Development) (Revision 4, GHD,2024), and the environmental management plan Marine Construction Monitoring and Management Plan (Revision 4, RPS 2024) with the purpose of ensuring the marine environmental quality environmental outcomes in condition B1-1 are achieved, monitored and substantiated.	Implement: • Marine Construction Monitoring and Management Plan (Revision 4, RPS 2024) • Marine Environmental Quality Management Plan (Only Casuarina Boat Harbour Development) (Revision 4, GHD,2024)	The Marine Construction Monitoring and Management Plan has been implemented and a summary of monitoring results is presented in Appendix B, C and D. The Marine Environmental Quality Management Plan will be implemented post-construction.	Construction and Operation	Annual, by 28 September each year	C	A summary of baseline monitoring results is presented in Appendix B. A summary of construction water quality monitoring results is presented in Appendix C. A summary of other monitoring actions undertaken per the MCMMP is

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
								included in Appendix D.
1226: B1-4		The proponent of the Koombana Bay Sailing Club Marina proposal in Table 2 must ensure the implementation of the derived proposal achieves the environmental outcome of maintaining the current flushing regime of Leschenault Inlet, or an alternate flushing time which the CEO confirms in writing on the basis of the information provided in condition B1-5 will not have adverse impacts on the marine environmental values in B1-1(1).	Flushing model results.	Presentation of flushing model outputs during the derived proposal submission.	Design	Prior to construction of the KBSC Marina	NR	-
1226: B1-5		The proponent of the Koombana Bay Sailing Club Marina proposal in Table 2 must submit an Infrastructure Design and Footprint Report at the time of the referral of the proposal. The Infrastructure Design and Footprint Report must demonstrate how the marine environmental quality environmental outcomes in condition B1-1 will be met during implementation, and is required to include: (1) a final infrastructure design and footprint that achieves an annual median flushing time of less than 8 days in Leschenault Inlet (or an alternate timeframe if it can be demonstrated that the alternate flushing time will not have adverse impacts on the marine environmental values in B1-1(1)) The final design and footprint report must show the locations, disturbance footprints and configuration of marine infrastructure required for the Koombana Bay Sailing Club Marina and demonstrate it is consistent with the maximum extents in Table 2 of Part A and will meet the outcomes in conditions B1-1 and B1-4, condition B2-3, condition B3- 1; and (2) hydrodynamic modelling and an evaluation of the effects of the final design required by condition B1-5(1) which demonstrates that the flushing time of the Leschenault Inlet and maximum extents in Table 2 of Part A will be achieved, using the latest information on the health and condition of the inlet.	Design drawings and flushing model results.	Presentation of design drawings and flushing model outputs during the derived proposal submission.	Design	Prior to construction of the KBSC Marina	NR	-
1226: B1-6		The proponent of the Koombana Bay Sailing Club Marina proposal in Table 2 must review and revise the Marine Construction Monitoring and Management Plan (Revision 4, RPS 2024) and Marine Environmental Quality Management Plan (Revision 4, GHD 2024), that satisfies the requirements of condition C4 and demonstrates how the achievement of the marine environmental quality environmental outcomes in	Updated management plans.	Management plans submitted and approved by CEO.	Overall	Prior to construction of the KBSC Marina	NR	-

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		condition B1-1 and condition B1-4 will be achieved, monitored and substantiated, and submit to the CEO.						
1226: B2-1	Benthic Communities and Habitats	The proponent must ensure the implementation of the proposal achieves the following environmental outcome: (1) no irreversible loss of benthic communities and habitats outside the Casuarina Boat Harbour Development disturbance footprint shown in Figure 1 within the MS 1226.	Implement all activities required under: • Marine Construction Monitoring and Management Plan (Revision 4, RPS 2024)	A pre-construction tow survey was completed. No surveys were required during construction as trigger criteria were not exceeded. A post-construction survey is planned to be completed.	Construction	Annual, by 28 September each year	C	A summary of monitoring results is presented in Appendix B. A summary of other monitoring actions undertaken per the MCMMP is included in Appendix D.
1226: B2-2		The proponent must implement the Marine Environmental Quality Management Plan (Only Casuarina Boat Harbour Development) (Revision 4, GHD,2024), and the Marine Construction Monitoring and Management Plan (Revision 4, RPS 2023) with the purpose of ensuring the marine environmental quality environmental outcomes in condition B2-1 are achieved, monitored and substantiated.	Implement all activities required under: • Marine Environmental Quality Management Plan (Only Casuarina Boat Harbour Development) (Revision 4, GHD, 2024) • Marine Construction Monitoring and Management Plan (Revision 4, RPS 2024)	The Marine Environmental Quality Management Plan will be implemented post-construction. The Marine Construction Monitoring and Management Plan has been implemented.	Overall	Annual, by 28 September each year	C	A summary of baseline monitoring results is presented in Appendix B. A summary of construction water quality monitoring results is presented in Appendix C. A summary of other monitoring actions undertaken per the MCMMP is included in Appendix D.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
1226: B2-3		The proponent of the Koombana Bay Sailing Club Marina proposal in Table 2 must ensure the implementation of the proposal achieves the following environmental outcomes: (1) no irreversible loss of benthic communities and habitats outside the final disturbance footprint of the proposal; and (2) no adverse impacts on the health and extent of the Leschenault Inlet mangrove community.	Develop and implement updated management plans to be provided as part of the derived proposal submission.	Management plans submitted and approved by CEO.	Overall	Ongoing	NR	To be provided in the future by KBSC proponent.
1226: B2-4		The proponent of the Koombana Bay Sailing Club Marina proposal in Table 2 must, review and revise the Marine Construction Monitoring and Management Plan (Revision 4, RPS 2024) and Marine Environmental Quality Management Plan (Revision 4, GHD 2024), to include the final design, modelling and evaluation in condition B1-5 and that satisfies the requirements of condition C4 and demonstrate how the achievement of the benthic communities and habitats environmental outcomes in condition B2-3 will be achieved, monitored and substantiated, and submit it to the CEO.	Develop and implement updated management plans and design modelling to be provided as part of the derived proposal submission.	Management plans submitted and approved by CEO.	Overall	Ongoing	NR	To be provided in the future by KBSC proponent.
1226: B3-1	Coastal processes	The proponent must implement the proposal to meet the following environmental outcome; (1) no material wrack, sediment accumulation or beach erosion, within the development envelope and surrounding beaches compared to baseline and which is substantially contributed by the implementation of the future proposals, separately or together, which adversely affects public recreation or amenity values.	Implement the environmental management plan: • Coastal Processes Management Plan (Only Casuarina Boat Harbour Development) (Revision 1, 30 October 2023)	DO monitoring and sea wrack accumulation visual checks will be done in the future during entrance channel management.	Operation	Post construction by 28 September each year	NR	DTMI will report on this condition in the 2026 CAR.
1226: B3-2		The proponent must implement the Coastal Processes Management Plan (Only Casuarina Boat Harbour Development) (Revision 1, 30 October 2023) with the purpose of ensuring the coastal processes environmental outcome in condition B3-1 is achieved, monitored and substantiated.	Implement the environmental management plan: • Coastal Processes Management Plan (Only Casuarina Boat Harbour Development) (Revision 1, 30 October 2023)	To be undertaken post-construction	Operation	Post construction by 28 September each year	NR	DTMI will report on this condition in the 2026 CAR.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
1226: B3-3		The proponent of the Koombana Bay Sailing Club Marina proposal in Table 2 must review and revise the Coastal Processes Management Plan (Revision 1, 30 October 2023) to include the final design, modelling and evaluation in condition B1-5 that satisfies the requirements of condition C4, and demonstrates how achievement of the coastal processes environmental outcome in condition B3-1 will be monitored and substantiated, and submit it to the CEO.	Updated design and flushing model results in the management plan to be provided as part of the derived proposal submission.	Management plan submitted and approved by CEO.	Design	Prior to construction	NR	To be provided in the future by KBSC proponent.
1226: B4-1	Marine Fauna	The proponent shall implement the proposal to achieve the following environmental objectives from the derived proposals, separately or together: (1) minimise the risk of physical injury or mortality from vessel strike on significant marine fauna; (2) minimise the risk of behavioural changes, health impacts (including temporary or permanent hearing loss), physical injury or mortality from underwater noise emissions from construction to significant marine fauna; and (3) minimise the risk of construction displacing dolphins that sustain the dolphin tours and education in Koombana Bay.	Implement the environmental management plan: • Marine Fauna Management Plan (Revision 3, January 2024)	No fauna injuries or incidents recorded. No adverse behaviour changes noted. by marine fauna observers. Works were halted when fauna was within the prescribed areas.	Overall	Annual, by 28 September each year	C	Appendix E includes a summary of monitoring and management actions undertaken per the requirements of the MFMP.
1226: B4-2		The proponent must implement the Marine Fauna Management Plan (Revision 3, January 2024) with the purpose of ensuring the environmental factor environmental objectives in condition B4-1 are achieved.	Implement the environmental management plan: • Marine Fauna Management Plan (Revision 3, January 2024)	Visual monitoring has been done by marine fauna observers and a summary of the logs is included in Appendix E.	Overall	Annual, by 28 September each year	C	Appendix E includes a summary of monitoring and management actions undertaken per the requirements of the MFMP.
1226: B4-3		The proponent must implement the proposal to meet the following environmental outcome:	Implement the environmental management plan:	No Australian fairy terns were observed to nest within	Construction	Annual, by 28 September each year	C	Note that the Marine Fauna EMP is supported by

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		(1) no displacement of actively nesting Australian fairy terns (*Sternula nereis nereis*) from within the Casuarina Boat Harbour Development envelope.	• Marine Fauna Management Plan (Revision 3, January 2024) • Avifauna Management Plan (Rev 0) (RPS 2024)	the Casuarina Boat Harbour Development envelope during the reporting period.				the Avifauna Management Plan (Rev 0) (RPS 2024) developed and implemented by the SWDC.
1226: B4-4		Prior to the completion of the construction of the northern breakwater, the proponent shall not conduct piling during the period of 1 December and 31 March (inclusive).	Implement the environmental management plans: • Marine Fauna Management Plan (Revision 3, January 2024)	No piling has occurred for the project to date. Northern breakwater is now functionally complete.	Construction	Annual, by 28 September each year	C	With the breakwater functionally complete this condition could be considered as closed as of the 2026 CAR.
1226: B4-5		The proponent of the Koombana Bay Sailing Club Marina and Dolphin Discovery Centre finger jetty shall not conduct piling during the period of 1 December and 31 March (inclusive).	No piling between these dates is detailed in the current EMP, but this plan will be updated during the derived proposal referral.	Management plan submitted and approved by CEO.	Construction	Annual, by 28 September each year	NR	To be provided in the future by the KBSC and DDC proponents.
1226: B5-1	Environmental Performance Report – Conditions and Procedure	The proponent of the Strategic Proposal must within one, two and five years of the completion of construction of each proposal in Tables 1 and 2, report on the direct and indirect impacts, including cumulative impacts of the proposals on: (1) Marine environmental quality outcomes in condition B1-1; (2) Benthic communities and habitats outcomes in conditions B2-1 and B2-3; (3) Coastal processes outcomes in condition B3-1; (4) Marine fauna objectives in condition B4-1 and B4-3	Prepare and submit an Environmental Performance Report (EPR).	EPR. Confirmation in writing from CEO that EPO have been met.	Post–Construction	Within one, two and five years of the completion of construction of each proposal in Tables 1 and 2 of MS 1226 B5-1	NR	SWDC to prepare when required.
1226: B5-2		In the event that the environmental performance reports show the environmental outcomes are not achieved by any or all of the derived proposals, the proponent of the Strategic Proposal will implement contingency actions with the proponents of derived proposals to ensure the environmental outcomes are achieved as soon as practicable. These may	Develop and implement contingency actions with the proponents of derived proposals.	Contingency plans in place	Post-construction	To be completed when required	NR	SWDC to implement if required.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		include staging of the later derived proposals until the environmental outcomes of the existing derived proposals have been achieved.						
1226: B5-3		The proponent of the Strategic Proposal must co-ordinate the communication, information and data sharing between, and cooperation on environmental management approaches of the proponents of the derived proposals to ensure the requirements of condition B5-1 and B5-2 can be achieved.	The (Transforming Bunbury's Waterfront — TBW) Technical Group – Stage 3 Environment coordinates and facilitates the communication, information and data sharing.	Technical Group minutes and agenda papers; KBMS Governance Framework	Overall	Ongoing	C	See Appendix F, SWDC memo summarising their coordination role.
1226: B5-4	Procedure	The proponent of the Strategic Proposal must ensure there are communication and complaints procedures in place in relation to impacts from the derived proposals.	TBW Contact and Complaints Process	Contact and Complaints Register available from TBW Stakeholder Engagement Project Officer, SWDC. DTMI also keeps a record of complaints with the information shared with SWDC.	Overall	Annual, by 28 September each year	C	A summary of the complaints process is provided in Appendix F. Information on individual complaints is maintained by SWDC.
1226: C1-1	Environmental Management Plans: Conditions Related to Commencement of Implementation of the Proposal	The proponent of the Koombana Bay Sailing Club Marina proposal in Table 2 must not undertake marine construction activities until the CEO has confirmed in writing that the environmental management plans required by condition B1-6 meets the requirements of that condition and condition C4.	Updated management plans to be submitted during the referral of the derived proposal	Management plan submitted and approved by CEO.	Pre-Construction	Prior to the construction of the KBSC Marina	NR	To be provided by the KBSC proponent in the future.
1226: C1-2		The proponent of the Koombana Bay Sailing Club Marina proposal in Table 2 must not undertake marine construction activities until the CEO has confirmed in writing that the environmental management plan required by condition B2-4 meets the requirements of that condition and condition C4.	Updated management plans to be submitted during the referral of the derived proposal	Management plan submitted and approved by CEO.	Pre-Construction	Prior to the construction of the KBSC Marina	NR	To be provided by the KBSC proponent in the future.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
1226: C1-3		The proponent of the Koombana Bay Sailing Club Marina proposal in Table 2 must not undertake marine construction activities until the CEO has confirmed in writing that the environmental management plan required by condition B3-3 meets the requirements of that condition and condition C4.	Updated management plans to be submitted during the referral of the derived proposal.	Management plan submitted and approved by CEO.	Pre-Construction	Prior to the construction of the KBSC Marina	NR	To be provided by the KBSC proponent in the future.
1226: C2-1	Environmental Management Plans: Conditions Relating to Approval, Implementation, Review and Publication	Upon being required to implement an environmental management plan under Part B, the proponent must: (1) implement the most recent version of the confirmed environmental management plan; and (2) continue to implement the confirmed environmental management plan referred to in condition C2-1(1), other than for any period which the CEO confirms by notice in writing that it has been demonstrated that the relevant requirements for the environmental management plan have been met, or are able to be met under another statutory decision-making process, in which case the implementation of the environmental management plan is no longer required for that period.	Implement confirmed environmental management plans.	The latest versions of the environmental management plans have been implemented. These are the revisions prescribed in MS 1226, with the exception of the Marine Construction Monitoring and Management Plan Rev. 4 which was completed after the Ministerial Statement but submitted as part of the derived proposal referral and meets the relevant requirements of that environmental management plan.	Overall	Annual, by 28 September each year	C	Environmental management plans are being implemented.
1226: C2-2		The proponent: (1) may review and revise a confirmed environmental management plan provided it meets the relevant requirements of that environmental management	Latest version of management plans implemented.	Management plans submitted and	Overall	Ongoing	C	Existing environmental management plans are

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		plan, including any consultation that may be required when preparing the environmental management plan; (2) must review and revise a confirmed environmental management plan and ensure it meets the relevant requirements of that environmental management plan, including any consultation that may be required when preparing the environmental management plan, as and when directed by the CEO; and (3) must revise and submit to the CEO the confirmed environmental management plan if there is a material risk that the outcomes or objectives it is required to achieve will not be complied with, including but not limited to as a result of a change to the proposal.		approved by CEO. No review of the plans has been required				being implemented.
1226: C2-3		Despite condition C2-1, but subject to conditions C2-4 and C2-5, the proponent may implement minor revisions to an environmental management plan if the revisions will not result in new or increased adverse impacts to the environment or result in a risk to the achievement of the limits, outcomes or objectives which the environmental management plan is required to achieve.	Latest version of management plans implemented.	No minor changes have been implemented.	Overall	Ongoing	NR	-
1226: C2-4		If the proponent is to implement minor revisions to an environmental management plan under condition C2-3, the proponent must provide the CEO with the following at least twenty (20) business days before it implements the revisions: (1) the revised environmental management plan clearly showing the minor revisions; (2) an explanation of and justification for the minor revisions; and (3) an explanation of why the minor revisions will not result in new or increased adverse impacts to the environment or result in a risk to the achievement of the limits, outcomes or objectives which the environmental management plan is required to achieve.	Notice in writing to DWER if any minor changes are implemented.	No minor changes have been implemented.	Overall	Ongoing	NR	-
1226: C2-5		The proponent must cease to implement any revisions which the CEO notifies the proponent (at any time) in writing may not be implemented.	Only approved management plans to be implemented.	No correspondence from DWER	Overall	Ongoing	NR	-

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
				has been received.				
1226: C2-6		Confirmed environmental management plans, and any revised environmental management plans under condition C2-4(1), must be published on the proponent's website and provided to the CEO in electronic form suitable for online publication by the Department of Water and Environmental Regulation within twenty (20) business days of being implemented, or being required to be implemented (whichever is earlier).	Publicly available.	Available on DTMI website.	Overall	Published on the proponent's website within twenty (20) business days of being implemented	C	Published on DTMI website: Casuarina Boat Harbour - Transforming Bunbury's Waterfront Stage 3 Phase 1 | Transport WA
1226: C3-1	Conditions Related to Monitoring	The proponent must undertake monitoring capable of: (1) substantiating whether the proposal limitations and extents in Part A are exceeded; and (2) detecting and substantiating whether the environmental outcomes identified in Part B are achieved (excluding any environmental outcomes in Part B where an environmental management plan is expressly required to monitor achievement of that outcome).	Aerial photograph to show the disturbance footprint.	Aerial imagery of the footprint as 12 September 2025 was within the DE. In the 2026 CAR once CBH breakwater construction is complete a pre vs post construction report will be provided.	Overall	Ongoing	C	Appendix A shows the current (as of 12/9/25) footprint.
1226: C3-2		The proponent must submit as part of the Compliance Assessment Report required by condition D2-1, a compliance monitoring report that: (1) outlines the monitoring that was undertaken during the implementation of the proposal; (2) identifies why the monitoring was capable of substantiating whether the proposal limitation and extents in Part A are exceeded; (3) for any environmental outcomes to which condition C3-1(2) applies, identifies why the monitoring was scientifically robust and capable of detecting whether the environmental outcomes in Part B are met;	Implement confirmed environmental management plans.	CAR. Confirmation in writing from CEO that EPO have been met.	Overall	Annual, by 28 September each year	C	This report

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		(4) outlines the results of the monitoring; (5) reports whether the proposal limitations and extents in Part A were exceeded and (for any environmental outcomes to which condition C3-1(2) applies) whether the environmental outcomes in Part B were achieved, based on analysis of the results of the monitoring; and (6) reports any actions taken by the proponent to remediate any potential non-compliance.						
1226: C4-1	Environmental Management Plans: Conditions Relating to Monitoring and Adaptive Management for Outcomes Based Conditions	The environmental management plans required under conditions B1-6, B2-4, and B3-3 must contain provisions which enable the substantiation of whether the relevant outcomes of those conditions are met, and must include: (1) threshold criteria that provide a limit beyond which the environmental outcomes are not achieved; (2) trigger criteria that will provide an early warning that the environmental outcomes are not likely to be met; (3) monitoring parameters, sites, control/reference sites, methodology, timing and frequencies which will be used to measure threshold criteria and trigger criteria. Include methodology for determining alternate monitoring sites as a contingency if proposed sites are not suitable in the future; (4) baseline data; (5) data collection and analysis methodologies; (6) adaptive management methodology; (7) contingency measures which will be implemented if threshold criteria or trigger criteria are not met; and (8) reporting requirements.	Implement confirmed environmental management plans.	CAR. Confirmation in writing from CEO that EPO have been met.	Pre-Construction of the KBSC Marina	Annual, by 28 September each year	NR	The KBSC EMPs have yet to be updated by the KBSC proponent
1226: C4-2		The environmental management plan required under condition B1-6 (marine environmental quality) is also required to include: (1) map(s) spatially representing any improvements in the High Ecological Protection Areas and/or Moderate Ecological Protection Areas to apply to proposal in Table 2, to the extent that improvements have been achieved as a result of the with revised design submitted in condition B1- 5; (2) revised monitoring program that incorporates any improvements in the High Ecological Protection Areas or Moderate Ecological Protection Area in condition C4-2 (1); (3) specific measures to monitor environmental indicators of reduced flushing and determine whether there are adverse impacts on the marine environmental values in the Leschenault Inlet;	Implement confirmed environmental management plans.	CAR. Confirmation in writing from CEO that EPO have been met.	Pre-Construction of the KBSC Marina	Annual, by 28 September each year	NR	The KBSC EMPs have yet to be updated by the KBSC proponent

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		(4) proven and technically feasible contingency measures and remediation actions that can be readily implemented in a timely manner to ensure the environmental outcomes in condition B1-1 and B1-4 are achieved; and (5) consultation with City of Bunbury on the implementation of the plan.						
1226: C4-3		The environmental management plans required under condition B2-4 are also required to include: (1) procedures to monitor the cover and extent of perennial seagrass in Koombana Bay, prior to and following the completion of marine construction activities; (2) monitoring at impact and reference sites; (3) monitoring capable of detecting whether there has been a statistically significant irreversible impact (loss) on the cover or extent of perennial seagrass in Koombana Bay; (4) procedures for monitoring results of (3) above to be reported at two years following the completion of marine construction activities; and (5) if impact is still evident after two years, then a further three years of monitoring is required with a report submitted five years following the completion of marine construction activities.	Implement confirmed environmental management plans.	CAR. Confirmation in writing from CEO that EPO have been met.	Pre-Construction of the KBSC Marina	Annual, by 28 September each year	NR	The KBSC EMPs have yet to be updated by the KBSC proponent.
1226: C4-4		The environmental management plan required under condition B3-3 is also required to include: (1) shoreline mapping and beach profiles on Ski Beach and Koombana Beach using on-ground surveys which monitor beach width and slope; (2) procedures to track cumulative changes in sediment distribution; (3) management actions to maintain beach profiles and minimise wrack accumulation at Ski Beach and Koombana Beach during and following construction; (4) specific measures for wrack disposal locations and procedures for undertaking sediment and wrack management so that impacts to seagrass and macroalgal communities are avoided; (5) outline of community engagement to be undertaken prior to and during implementation of the contingency measures and wrack disposal processes to ensure impacts on amenity are minimised; (6) detail the agreed arrangements with the City of Bunbury and roles of the proponent and the City of Bunbury in the	Implement confirmed environmental management plans.	CAR. Confirmation in writing from CEO that EPO have been met.	Pre-construction of the KBSC Marina	Annual, by 28 September each year	NR	The KBSC EMPs have yet to be updated by the KBSC proponent.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		maintenance of beach profiles and wrack at Ski Beach and Koombana Beach.						
1226: C4-5		Without limiting condition C4-1, failure to achieve an environmental outcome, or the exceedance of a threshold criteria, regardless of whether threshold contingency measures have been or are being implemented, represents a non-compliance with these conditions.	-	Noted	Overall	Ongoing	NR	-
1226: C5-1	Environmental Management Plans: Conditions Related to Management Actions and Targets for Objective Based Conditions	The environmental management plan required under condition B4-2 must contain provisions which enable the achievement of the relevant objectives of those conditions and substantiation of whether the objectives are reasonably likely to be met, and must include: (1) management actions; (2) management targets; (3) contingency measures if management targets are not met; and (4) reporting requirements.	Implement the environmental management plan: • Marine Fauna Management Plan (Revision 3, January 2024)	CAR. Confirmation in writing from CEO that EPO have been met.	Overall	Annual, by 28 September each year	C	-
1226: C5-2		Without limiting condition C5-1, the failure to achieve an environmental objective, or implement a management action, regardless of whether contingency measures have been or are being implemented, represents a non-compliance with these conditions.	Implement all confirmed environmental management plans.	CAR. Confirmation in writing from CEO that EPO have been met.	Overall	Annual, by 28 September each year	C	-
1226: D1-1	Non-Compliance Reporting	If the proponent becomes aware of a potential non-compliance, the proponent must: (1) report this to the CEO within ten (10) days; (2) implement contingency measures; (3) investigate the cause; (4) investigate environmental impacts; (5) advise rectification measures to be implemented; (6) advise any other measures to be implemented to ensure no further impact; (7) advise timeframe in which contingency, rectification and other measures have and/or will be implemented; and (8) provide a report to the CEO within twenty-one (21) days of being aware of the potential non-compliance, detailing the measures required in conditions D1-1(1) to D1-1(7) above.	Notify CEO in writing of any potential non-compliance.	DTMI and SWDC are unaware of any non-compliance.	Overall	Within twenty-one (21) days of the potential non-compliance being known	NR	NA

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
1226: D1-2		Failure to comply with the requirements of a condition, or with the content of an environmental management plan required under a condition, constitutes a non-compliance with these conditions, regardless of whether the contingency measures, rectification or other measures in condition D1-1 above have been or are being implemented.	-	Noted	Overall	Ongoing	NR	-
1226: D2-1	Compliance reporting	The proponent must provide an annual Compliance Assessment Report to the CEO for the purpose of determining whether the implementation conditions are being complied with.	CAR	This report	Overall	Annual, by 28 September each year	C	Note that this CAR includes all conditions of MS 1226 to provide a consolidated submission to DWER.
1226: D2-2		Unless a different date or frequency is approved by the CEO, the first annual Compliance Assessment Report must be submitted within fifteen (15) months of the date of this Statement, and subsequent reports must be submitted annually from that date.	CAR	MS 1226 was approved on 28 June 2024 and this first report is due 28 September 2025.	Overall	15 months after MS 1226 and on the 28 September each year thereafter	C	-
1226: D2-3		Each annual Compliance Assessment Report must be endorsed by the proponent's Chief Executive Officer, or a person approved by proponent's Chief Executive Officer to be delegated to sign on the Chief Executive Officer's behalf.	CAR	This report	Overall	Annual, by 28 September each year	C	See compliance declarations in Appendix G.
1226: D2-4		Each annual Compliance Assessment Report must: (1) state whether each condition of this Statement has been complied with, including: a. exceedance of any proposal limits and extents; b. achievement of environmental outcomes; c. achievement of environmental objectives; d. requirements to implement the content of environmental management plans; e. monitoring requirements; f. implement contingency measures; g. requirements to implement adaptive management; and h. reporting requirements; (2) include the results of any monitoring (inclusive of any raw data) that has been required in order to	CAR	CAR aligned with guidance and CAP.	Overall	Annual, by 28 September each year	C	

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		demonstrate that any outcomes or any objectives are being met; (3) provide evidence to substantiate statements of compliance, or details of where there has been a non-compliance; (4) include the corrective, remedial and preventative actions taken in response to any potential non-compliance; (5) be provided in a form suitable for publication on the proponent's website and online by the Department of Water and Environmental Regulation; (6) be prepared and published consistent with the latest version of the Compliance Assessment Plan required by condition D2-5 which the CEO has confirmed by notice in writing satisfies the relevant requirements.						
1226: D2-5		The proponent must prepare a Compliance Assessment Plan which is submitted to the CEO at least six (6) months prior to the first Compliance Assessment Report required by condition D2-2, or prior to implementation of the proposal, whichever is sooner.	CAP	DTMI and SWDC submitted CAPs that were approved by DWER on 9 December 2024 and 29 July 2025 respectively.	Pre-construction	At least six (6) months prior to the first Compliance Assessment Report.	CLD	-
1226: D2-6		The Compliance Assessment Plan must include: (1) what, when and how information will be collected and recorded to assess compliance; (2) the methods which will be used to assess compliance; (3) the methods which will be used to validate the adequacy of the compliance assessment to determine whether the implementation conditions are being complied with; (4) the retention of compliance assessments; (5) the table of contents of Compliance Assessment Reports, including audit tables; and (6) how and when Compliance Assessment Reports will be made publicly available, usually being published on the proponent's website within sixty (60) days of being provided to the CEO.	CAP	CAPs have been approved	Pre-construction	At least six (6) months prior to the first Compliance Assessment Report.	CLD	-

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
1226: D3-1	Contact details	The proponent must notify the CEO of any change of its name, physical address or postal address for the serving of notices or other correspondence within twenty-eight (28) days of such change. Where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.	Notify the CEO in writing of any change to the proponent details.	Copy of written notification to CEO of any change in proponent details.	Overall	Within twenty eight (28) days of such change	C	SWDC is the proponent. DTMI as the nominated proponent of the derived proposal emailed DWER compliance on the 28/8/25 to note the change from DoT to DTMI.
1226: D4-1	Time Limit for Proposal Implementation	The proposal must be substantially commenced within five (5) years from the date of the Section 45B Notice.	Provide evidence to the CEO in writing to demonstrate the proposal has substantially commenced.	Construction of CBH proposal started on 15 August 2024. This CAR provides written notice of substantial commencement	Construction	Within fourteen (14) days after the expiration of period specified in condition D4-1	C	Construction works associated with the Derived Proposal started on 15 August 2024.
1226: D4-2		The proponent must provide to the CEO documentary evidence demonstrating that they have complied with condition D4-1 no later than fourteen (14) days after the expiration of period specified in condition D4-1.					CLD	See status of implementation of this CAR.
1226: D4-3		If the proposal has not been substantially commenced within the period specified in condition D4-1, implementation of the proposal must not be commenced or continued after the expiration of that period.					NR	-
1226: D5-1	Public Availability of Data	Subject to condition D5-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the proposal, the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps) relevant to the assessment of this proposal and implementation of this Statement.	Approved CAR will be made available on DTMI website	Attachments to the CAR	Overall	Publishing of CAR once approved	C	On the DTMI website.
1226: D5-2		If any data referred to in condition 5-1 contains particulars of: (1) a secret formula or process; or	N/A	N/A	N/A	N/A	NR	-

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		(2) confidential commercially sensitive information the proponent may submit a request for approval from the CEO to not make these data publicly available.						
1226: D5-3		In making such a request the proponent shall provide the CEO with an explanation and reasons why the data should not be made publicly available.					NR	-
1226: D6-1	Independent Audit	The proponent must arrange for an independent audit of compliance with the conditions of this statement, including achievement of the environmental outcomes and/or the environmental objectives and/ or environmental performance with the conditions of this statement, as and when directed by the CEO.	Independent auditor engaged when required.	Independent audit report.	Overall	When directed by the CEO directed	NR	-
1226: D6-2		The independent audit must be carried out by a person with appropriate qualifications who is nominated or approved by the CEO to undertake the audit under condition D6-1					NR	-
1226: D6-3		The proponent must submit the independent audit report with the Compliance Assessment Report required by condition D2, or at any time as and when directed in writing by the CEO. The audit report is to be supported by credible evidence to substantiate its findings.					NR	-
1226: D6-4		The independent audit report required by condition D6-1 is to be made publicly available in the same timeframe, manner and form as a Compliance Assessment Report, or as otherwise directed by the CEO.					NR	-

Compliance Status: C = Compliant, CLD = Completed, NR = Not Required at this Stage, PNC = Potentially Non-Compliant, NC = Non-Compliant, IP = In Process.

Declared Compliance

The compliance status for each condition and commitment for the KBMS strategic proposal approved under MS 1226 are listed in the Audit Table (Table 1) with supporting documentation provided in the appendices. Appendix F has the signed declaration of compliance.

Appendix A: Disturbance Footprint Survey

Government of **Western Australia**
Department of **Transport and Major Infrastructure**

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Appendix B: MEQBCH Baseline Summary Report

Subject	DoT TBW Environmental Approvals Support Water and Sediment Quality and BCH Sampling		
Date	27/08/2024	Reference	23ENV240 / T240269
To	[redacted]	Email	[redacted]
From	[redacted]	Email	[redacted]
From	[redacted]	Email	[redacted]

1. Introduction

Bunbury is a major regional centre in Western Australia (WA). Due to significant regional population growth, Bunbury is experiencing a critical and growing shortage of maritime facilities for small vessels, both recreational and commercial. Consequently, there is a need to improve and expand infrastructure to meet existing demand and to address future forecasts for regional population growth. In 2013, the Transforming Bunbury's Waterfront (TBW) project was established and a Committee was formed to provide advice to the State Government on the development of marine and shore-based facilities around the Bunbury Waterfront including Koombana Bay, Casuarina Boat Harbour (CBH) and the Outer Harbour. The overall purpose of the TBW project is to stimulate the marine and tourism industry sectors in Bunbury and provide a foundation for the long-term growth of Bunbury and the South West region. The project will support and complement existing recreation and marine commercial activity, attract new businesses, create jobs, and assist in drawing new growth to the area.

O2 Marine was engaged by the Department of Transport (DoT) ensuring compliance with environmental monitoring and management commitment associated with the Casuarina Boat Harbour (CBH) dredging and breakwater aspects of the project. Specifically, this included undertaking pre-construction water quality baseline sampling.

This report presents the sampling results collected weekly throughout the baseline sampling period between 26 July to 13 August 2024 for water sampling, the results for sediment sampling conducted on 06 May 2024, and the results for the benthic communities and habitat (BCH) monitoring on 02 May 2024 and 06 May 2024.

2. Methods

2.1. Water Quality

Sample collection was conducted in accordance with the Marine Construction Monitoring and Management Plan (MCMMP; RPS 2024). Weather conditions and general observations for each day of the baseline monitoring program are presented in **Table 1**.

Table 1: Weather conditions and general observations.

Weather Observations & Sea State				General Observations
26 July 2024				
General Conditions	Calm, low wind, moderate low cloud cover	Low Tide time and height	1811 / 0.6 m	Moderately clear, calm day, low wind.
Air Temp (°C)	~22°C	High Tide time and height	1131 / 0.8 m	
Wind Speed (knots)	~10 knots			
Wind Direction	~W			
2 August 2024				
General Conditions	Moderately calm, low to moderate wind, moderate cloud cover	Low Tide time and height	1727 / 0.38 m	Moderately calm day, moderate wind chop.
Air Temp (°C)	~15°C	High Tide time and height	0802 / 1.08 m	
Wind Speed (knots)	~5 - 12 knots			
Wind Direction	~E			
8 August 2024				
General Conditions	Moderately calm, moderate wind	Low Tide time and height	1741 / 0.5 m	Moderately calm day, moderate wind chop.
Air Temp (°C)	~13°C	High Tide time and height	1030 / 0.9 m	
Wind Speed (knots)	~7 knots			
Wind Direction	~W			
13 August 2024				
General Conditions	Moderate weather and wind	Low Tide time and height	1520 / 0.58 m	Moderate to rough day, moderate wind chop.
Air Temp (°C)	~13°C	High Tide time and height	0220 / 0.9 m	
Wind Speed (knots)	~14 knots			
Wind Direction	~W			

2.1.1. Site Locations and Sample Collection

In-water profiling and sampling was conducted within Koombana Bay and adjacent water bodies at 11 sample sites (**Table 2**; **Figure 1**). Physiochemical profiles were collected at each site using a YSI Multiparameter Sonde and photosynthetically active radiation (PAR) data was collected using an IMO MS9 unit deployed alongside the YSI profiler. Depth integrated water samples were collected via 12v pump into a bulk sample container which was cleaned with Decon 90 prior to each use. Chlorophyll-α samples were field filtered through laboratory supplied filter papers using a filter tower with volumes filtered for each sample were recorded and submitted to the analytical laboratory with the filtered sample.

Samples were stored in eski's on ice and transported cold to the appropriate laboratory at the end of each survey day or on the following weekday to ensure samples were within appropriate holding times.

Table 2: Site location and coordinates

Site	Site type	Easting	Northing
IH-Mid	Monitoring	375383	6311997
KB-Bay 1	Reference	374338	6313990
KB-Bay 2	Reference	375187	6312933
KB-Bay 3	Monitoring	373931	6313457
KB-Bay 4	Monitoring	374115	6312751
KB-Beach	Monitoring	374278	6312442
KB-SW 1	Monitoring	373408	6312686
KB-SW 2	Monitoring	373651	6312983
LI-Far	Monitoring	375181	6311528
LI-Mid	Monitoring	374340	6311622
LI-West	Monitoring	373731	6312032

Figure 1: In water sampling locations

2.1.2. Sample Analysis

Samples were transported to MAFRL (NATA Accreditation No. 10603) and ALS (NATA Accreditation No. 825) for analysis. Samples were packaged and transported with a Chain of Custody (CoC) identifying sample details and analytical requirements (Appendix A). Laboratory certificates of analysis and quality control reports are presented in Appendix C.

Samples were collected and assessed for the following analytes:

- Dissolved Metals:
  - Cadmium (Cd), Copper (Cu), Lead (Pb), Mercury (Hg), Nickel (Ni), Zinc (Zn)
- Nutrients
  - Reduced inorganic nitrogen (ammonia plus ammonium; NHx)
  - Oxides of nitrogen (nitrate plus nitrite; NOx)
  - Total nitrogen (TN)
  - Filterable reactive phosphorus (FRP)
  - Total phosphorus (TP)
- Organics:
  - Benzene
  - Naphthalene
- Organometallics:
  - Tributyltin (TBT)
- Total Suspended Sediments (TSS)
- Chlorophyll-α

2.1.3. Data Analysis

Physiochemical profiling data was quality controlled post hoc, basic manual quality control (QC) was conducted on profiles to eliminate and trim values collected while the profiler was stabilising in the water and where the profiler was not stopped between sampling locations. Data was then interrogated to derive the median data point for conductivity, temperature, turbidity and pH values in both the upcast and downcast which were then tabulated. The same basic manual QC was applied to raw PAR data, with results presented graphically. Physiochemical and PAR data was not compared against guideline values, where these have not been specified or derived.

Laboratory reported results for total metals have been assessed against the guideline values presented within the Marine Environmental Quality Management Plan (MEQMP; GHD 2023) and MCMMP which were generally derived from the toxicant default guideline values (DGVs) for 90% and 99% species protection presented in ANZG (2018). The 90% Species Protection Level (SPL) is applied to a moderate to low disturbed ecosystem, such as ports and harbours (EPA 2016, ANZG 2018). The 99% SPL is applied to an undisturbed ecosystem, outside the future proposal development envelope (GHD 2023, ANZG 2018).

IMCRA Mesoscale Bioregion and ANZECC and ARMCANZ (2000) guideline values have also been included for reference where ANZG (2018) SPLs do not exist, DGVs presented in the ANZECC (2000) guidelines have however been superseded by those presented in ANZG (2018). No criteria were applied to pH, total suspended solids (TSS) or electrical conductivity (EC).

2.2. Sediment Quality

Sample collection was conducted in accordance with the MEQMP. Weather conditions and general observations for the one day of the baseline monitoring program is presented in **Table 3**.

Table 3: Weather conditions and general observations.

Weather Observations & Sea State				General Observations
06 May 2024				
General Conditions	Calm, low wind	Low Tide time and height	1621 / 0.58 m	Moderately clear, calm day, low wind.
Air Temp (°C)	~22°C	High Tide time and height	0857 / 1.03 m	
Wind Speed (knots)	~0 - 5 knots			
Wind Direction	~W			

2.2.1. Site Locations and Sample Collection

Sediment sampling was conducted within Koombana Bay and adjacent waters at seven sample sites (**Table 4**; **Figure 2**). Samples were collected at each site using a shot core sediment sampler, which was cleaned with Decon 90 prior to each use. Samples were stored in eski's on ice and transported cold or frozen to the appropriate laboratory the following weekday to ensure samples were within appropriate holding times.

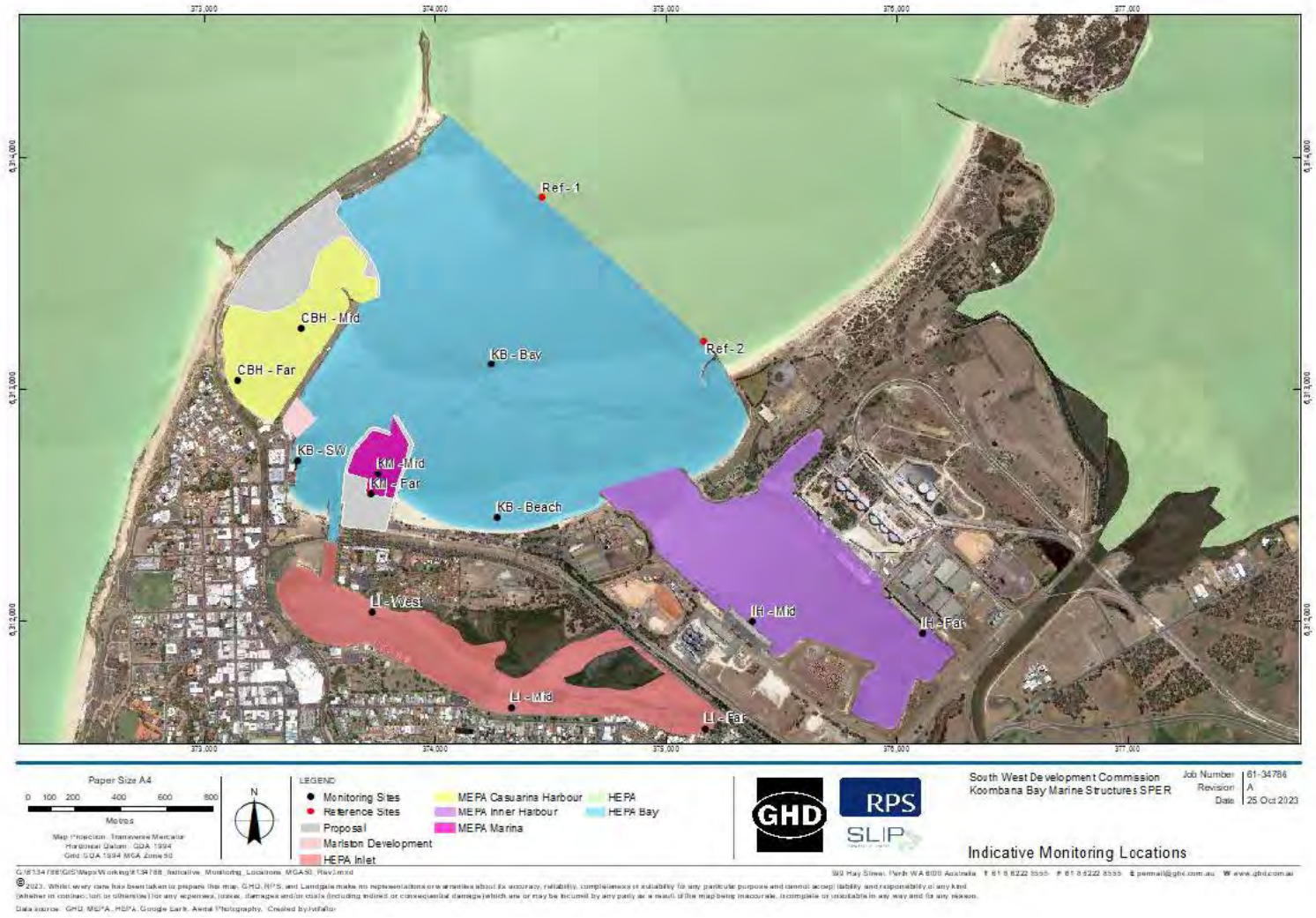


Figure 2: Sediment sampling locations (Ref 1, Ref 2, KB-Bay, KB-Beach, KB-SW, CBH-Mid, CBH-Far)

Table 4: Site locations and coordinates

Site	Site Type	Easting	Northing
Ref 1	Reference	374338.2	6313990
Ref 2	Reference	375157.4	6313226
KB- Bay	Monitoring	374220.1	6312969
KB-Beach	Monitoring	374278.5	6312442
KB-SW	Monitoring	373408.3	6312686
CBH - Mid	Monitoring	373405.5	6313235
CBH - Far	Monitoring	373162.8	6313024

2.2.2. Sample Analysis

Samples were transported to MAFRL (NATA Accreditation No. 10603) and ALS (NATA Accreditation No. 825) for analysis. Samples were packaged and transported with a Chain of Custody (CoC) identifying sample details and analysis (**Appendix A**). Laboratory certificates of analysis and quality control reports are presented in **Appendix C**.

Samples were collected and assessed for the following analytes:

- Metals:
  - Antimony (Sb), Arsenic (As), Cd, Chromium (Cr), Cu, Pb, Hg, Ni, Silver (Ag), Zn
- Organics:
  - Total Polyaromatic Hydrocarbons (PAHs)
- Organometallics:
  - TBT
- Total Organic Carbon

2.2.3. Data Analysis

Environmental quality guidelines (EQGs) for toxicants in sediments have been assessed against the guideline values presented within the MEQMP which were based on the ANZG (2018) DGVs for the Environmental Value (EV) 'Ecosystem Health'.

2.3. Benthic Communities and Habitats

2.3.1. Site Location

A BCH survey was undertaken in an Area of Interest (AOI) (Figure 3) within Koombana Bay, located adjacent to Point Hamilla, on the northern side of the entrance to Inner Harbour. The survey aimed to investigate benthic habitats within the AOI and establish three towed video transects for future monitoring of potential impacts to benthic communities.

Figure 3: Area of Interest for BCH survey

2.3.2. Approach

2.3.2.1. Drone

A drone survey was planned to collect high resolution aerial imagery of the AOI for the identification of types and extent of benthic communities. The drone survey was completed using a Mavic 3 Multispectral RTK (Real Time Kinematic) drone (**Figure 4**).

Figure 4: Mavic 3 Multispectral RTK Drone

2.3.2.2. Survey effort

The field survey was conducted on the 02 May 2024, by one O2M marine scientist (**Table 5**). The drone was deployed on a pre-defined flight path, with sufficient image overlap to facilitate creation of an orthomosaic. The mission was conducted early morning (08:00 AM) in order to reduce the impacts of sun glare and shadows.

Table 5: Survey effort for drone survey

Survey Date	Survey Hours	Images collected	Total area captured (ha)
02-May 24	1	339	20.8

2.3.2.3. Towed video

A towed video survey was planned to collect ground-truthing information in the AOI for the establishment of suitable monitoring transects, and identification of types and extent of benthic communities. Existing aerial imagery from Nearmap was used for preliminary assessment of benthic habitats in the AOI. Transects were then planned to identify the nature and extent of visible benthic features and vegetation (**Figure 5**). Two types of towed video deployments were utilised in the survey:

- Short transects (< 20 m) at points of interest. Used to identify the nature of a single predicted BCH type.
- Extended transects (up to 150 m). Used to obtain continuous information across visible benthic features to identify the nature and spatial extent of BCH types.

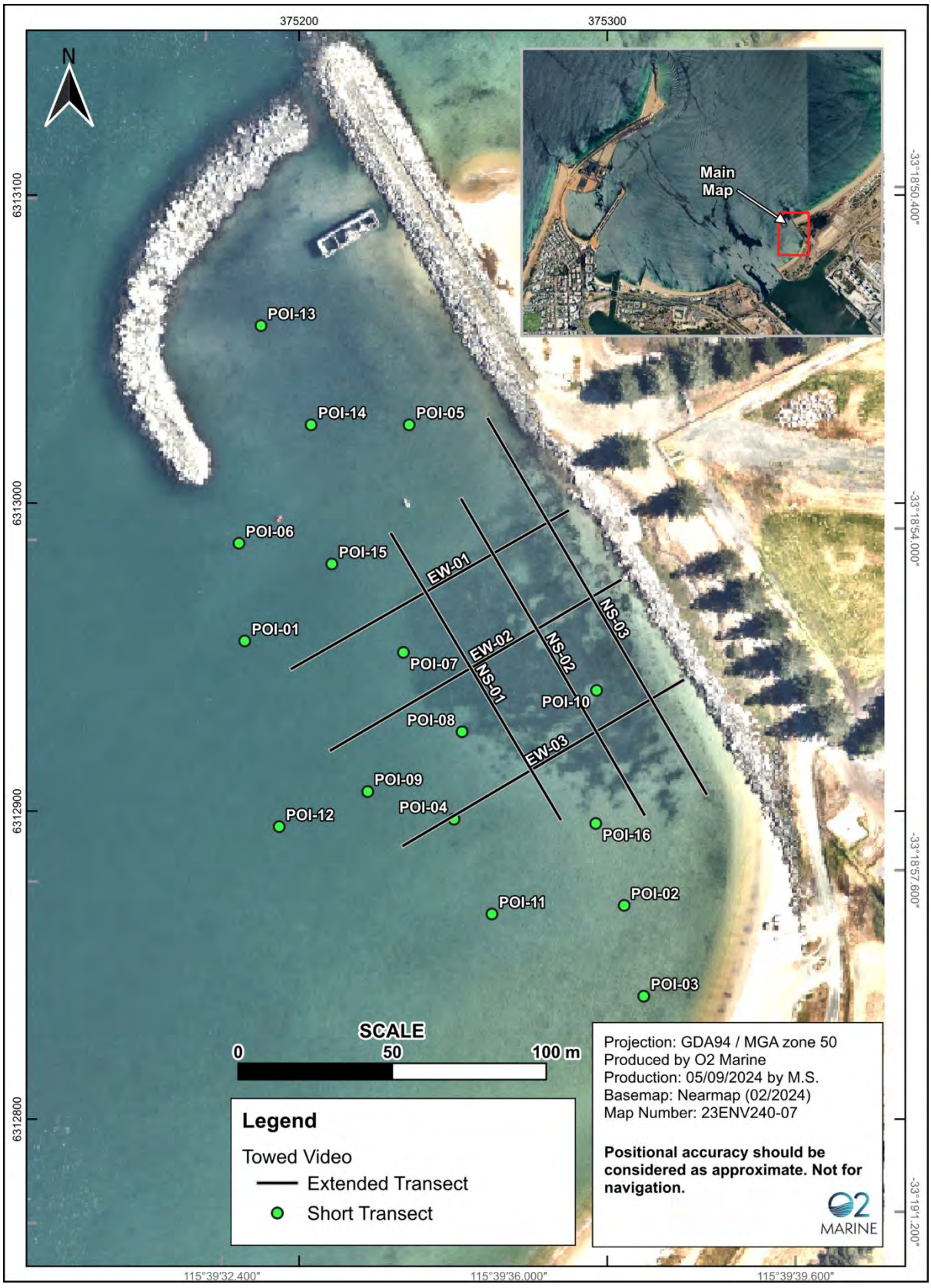


Figure 5: Planned sites for towed video collection

The primary TVC system used for the ground truth survey was a Spot X PRO SQUID 3 real-time subsea high definition (HD) video camera (**Figure 6b**). The TVC system was deployed from the vessel at each target location and operated by a scientist using the topside unit control box (**Figure 6a**). The topside unit provides live video feed for continuous quality control and allows adjustment of lights and camera settings.

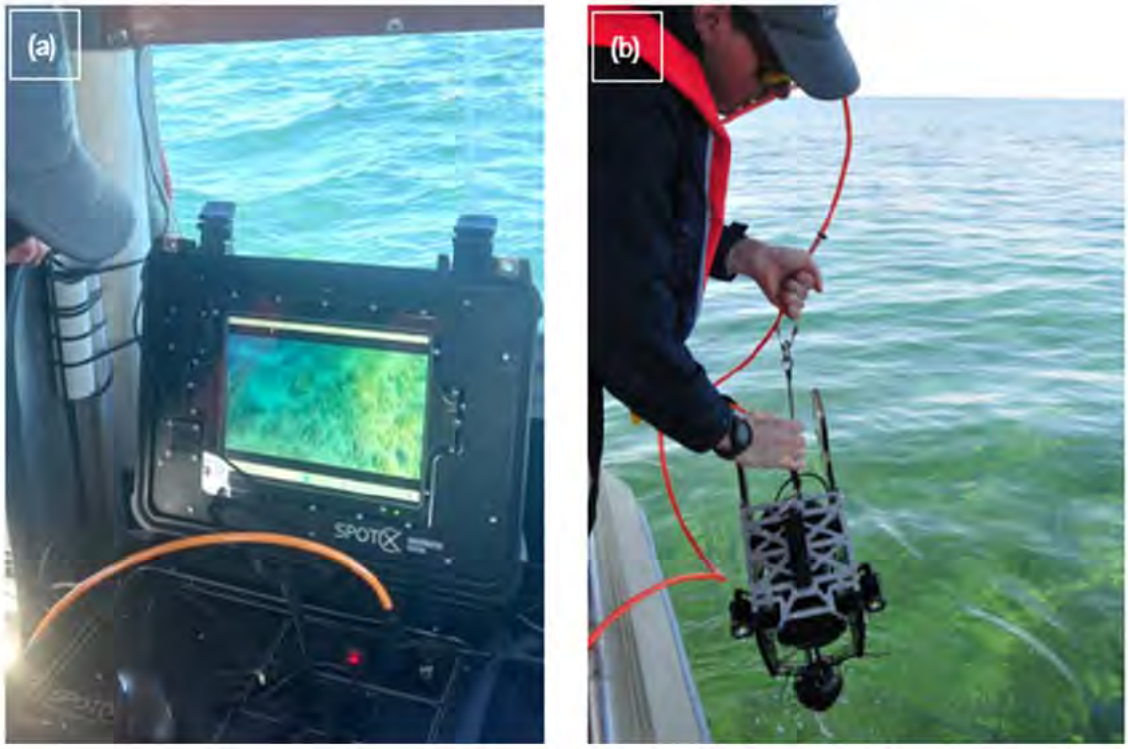


Figure 6: a) Spot X topside unit, and b) Spot X HD video camera and umbilical cable

2.3.2.4. Survey effort

The field survey was conducted on 06 May 2024, onboard a locally operated 10.1 m charter vessel *'Obsession 1'* by two O2M marine scientists (**Table 6**). A total of 21 transects were completed within the AOI (**Figure 7**). Due to vessel access restrictions, planned site POI-13 could not be surveyed.

Table 6: Survey effort for TVC

Survey Date	Survey Hours	TVC Transects	Total distance covered (km)
06 June 24	4	21	1.4

During the survey, the camera was flown at a depth of approximately 0.5 m above the seabed, with the operator recording between 30 seconds and seven minutes of benthic video footage at each location. Vessel speed was maintained between 1-2 knots to allow for the recording of good-quality imagery.

The following information was recorded on field sheets at each targeted location:

- Date and time
- GPS coordinates
- Water depth (m)
- Dominant BCH type
- Comments to aid post-processing.

Figure 7: Towed video survey effort

2.3.3. Data Processing and Analysis

2.3.3.1. Processing Of Drone Imagery

Drone photo imagery was stitched and georeferenced using Pix4DMapper. The subsequent georeferenced orthomosaic was then loaded into QGIS for analysis (Figure 8).

Figure 8: Drone orthomosaic

2.3.3.2. Classification Of Towed Video

Ground truthing videos were classified by analysing footage from each TVC transect. Recordings were visually analysed by a suitably qualified marine scientist in TransectMeasure and classified into habitat classes following the Collaborative and Automated Tools for Analysis of Marine Imagery (CATAMI) standard classification scheme for scoring marine biota and physical characteristics from underwater imagery, which defines benthic habitats based on the physical and biological characteristics, including:

- Relief
- Substrate
- Bedforms
- Visual estimate of percent cover of benthic flora and fauna
- Dominant biota
- Subdominant biota

An overall towed video classification was also applied to each second of video (Table 7). Quality assurance and control checks were conducted by an experienced marine scientist specialising in BCH taxonomy and habitat classifications, including verification of percent cover estimates and species identification.

The TransectMeasure data output was synced with the GPS track log, as well as the corresponding auxiliary information (time, depth), to attribute the appropriate BCH category at each point location. GPS offsets and cable lengths, which were recorded during the field survey, were applied to the transects to obtain the most accurate positioning of data. Still images were also extracted from each transect at the point at which BCH type changed from one to the next.

Table 7: Towed video classifications

BCH Class	Description	Example Image
Bare sediment	Bare sediment (unconsolidated). Mainly characterised by bioturbation, occasional 3D ripples (< 10 cm), and shell fragments observed. Some sparse (1 – 3 %) seagrass or macroalgae.	
High cover seagrass	High cover (25 - 75 %) of seagrass on unconsolidated substrate. Mainly mixed seagrass, including strap-like and elliptical forms. Occasional areas where only strap-like seagrass is present. Occasional subdominant macroalgae (filamentous form) with sparse (1 - 3 %) to low (3 - 10 %) cover.	
Moderate cover seagrass	Moderate cover (10 - 25 %) of seagrass on unconsolidated substrate. Mainly mixed seagrass, including strap-like and elliptical forms. Occasional areas where only strap-like seagrass is present. Occasional subdominant macroalgae (filamentous form) with sparse (1 - 3 %) to low (3 - 10 %) cover.	
Low cover seagrass	Low cover (3 - 10 %) of seagrass on unconsolidated substrate. Mainly mixed seagrass, including strap-like and elliptical forms. Occasional areas where only strap-like seagrass is present. Occasional subdominant macroalgae (filamentous form) with sparse (1 - 3 %) cover.	

2.3.3.3. Benthic Habitat Mapping

Benthic habitat mapping was informed by the analysis of the drone orthomosaic in conjunction with the classified towed video transects (**Figure 9**). A manual digitising approach was considered the best approach to mapping, as the high resolution (2 cm) imagery supported identification of BCH types and extent. Classified image transects were used as a guide for mapping and to allow for the identification of common features and habitat distribution across the mapping area. Polygons were manually digitised where distinct features in the drone imagery could be associated with towed video classes. Where distinct features were observed but could not be associated with individual towed video classes, broader mapping categories were generated to classify these areas.

Mapping Classifications

Two classifications (**Table 8**) were used for the mapping of benthic habitats within the AOI.

Table 8: Classifications used in BCH mapping

BCH Class	Description
Bare sediment	Bare sediment (unconsolidated). Mainly characterised by bioturbation, occasional 3D ripples (< 10 cm), and shell fragments observed. Occasional areas of sparse (1 - 3 %) seagrass or macroalgae and isolated accumulations of benthic wrack.
Seagrass	Low (3 - 10 %) to high (25 - 75 %) cover of seagrass on unconsolidated substrate. Mainly mixed seagrass, including strap-like (*Heterozostera sp.*) and elliptical (*Halophila sp.*) forms. Occasional areas where only strap-like seagrass is present. Occasional subdominant macroalgae (filamentous form) with sparse (1 - 3 %) to low (3 - 10 %) cover.

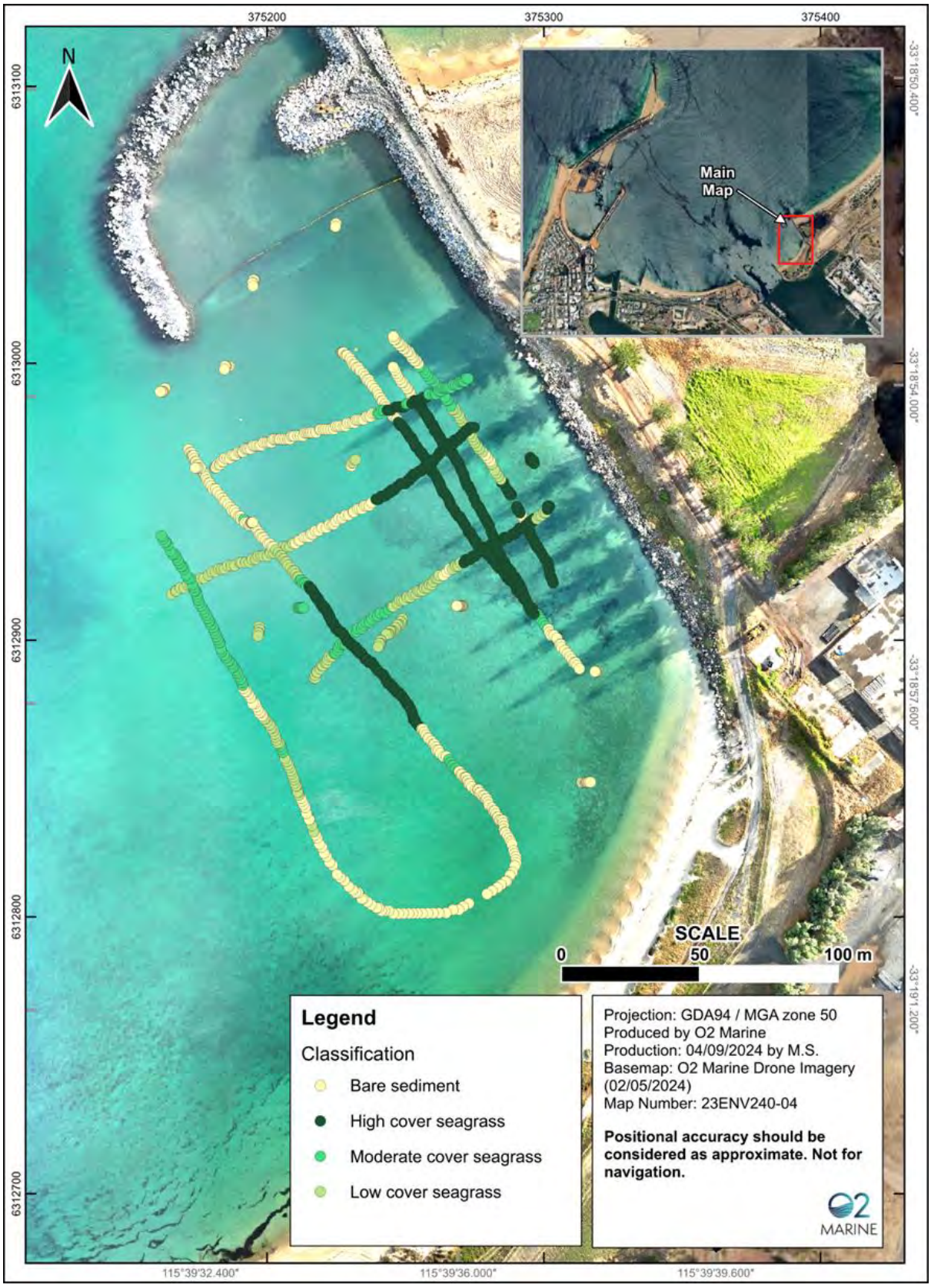


Figure 9: Classified towed video transects overlaid on the drone orthomosaic

3. Results

3.1. Marine Environmental Quality

3.1.1. Water Quality Sampling

3.1.1.1. Dissolved Metals

Dissolved metals results are presented below in Table 9– Table 12, Laboratory reports are presented in Appendix C. In summary:

- Concentrations of dissolved lead, mercury, and cadmium were generally reported below their respective limits of reporting (LOR) and did not report exceedances of 90% or 99% SPLs.
- Copper generally reported exceedances of the 99% SPL, whilst copper concentrations did not exceed the 90% SPL applied for the MEPA site.
- Zinc reported exceedances of the 99% SPL on two occasions with both exceedances reported within the Leschenault Inlet. There were no reported exceedances of the 90% SPL at MEPA sites

3.1.1.2. Nutrients and Chlorophyll-α

Nutrient and Chlorophyll-α results are presented below in Table 9 – Table 12. In summary:

- Nutrient concentrations were generally reported below 90% and 99% SPLs, respectively for the MEPA and HEPA sites, though frequently exceeded interim DGVs defined in ANZECC (2000).
- Chlorophyll-α concentrations generally exceeded IMCRA mesoscale bioregion DGVs defined for the Leeuwin-Naturaliste bioregion.
- Concentrations of nutrients and chlorophyll-α were typically greater at sites within the Leschenault Inlet compared to Koombana Bay sites.

3.1.1.3. Organics

Organics (Total PAH) results are presented in Appendix C. In summary:

- BTEX and Naphthalene concentrations were reported below the LOR at all sample locations during each monitoring event.

3.1.1.4. Organometallics

Tributyl-tin results are presented below in Table 9 – Table 12. In summary:

- TBT concentrations were reported below the LOR at all sampling locations.
- The LOR was insufficiently low to assess TBT concentrations against the 99% SPL defined in ANZG (2018), however were all reported below the 95% SPL.

Table 9: Water samples analytical results (26/07/2024).

Site ID	LEP	Cd	Cu	Pb	Hg	Ni	Zn	Ammonia	NO3+NO2	Total-P	Total-N	Chlorophyll-'a'	TSS	TBT
Units								ug/L					mg/L	ug Sn/L
LOR														
DGV (IMCRA)[1]	-	-	-	-	-	-	-	-	-	-	-	0.71	-	-
DGV (ANZG 2000)[2]	-	-	-	-	-	-	-	-	7.5	40	230	-	-	-
90% SPL	-	14	3	6.6	0.7	20	12	1200	-	-	-	-	-	0.02
99% SPL	-	0.7	0.3	2.2	0.1	7	3.3	500	-	-	-	-	-	0.0004
IH-Mid	MEPA	<0.1	0.5	<0.1	<0.1	<0.3	2	14	22	22	210	0.8	5	<0.002
KB-Bay 1	HEPA	<0.1	0.5	0.1	<0.1	<0.3	<1	8	14	18	170	0.8	5	<0.002
KB-Bay 2		<0.1	0.7	0.1	<0.1	<0.3	1	13	27	19	230	1	3	<0.002
KB-Bay 3		<0.1	0.8	0.1	<0.1	<0.3	1	11	20	16	160	0.9	4	<0.002
KB-Bay 4		<0.1	0.6	<0.1	<0.1	<0.3	2	10	19	18	210	1.2	4	<0.002
KB-Beach		<0.1	0.7	0.1	<0.1	<0.3	2	14	36	24	260	1	3	<0.002
KB-SW 1		<0.1	1.8	0.2	<0.1	<0.3	2	17	82	15	230	0.9	3	<0.002
KB SW 2		<0.1	1.2	0.1	<0.1	<0.3	1	15	50	19	220	0.7	4	<0.002
LI-Far		<0.1	2	0.2	<0.1	0.4	3	32	79	20	270	2.5	4	<0.002
LI-Mid		<0.1	2	0.2	<0.1	0.4	3	41	43	26	290	1.7	2	<0.002
LI-West		<0.1	1.5	0.5	<0.1	0.4	4	24	65	19	250	1.5	2	<0.002

[1] *DGVs defined for the IMCRA mesoscale bioregion (Leeuwin – Naturaliste) for physical and chemical stressors.*

[2] *DGVs defined in superseded ANZECC and ARMCANZ (2000) guidance.*

Table 10: Water samples analytical results (02/08/2024).

Site ID	LEP	Cd	Cu	Pb	Hg	Ni	Zn	Ammonia	NO3+NO2	Total-P	Total-N	Chlorophyll-'a'	TSS	TBT
Units								ug/L					mg/L	ug Sn/L
LOR														
DGV (IMCRA)[1]	-	-	-	-	-	-	-	-	7.5	-	-	0.71	-	-
DGV (ANZG 2000)[2]	-	-	-	-	-	-	-	-	-	40	230	-	-	-
90% SPL	-	14	3	6.6	0.7	20	12	1200	-	-	-	-	-	0.02
99% SPL	-	0.7	0.3	2.2	0.1	7	3.3	500	-	-	-	-	-	0.0004
IH-Mid	MEPA	<0.1	1.9	<0.1	<0. 1	0.3	1	20	49	19	220	2.6	7	<0.002
KB-Bay 1	HEPA	<0.1	1.5	<0.1	<0. 1	0.3	1	9	14	16	150	1.1	4	<0.002
KB-Bay 2		<0.1	1.9	<0.1	<0. 1	0.4	2	20	73	20	250	2.5	6	<0.002
KB-Bay 3		<0.1	1.8	<0.1	<0. 1	0.4	1	17	39	18	210	1.3	4	<0.002
KB-Bay 4		<0.1	1.8	<0.1	<0. 1	0.3	<1	21	63	20	270	1.6	5	<0.002
KB-Beach		<0.1	1.8	<0.1	<0. 1	0.3	<1	23	65	21	270	1.8	7	<0.002
KB-SW 1		<0.1	2.7	<0.1	<0. 1	0.4	1	33	120	24	360	1.5	6	<0.002
KB-SW 2		<0.1	3.0	<0.1	<0. 1	0.4	1	31	100	22	320	1.3	5	<0.002
LI-Far		<0.1	10.0	<0.1	<0. 1	0.5	6	48	100	81	670	7.2	51	<0.002
LI-Mid		<0.1	4.8	<0.1	<0. 1	0.4	3	33	170	19	370	2.3	5	<0.002
LI-West		<0.1	3.1	<0.1	<0. 1	0.3	3	43	260	22	400	2.4	7	<0.002

[1] *DGVs defined for the IMCRA mesoscale bioregion (Leeuwin – Naturaliste) for physical and chemical stressors.*

[2] *DGVs defined in superseded ANZECC and ARMCANZ (2000) guidance.*

Table 11: Water samples analytical results (08/08/2024).

Site ID	LEP	Cd	Cu	Pb	Hg	Ni	Zn	Ammonia	NO3+NO2	Total-P	Total-N	Chlorophyll-'a'	TSS	TBT
Units								ug/L					mg/L	ug Sn/L
LOR														
DGV (IMCRA)[1]	-	-	-	-	-	-	-	-	7.5	-	-	0.71	-	-
DGV (ANZG 2000)[2]	-	-	-	-	-	-	-	-	-	40	230	-	-	-
90% SPL	-	14	3	6.6	0.7	20	12	1200	-	-	-	-	-	0.02
99% SPL	-	0.7	0.3	2.2	0.1	7	3.3	500	-	-	-	-	-	0.0004
IH-Mid	MEPA	<0.1	0.7	<0.1	<0. 1	0.3	2	13	10	15	140	1.4	2	<0.002
KB-Bay 1	HEPA	<0.1	0.5	<0.1	<0. 1	0.3	2	5	17	18	180	1.5	4	<0.002
KB-Bay 2		<0.1	0.4	<0.1	<0. 1	0.3	1	6	5	34	270	1.5	4	<0.002
KB-Bay 3		<0.1	0.5	<0.1	<0. 1	0.3	1	<3	24	20	210	1.6	4	<0.002
KB-Bay 4		<0.1	0.5	<0.1	<0. 1	0.3	1	<3	19	21	210	1.6	4	<0.002
KB-Beach		<0.1	0.5	<0.1	<0. 1	0.3	1	6	38	22	240	1.5	4	<0.002
KB-SW 1		<0.1	0.5	<0.1	<0. 1	0.3	1	12	61	26	310	1.3	6	<0.002
KB-SW 2		<0.1	0.5	<0.1	<0. 1	0.4	1	7	41	23	260	1.3	4	<0.002
LI-Far		<0.1	0.9	<0.1	<0. 1	0.4	2	5	5	110	730	93	14	<0.002
LI-Mid		<0.1	1.0	<0.1	<0. 1	0.4	2	5	56	26	340	3.2	3	<0.002
LI-West		<0.1	0.8	<0.1	<0. 1	0.4	2	10	70	22	310	2.5	2	<0.002

[1] *DGVs defined for the IMCRA mesoscale bioregion (Leeuwin – Naturaliste) for physical and chemical stressors.*

[2] *DGVs defined in superseded ANZECC and ARMCANZ (2000) guidance.*

Table 12: Water samples analytical results (13/08/2024).

Site ID	LEP	Cd	Cu	Pb	Hg	Ni	Zn	Ammonia	NO3+NO2	Total-P	Total-N	Chlorophyll-'a'	TSS	TBT
Units								ug/L					mg/L	ug Sn/L
LOR														
DGV (IMCRA)[1]	-	-	-	-	-	-	-	-	7.5	-	-	0.71	-	-
DGV (ANZG 2000)[2]	-	-	-	-	-	-	-	5	-	40	230	-	-	-
90% SPL	-	14	3	6.6	0.7	20	12	1200	-	-	-	-	-	0.02
99% SPL	-	0.7	0.3	2.2	0.1	7	3.3	500	-	-	-	-	-	0.0004
IH-Mid	MEPA	<0.1	0.3	<0.1	<0.1	<0.3	<1	25	7	19	170	2.5	2	<0.002
KB-Bay 1	HEPA	<0.1	0.3	<0.1	<0.1	<0.3	<1	<3	4	18	150	2.1	5	<0.002
KB-Bay 2		<0.1	0.4	<0.1	<0.1	<0.3	<1	4	9	21	190	2.8	6	<0.002
KB-Bay 3		<0.1	0.4	<0.1	<0.1	<0.3	<1	4	7	19	160	2.8	5	<0.002
KB-Bay 4		<0.1	<0.2	<0.1	<0.1	<0.3	<1	<3	<2	19	140	2.1	7	<0.002
KB-Beach		<0.1	0.3	<0.1	<0.1	<0.3	<1	5	4	21	230	2.6	6	<0.002
KB-SW 1		<0.1	0.3	<0.1	<0.1	<0.3	1	5	4	36	260	2.1	6	<0.002
KB-SW 2		<0.1	0.2	<0.1	<0.1	<0.3	<1	<3	2	25	210	2.0	6	<0.002
LI-Far		<0.1	1.2	<0.1	<0.1	<0.3	2	26	23	33	440	2.9	3	<0.002
LI-Mid		<0.1	1.2	<0.1	<0.1	<0.3	2	<3	<2	38	480	18	6	<0.002
LI-West		<0.1	0.8	<0.1	<0.1	<0.3	1	<3	<2	20	240	4.6	3	<0.002

[1] *DGVs defined for the IMCRA mesoscale bioregion (Leeuwin – Naturaliste) for physical and chemical stressors.*

[2] *DGVs defined in superseded ANZECC and ARMCANZ (2000) guidance.*

3.1.1.5. Physiochemical Parameters

Median physicochemical parameter results calculated from trimmed profile data are presented below in Table 13– Table 16. In summary:

- Median water temperature values ranged between 13.2 °C and 16.0 °C
- Median pH values ranged between 7.47 and 9.49. Several high pH values were reported during the second weekly monitoring event which may be considered possible outlier results
- Median turbidity values ranged between 1.71 and 6.79 NTU
- Median conductivity values ranged between 33.94 and 44.65 ms/cm

Table 13: Median physiochemical values reported for water column profiles conducted on the 26 July 2024.

Site ID	Conductivity	Turbidity	pH	Temperature
Units	ms/cm	NTU	-	°C
IH-Mid	43.41	4.82	8.10	15.1
KB-Bay 1	43.12	3.32	8.13	15.0
KB-Bay 2	41.12	2.75	8.00	14.5
KB-Bay 3	40.63	3.61	8.03	14.6
KB-Bay 4	40.86	3.11	8.13	14.9
KB-Beach	39.97	3.38	8.15	14.8
KB-SW 1	38.99	3.29	7.94	14.2
KB SW 2	39.45	3.45	7.96	14.3
LI-Far	38.78	3.47	8.21	15.0
LI-Mid	40.99	3.77	7.95	15.2
LI-West	41.83	6.42	7.91	15.1

Table 14: Median physiochemical values reported for water column profiles conducted on 2 August 2024

Site ID	Conductivity	Turbidity	pH[1]	Temperature
Units	ms/cm	NTU	-	°C
IH-Mid	37.43	2.53	8.45	13.8
KB-Bay 1	35.21	2.95	9.45	16.0
KB-Bay 2	42.77	4.57	9.40	15.7
KB-Bay 3	43.52	3.45	8.58	15.6
KB-Bay 4	43.10	4.00	8.52	15.7
KB-Beach	39.69	6.64	9.49	15.0
KB-SW 1	36.68	6.79	8.77	14.3
KB SW 2	36.81	4.01	9.39	14.5
LI-Far	39.34	2.22	8.46	13.9
LI-Mid	29.43	2.53	8.45	13.8
LI-West	37.41	4.06	8.56	13.2

[1] *pH values should be interpreted with caution during this monitoring event.*

Table 15: Median physiochemical values reported for water column profiles conducted on 8 August 2024

Site ID	Conductivity	Turbidity	pH	Temperature
Units	ms/cm	NTU	-	°C
IH-Mid	43.56	1.78	7.72	15.5
KB-Bay 1	43.45	4.39	7.87	15.4
KB-Bay 2	43.61	4.81	7.83	15.5
KB-Bay 3	41.80	2.94	7.93	15.1
KB-Bay 4	42.14	3.16	7.97	15.3
KB-Beach	40.35	3.32	7.98	15.1
KB-SW 1	39.21	6.20	7.93	14.8
KB SW 2	39.63	3.24	7.93	14.8
LI-Far	33.94	3.20	8.13	15.5
LI-Mid	37.81	3.07	7.97	15.8
LI-West	36.99	2.84	8.00	14.8

Table 16: Median physiochemical values reported for water column profiles conducted on 13 August 2024

Site ID	Conductivity	Turbidity	pH	Temperature
Units	ms/cm	NTU	-	°C
IH-Mid	44.71	2.49	7.86	15.7
KB-Bay 1	43.66	2.94	7.88	15.6
KB-Bay 2	43.63	4.11	7.89	15.6
KB-Bay 3	43.95	3.16	7.91	15.6
KB-Bay 4	44.65	2.99	7.87	15.8
KB-Beach	44.21	4.04	7.88	15.6
KB-SW 1	43.40	9.54	7.85	15.6
KB SW 2	43.52	5.50	7.90	15.7
LI-Far	32.97	6.17	7.47	15.5
LI-Mid	39.06	2.56	7.83	15.9
LI-West	35.43	1.71	7.92	15.3

3.1.1.6. PAR

PAR profiles are presented in **Figure 10 - Figure 13**. In summary:

- PAR values across all sites and sample periods presented similar trends with PAR decreasing with depth
- PAR values were generally comparable between sites, though surface values varied greatly depending on time of day the site was sampled.

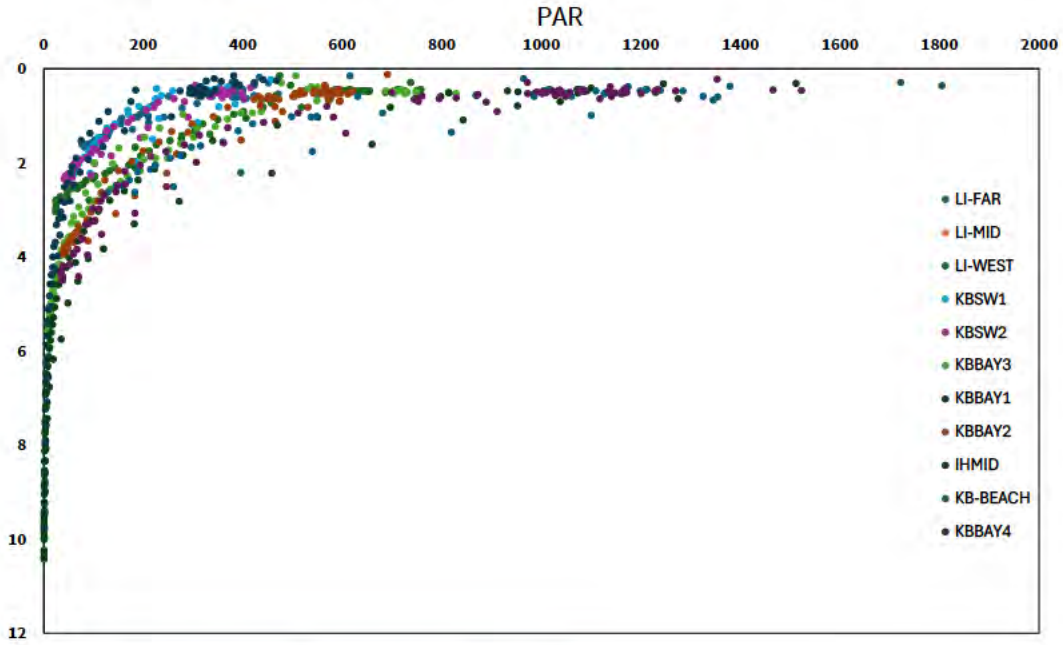


Figure 10: PAR data from MS9 sampled on 26/07/2024

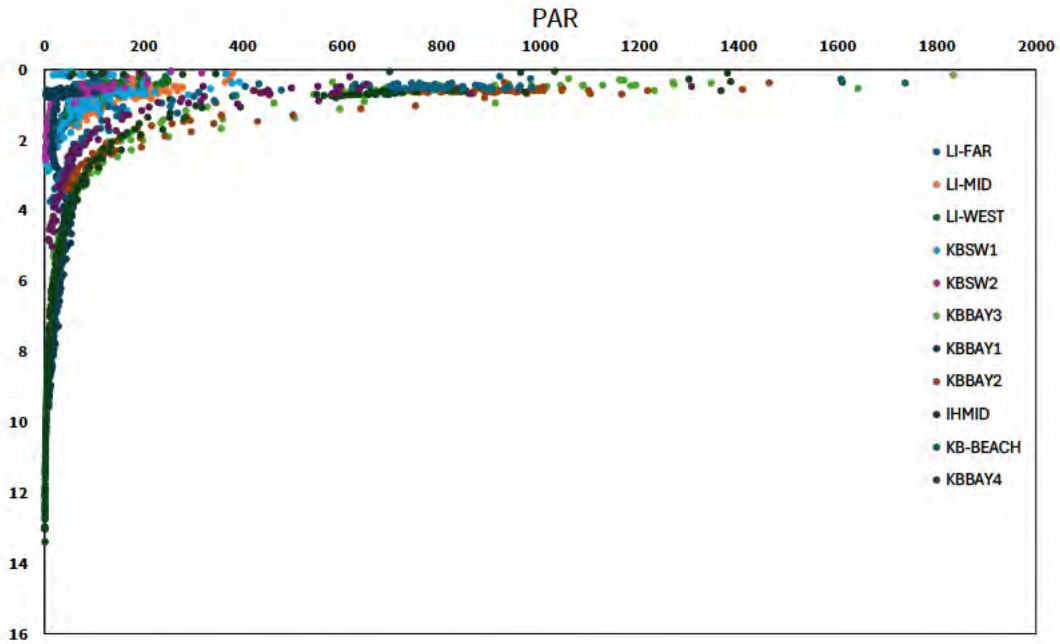


Figure 11: PAR data from MS9 sampled on 02/08/2024

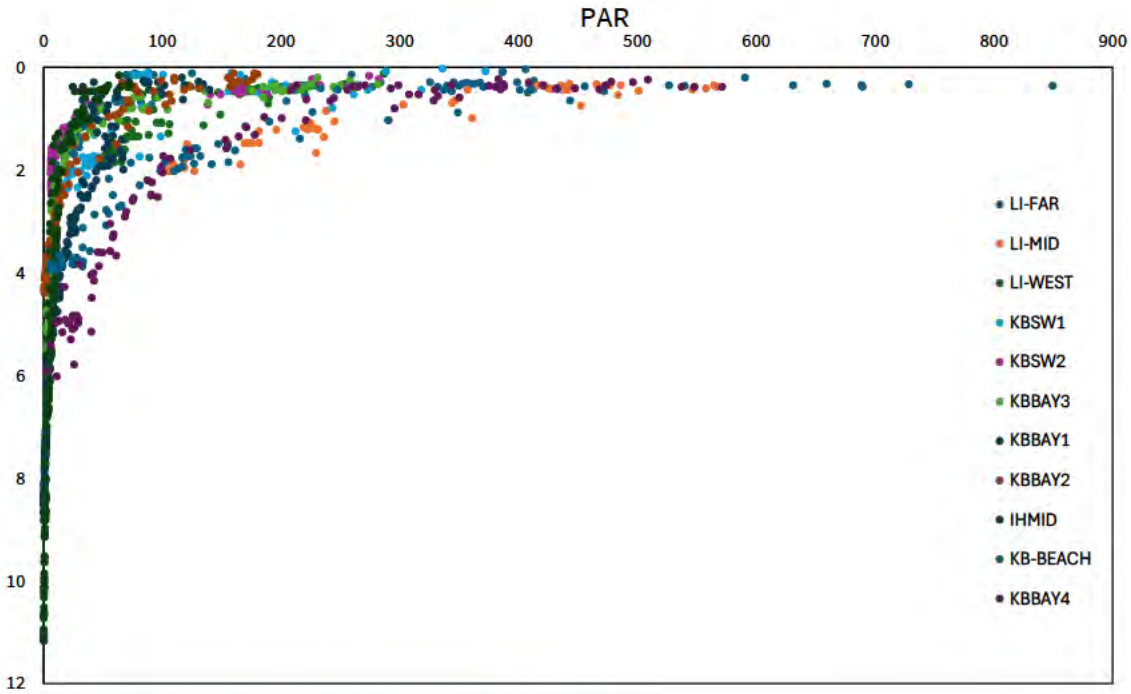


Figure 12: PAR data from MS9 sampled on 08/08/2024

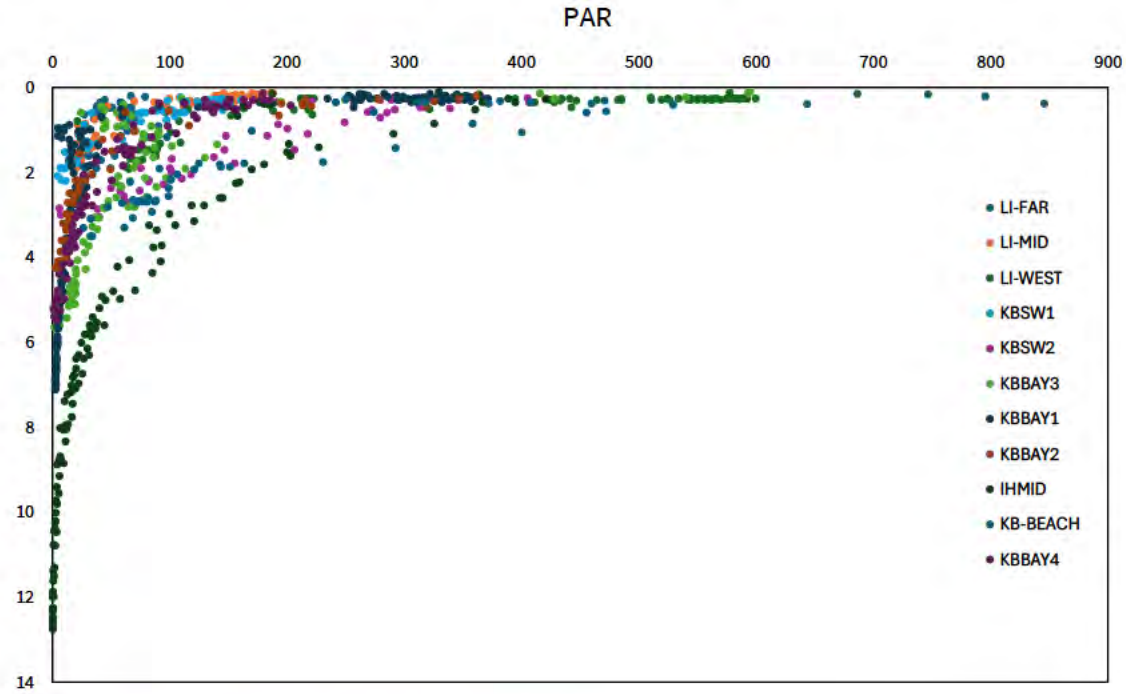


Figure 13: PAR data from MS9 sampled on 13/08/2024

3.1.2. Sediment Quality Sampling

3.1.2.1. Metals

Dissolved metals results are presented below in Table 17, Laboratory reports are presented in Appendix C. In summary:

- Concentrations of antimony and silver were reported below their respective LORs for all sites, and concentrations of cadmium and mercury were generally reported below their respective LORs
- Chromium, lead, nickel and zinc concentrations did not exceed their respective ANZG (2018) DGVs or GV-High
- Arsenic and copper reported exceedances of the ANZG (2018) DGV on one occasion each, with both exceedances reported at site CBH-Mid. CBH-Mid is a MEPA site, so only the ANZG (2018) GV-High value applies and therefore no exceedance is reported.

3.1.2.2. Organics

Organics (Total PAH) results are presented in Appendix C. In summary:

- All PAH concentrations were reported below the LOR at all sample locations.

3.1.2.3. Organometallics

Tributyltin results are presented below in Table 18. In summary:

- Concentrations of TBT were below the LOR at all sites except for CBH-Mid
- No TBT concentrations exceeded either the ANZG (2018) DGV or GV-High.

Table 17: Sediment samples analytical results (06/05/2024).

Site ID	LEP	Sb	As	Cd	Cr	Cu	Pb	Hg	Ni	Ag	Zn
Units		mg/kg									
LOR		2	2	0.1	0.2	0.2	1	0.01	0.7	1	0.5
ANZG (2018) DGV[1]	–	2	20	1.5	80	65	50	0.15	21	1	200
ANZG (2018) GV-High[2]	–	25	70	10	370	270	220	1	52	4	410
Ref 1	HEPA	<2	<2	<0.1	6.8	1.4	2	<0.01	1.2	<1	2.5
Ref 2		<2	6	<0.1	11	4.5	2	<0.01	2.8	<1	7.5
KB-Bay		<2	10	<0.1	17	10	4	0.01	5.5	<1	17
KB-Beach		<2	6	<0.1	11	5.8	3	<0.01	3.0	<1	9.0
KB-SW		<2	4	<0.1	5.1	2.3	2	<0.01	1.1	<1	5.2
CBH-Mid	MEPA	<2	22	0.2	29	71	15	0.07	8.4	<1	69
CBH-Far		<2	8	<0.1	10	14	4	0.03	2.4	<1	17

[1]HEPA sites assessed against ANZG (2018) DGV

[2]MEPA sites assessed against ANZG (2018) GV-High

Table 18: Sediment sample analytical results for TBT (06/05/2024).

Site ID	TBT	TOC	TBT (normalised to 1% TOC)[1]
Units	µg Sn/kg		µg Sn/kg
LOR	0.5		0.5
ANZG (2018) DGV[1]	-	-	9
ANZG (2018) GV-High[2]	-	-	70
Ref 1	<0.5	0.7	0.36
Ref 2	<0.5	0.5	0.50
KB-Bay	<0.5	1.8	0.14
KB-Beach	<0.5	0.6	0.42
KB-SW	<0.5	0.3	0.83
CBH-Mid	2.9	3.8	0.76
CBH-Far	<0.5	0.6	0.42

[1]*TBT Concentrations reported below the LOR were halved for normalisation against TOC.*

3.1.3. Quality Assurance and Quality Control

3.1.3.1. Field QAQC

Field QA/QC is presented in Appendix E. In summary;

- 26 July 2024 duplicate at site IH-MID
  - Two relative percentage difference (RPD) exceedances. One exceedance, for lead, was due to the main sample being below reporting limits. The other exceedance was for NO3 + NO3 and was above the 35% threshold at 51.43%
- 02 August 2024 duplicate at LIWEST
  - No RPD exceedances
- 08 August 2024 duplicate at KBBAY4
  - No RPD exceedances
- 13 August 2024 duplicate at KBBAY3
  - One RPD exceedance for zinc due the the main sample being below reporting limits

3.1.3.2. Laboratory QAQC

Full laboratory QA/QC reports are presented in Appendix C. Laboratory QA/QC were within acceptable criteria.

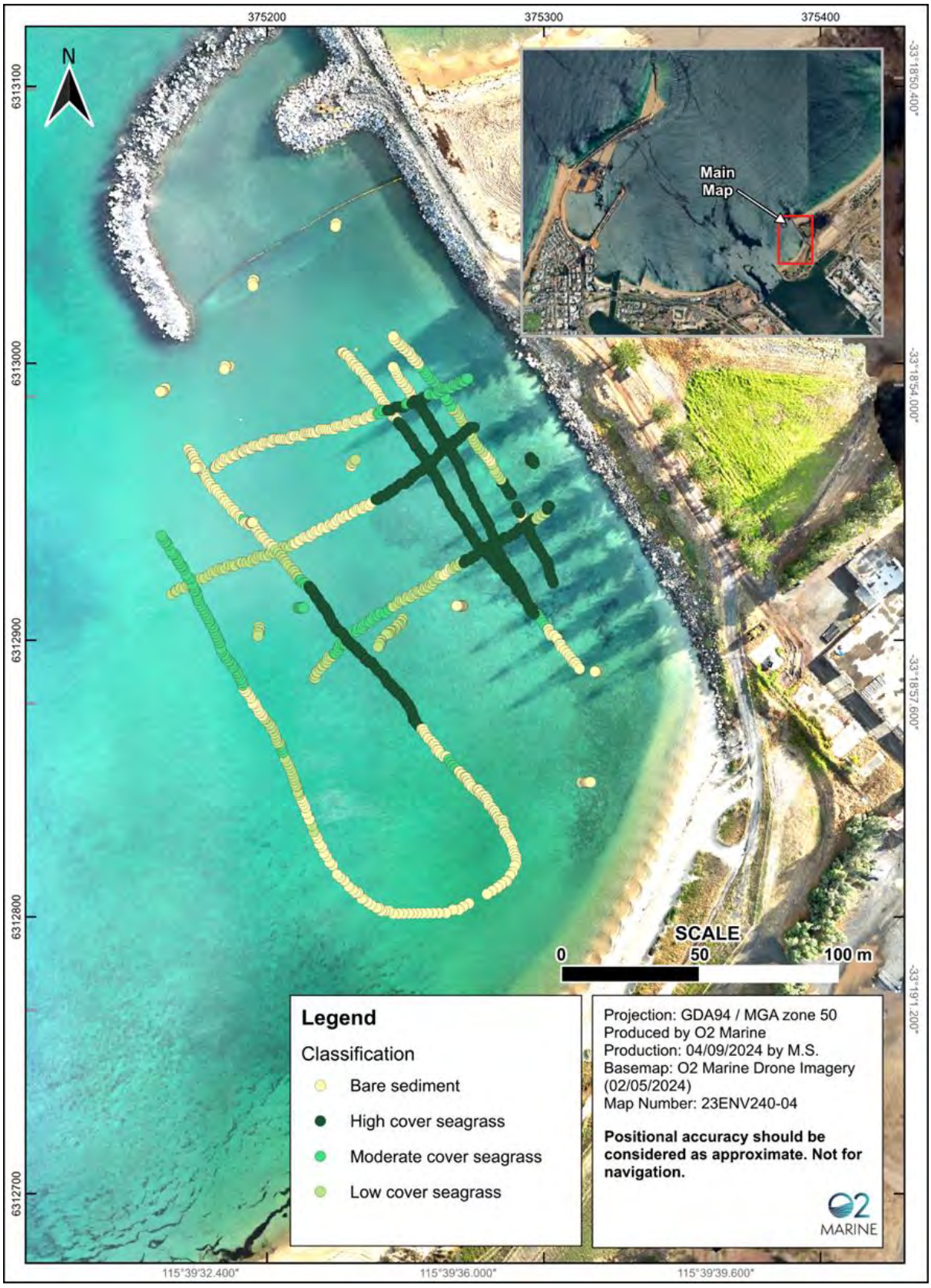
3.2. Benthic Communities and Habitats

3.2.1. Benthic Habitat Mapping

The BCH composition (**Table 19**; **Figure 14**)within the AOI was found to be dominated by bare sediment (59%). The area features flat relief, with bioturbation present across much of the deeper areas, and 3D ripples (< 10 cm) observed closer to the beach shoreline. Occasional areas of sparse seagrass or macroalgae are present, and accumulations of benthic wrack are common near to the beach shoreline. The remaining area of the AOI is classified as seagrass (41%). Seagrass is present in varied densities and forms, primarily observed in the centre of the AOI. The seagrass observed is mainly of strap-like form (Heterozostera sp.), however elliptical forms are frequently (*Halophila sp.*) are frequently observed co-existing. Subdominant assemblages of sparse to low cover macroalgae feature within most areas of seagrass. The macroalgae species were not identifiable but seemed to be small filamentous forms of brown macroalgae, and erect coarse branching brown macroalgae.

Table 19: Mapping classifications by area and percentage of mapped area

Classification	Area (ha)	Area (%)
Bare sediment	2.53	59.0
Seagrass	1.76	41.0
Total	4.29	-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375300
375400
6313100
6313000
6312900
6312800
6312700
-33°18'50.400"
-33°18'54.000"
-33°18'57.600"
-33°19'1.200"
N
Main Map
SCALE
0
50
100 m
Legend
Classification
Bare sediment
High cover seagrass
Moderate cover seagrass
Low cover seagrass
Projection: GDA94 / MGA zone 50
Produced by O2 Marine
Production: 04/09/2024 by M.S.
Basemap: O2 Marine Drone Imagery (02/05/2024)
Map Number: 23ENV240-04
Positional accuracy should be considered as approximate. Not for navigation.
MARINE
115°39'32.400"
115°39'36.000"
115°39'39.600"

4.

Figure 14: Benthic habitat map of AOI

4.1.1. Established Towed Video Transects

From the towed video transects surveyed, three transects were selected for use in future monitoring (**Table 20**) (**Figure 15**). The selected transects all feature a mix of bare sediment, and low to high cover seagrass.

Table 20: Start and end coordinates of monitoring transects

Transect	Coordinates Start		Coordinates End	
	Latitude	Longitude	Latitude	Longitude
EW01	-33.31524	115.659095	-33.31496	115.660083
EW02	-33.31565	115.658923	-33.31512	115.660105
EW03	-33.31593	115.659471	-33.31538	115.660393

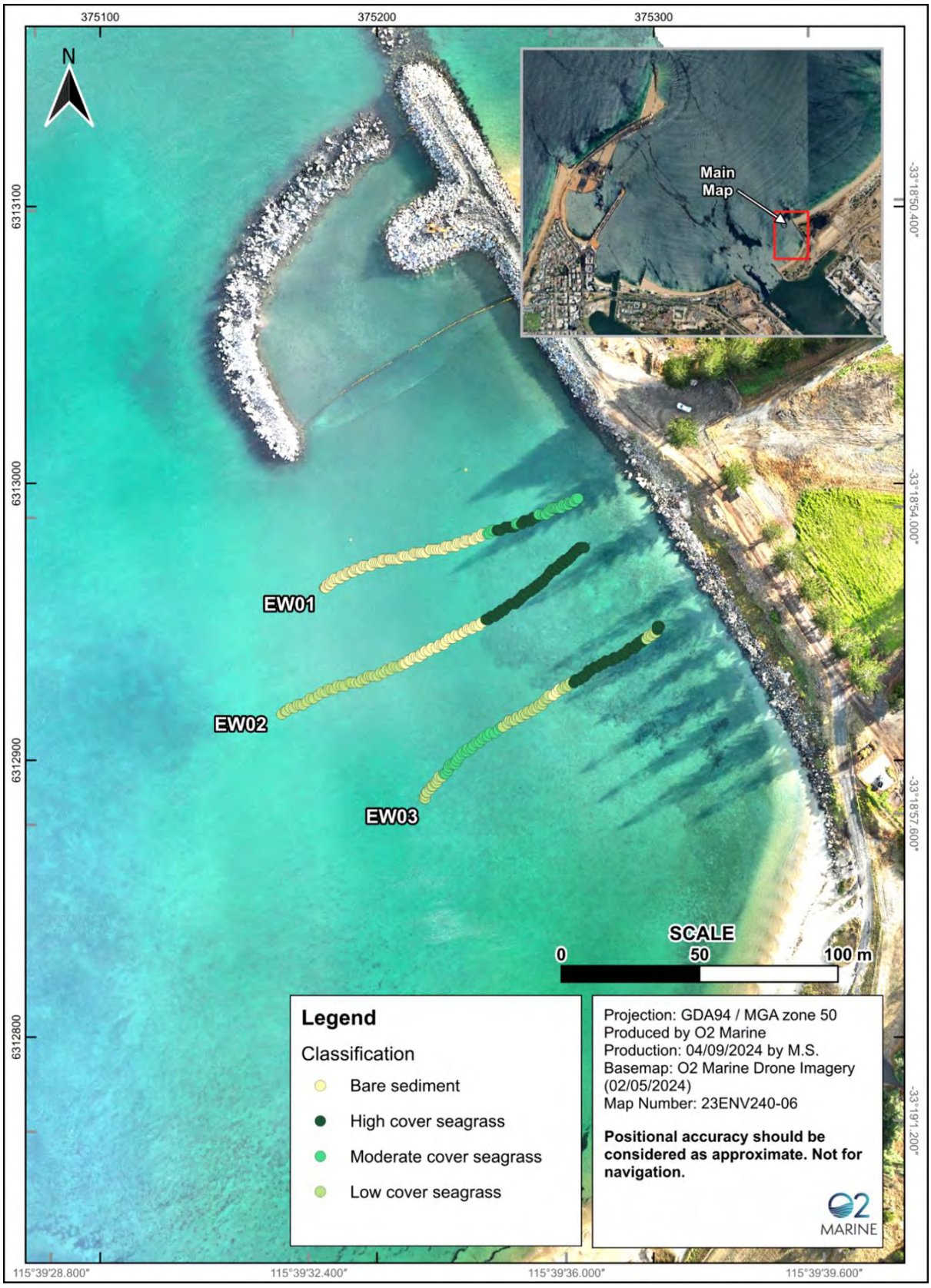

Figure 15: Established towed video transects for use in future monitoring

5. Discussion and Conclusion

5.1. Water Quality

5.1.1. Dissolved Metals

Dissolved metals concentrations reported during the baseline data collection phase were generally reported below the LOR and the ANZG (2018) SPLs. Copper concentrations were reported above the 99% SPL at most sampling locations during all sampling events within the HEPA, indicating that copper concentrations may be naturally elevated above these levels. Copper levels within the MEPA were within the defined guideline values. The elevated copper concentrations were consistent with median and 80th percentile levels defined in several previous studies conducted in Koombana Bay, Casuarina Boat Harbour and Leschenault Inlet presented in the MEQMP (GHD 2023).

5.1.2. Nutrients and Chlorophyll-α

Most nutrients reported in this study do not have SPLs defined in ANZG (2018). Concentrations of nutrients and chlorophyll-α were however consistent with median and 80th percentile levels defined in several previous studies conducted in Koombana Bay, Casuarina Boat Harbour and Leschenault Inlet presented in the MEQMP (GHD 2023).

Several elevated concentrations were reported for chlorophyll-α at site LI-Far within the Leschenault Inlet, these results represent outliers when compared with results reported at other sites. This sampling site was much shallower than most sites, where it is possible that elevated nutrient concentrations were a result of collection of particulates/silt in the sample. This conclusion is supported by the TSS levels reported in these samples, which were indicative of a higher proportion of suspended particulates.

5.1.3. Organics

Organics BTEX and Naphthalene were not detected in any samples at any sampling sites, where concentrations of these analytes were suitably low to assess against the ANZG (2018) SPLs.

5.1.4. Organometallics

TBT was not detected in any of the samples collected during the baseline monitoring event, however concentrations of TBT were not reported to a level low enough to assess compliance with 99% SPLs defined in ANZG (2018). Concentrations of TBT were reported below the 90% and 95% SPLs.

Current laboratory assessment and testing methodologies are generally not able to accurately assess concentrations of TBT to the 99% SPL level defined in ANZG (2018) guidance.

5.1.5. Physiochemical

Physiochemical parameters reported during this investigation were generally consistent between monitoring events. Median pH values reported during the four weekly baseline monitoring events ranged between 7.47 pH and 9.49 pH, values reported during the second monitoring event were considered to likely represent outliers or erroneous values and therefore should be interpreted with

caution. It is however important to note that during this monitoring event there was a moderate amount of rainfall and runoff reported which is likely to have influenced physiochemical parameter readings.

Temperature, pH, and conductivity readings did not vary significantly between sites or between sampling events, where sampling sites were in well mixed environments. Turbidity across all sampling sites was consistently high based on visual observations and YSI readings, which was likely due to poor weather conditions experienced during or prior most monitoring events.

5.1.6. PAR

In a normal marine environment, PAR levels typically exhibit a dynamic range influenced by factors such as water depth, turbidity, and the presence of particulate matter. As such there are no set guidelines values through which interpretation can be made, rather this would rely on a historical dataset reflective of multiple years and seasons. Results from this sampling campaign reflected a typical marine environment in which concentrations decreased with depth and surface light values influenced primarily by insolation based on time of day and cloud cover experienced during sampling.

5.2. Sediment Quality

5.2.1. Metals

Metal concentrations from the collection period were generally reported below the LOR and exceedances were limited to the ANZG (2018) DGV at site CBH-Mid for arsenic and copper. Metals of concern from previous studies presented in the MEQMP (GHD 2023) were inconsistent with findings from this campaign. The MEQMP (GHD 2023) reported antimony and silver as being elevated within Casuarina Boat Harbour and Koombana Bay sites, whereas both metals were below reporting limits from this campaign.

5.2.2. Organics

No PAHs were detected in sediments for all sites and consequently below the ANZG (2018) DGV and GV-High. This reflects results from previous studies outlined in the MEQMP (GHD 2023).

5.2.3. Organometallics

TBT was only detected at one site, CBH-Mid, TBT results normalised to 1% TOC were reported below the ANZG (2018) DGV and GV-High. The detection of TBT at this site is consistent with previous studies reported in the MEQMP (GHD 2023) with TBT labelled as a contaminant of concern.

5.3. QAQC Assessment

Laboratory and field QA/QC results generally indicated a high-level of confidence in results, with all laboratory QA/QC within acceptable limits. There were few RPD exceedances, mostly due to one of the samples being below reporting limits and therefore halved for comparison. The RPD exceedance on the 26 July 2024 for NO3 + NO3 was above the threshold.

Overall, QA/QC results from the reporting period suggest that the laboratory results are suitable for the purposes of this marine environmental monitoring program.

5.4. Benthic Communities and Habitats

The Benthic Communities and Habitat Study by RPS (2023a) revealed that bare sediment dominates the majority of the benthic environment within Koombana Bay. In this study, the extent of each benthic community was mapped using a combination of field observations and aerial imagery. The surveys indicated that areas deeper than four metres were primarily bare sediment, while the intermediate and inshore areas contained a mix of bare sediment, sediment with turf algae, and seagrass habitats, predominantly Halophila sp. and Heterozostera sp.. These findings highlight the diversity of benthic habitats within Koombana Bay, while also emphasising that bare sediment is the dominant feature, particularly in deeper regions and throughout Casuarina Harbour.

5.4.1. Pre-construction Baseline Surveys

In accordance with the Marine Construction Monitoring and Management Plan (MCMMP, 2023b), pre-construction monitoring of benthic communities and habitats (BCH) was required to establish a baseline condition of the marine environment prior to the commencement of construction activities. Pre-construction towed video transects were conducted at KB-Bay 2, while transects completed by RPS (2023a) for KB-SW 1, KB-SW 2, and KB-Beach were considered acceptable as future reference points. These transects will serve as a benchmark for future towed video surveys during and after construction, ensuring that any changes in the spatial extent and health of benthic habitats as a result of construction can be accurately assessed.

The pre-construction BCH survey at KB-Bay 2 confirmed RPS's findings that bare sediment remains the dominant habitat. Seagrass meadows were observed in shallow and intermediate areas, although their extent was limited. The surveys confirmed the distribution of benthic habitats, with seagrass (Halophila and Heterozostera) and macroalgae found in small patches, primarily near rocky outcrops and in shallower regions.

Based on these findings, three transects were selected within KB-Bay 2 for ongoing monitoring. These transects were chosen to capture the variation in benthic habitats, ranging from areas with dense seagrass cover to sections dominated by bare sediment. They will be crucial reference points, enabling detailed assessment of habitat changes throughout the construction period and into the post-construction recovery phases.

5.4.2. Monitoring Plan and Next Steps

Following the pre-construction baseline surveys, the ongoing monitoring phase involves tracking the condition of these selected transects during and after construction. As per the MCMMP (2023b), aerial imagery of the proposed disturbance footprints, captured before construction, will be compared with imagery obtained immediately after construction to estimate direct losses of benthic communities and habitats. Additionally, the turbidity plume will be monitored through daily visual observations and total

suspended solids (TSS) measurements, which will be compared with and validated against modelled predictions.

The results of the benthic habitat monitoring will be integrated into the broader Marine Environmental Quality Management Plan (MEQMP). The MEQMP outlines guidelines for water quality and sediment management, which are critical for ensuring that the impacts of construction activities, such as turbidity and sedimentation, are minimised. Regular assessments of water quality, especially in relation to total suspended solids (TSS) and nutrient concentrations, will complement the habitat monitoring efforts to provide a comprehensive understanding of construction impacts.

Throughout the construction process, aerial imagery, drone captures, and remote imagery units will be used to assess the spatial extent of benthic communities and habitats within the zones of influence. This imagery will provide a critical visual record of changes over time and will be supplemented by post-construction towed video transects at KB-SW 1, KB-SW 2, KB-Beach, and KB-Bay 2 to confirm the findings of desktop assessments. Should aerial or drone imagery fail to provide sufficient evidence, these transects will offer additional data to determine the extent of habitat change.

6. References

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RPS. (2023b). Marine Construction Monitoring and Management Plan. Report prepared for the South West Development Commission, April 2023.

Appendix A. Field Sheets

Appendix B. Chain of Custody

Appendix C. Laboratory Certificate of Analysis

Appendix D. Calibration Certificates

Appendix E. Field QA/QC RPD calculations

Table 21: RPD QA/QC calculations

Duplicate Sample QA/QC 26/07/2024												
Sample ID	Ammonia	Ortho-P	NO3+NO2	Total-P	Total-N	Hg	Ni	Cu	Zn	Cd	Pb	TBT
Units	µg/kg											
LOR	1	5	0.1	1	1	0.1	1	1	1	1	1	2
IH-MID	14	6	22	22	210	0. 05	0.15	0.5	2	0.05	0.05	1
DUP	18	6	13	20	220	0. 05	0.15	0.7	2	0.05	0.2	1
RPD (%)	*25.00%*	*0.00%*	*51.43%*	*9.52%*	*4.65%*	*0.00%*	*0.00%*	*33.33%*	*0.00%*	*0.00%*	*120.00%*	*0.00%*
Duplicate Sample QA/QC 02/08/2024												
Sample ID	Ammonia	Ortho-P	NO3+NO2	Total-P	Total-N	Hg	Ni	Cu	Zn	Cd	Pb	TBT
Units	µg/kg											
LOR	1	5	0.1	1	1	0.1	1	1	1	1	1	2
LIWEST	43	7	260	22	400	0. 05	0.3	3.1	3	0.05	0.05	1
DUP	44	7	250	24	460	0. 05	0.4	3.1	3	0.05	0.05	1
RPD (%)	*2.30%*	*0.00%*	*3.92%*	*8.70%*	*13.95%*	*0.00%*	*28.57%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Duplicate Sample QA/QC 08/08/2024												
Sample ID	Ammonia	Ortho-P	NO3+NO2	Total-P	Total-N	Hg	Ni	Cu	Zn	Cd	Pb	TBT
Units	µg/kg											
LOR	1	5	0.1	1	1	0.1	1	1	1	1	1	2
KBBAY4	1.5	4	19	21	210	0. 05	0.3	0.5	1	0.05	0.05	1
DUP	1.5	5	23	20	180	0. 05	0.3	0.5	1	0.05	0.05	1
RPD (%)	*0.00%*	*22.22%*	*19.05%*	*4.88%*	*15.38%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Duplicate Sample QA/QC 13/08/2024												
Sample ID	Ammonia	Ortho-P	NO3+NO2	Total-P	Total-N	Hg	Ni	Cu	Zn	Cd	Pb	TBT
Units	µg/kg											

LOR	1	5	0.1	1	1	0.1	1	1	1	1	1	2
KBBAY3	4	3	7	19	160	0. 05	0.15	0.4	0.05	0.05	0.05	1
DUP	4	4	8	20	160	0. 05	0.15	0.3	1	0.05	0.05	1
RPD (%)	*0.00%*	*28.57%*	*13.33%*	*5.13%*	*0.00%*	*0.00%*	*0.00%*	*28.57%*	*180.95%*	*0.00%*	*0.00%*	*0.00%*

Notes

- *Red text indicates RPD exceedance*
- *Grey cell indicates value below LOR and halved for comparison*
- *'RPD'= relative percentage difference, 'Hg'= mercury, 'Ni'= nickel, 'Cu'= copper, 'Zn'= zinc, 'Cd'= cadmium, 'Pb'= lead, 'TBT'= tributyltin*

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Appendix C: KBMS CBH Phase 1 MCMMP Water Quality Annual Report

KBMS Casuarina Boat Harbour Phase 1 MCMMP Water Quality Monitoring

26 September 2025

Annual Report 2024/25

Document Information

REPORT NO.	MSA343R04
DATE	September 26, 2025
CLIENT	WA Limestone
DOCUMENT TITLE	KBMS Casuarina Boat Harbour Phase 1 MCMMP Water Quality Monitoring Annual Report 2024/25
USAGE	This report is provided for use as a summary of the water quality data collected over the period July 2024 to July 2025 in accordance with the Koombana Bay Marine Structures (KBMS) Marine Construction Monitoring and Management Plan (MCMMP). The report may be used to support the Annual Compliance Assessment Report (CAR) required under Ministerial Statement 1226.
KEYWORDS	Koombana Bay, Casuarina Boat Harbour, construction, water quality, marine environmental quality management
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Acronyms and Abbreviations

Abbreviation	Definition
ALS	Australian Laboratory Servies
BCH	Benthic Communities and Habitats
CBH	Casuarina Boat Harbour
CEMP	Construction Environmental Management Plan
CoC	Chain of Custody
DDC	Dolphin Discovery Centre
DWER	Department of Water and Environmental Regulation
DTMI	Department of Transport and Major Infrastructure
EQC	Environmental Quality Criteria
EQG	Environmental Quality Guidelines
EQS	Environmental Quality Standards
GIS	Geographical Information System
HEPA	High Ecological Protection Area
IH	Inner Harbour
KB	Koombana Bay
KBMS	Koombana Bay Marine Structures
KBSC	Koombana Bay Sailing Club
LAT	Lowest Astronomical Tide
LI	Leschenault Inlet – terminology and abbreviation used in the MCMMP for sites located within the old Preston River course, not the Leschenault Inlet proper.
LoR	Limit of Reporting
MAFRL	Marine and Freshwater Research Laboratory
MCMMP	Marine Construction Monitoring and Management Plan
MEPA	Moderate Ecological Protection Area
NATA	National Association of Testing Authorities
Nephelometer	Instrument for measuring turbidity
NTU	Nephelometric Turbidity Units
PAR	Photosynthetically Active Radiation
PSU	Practical salinity unit approximates g/l
QA/QC	Quality Assurance and Quality Control
RPD	Relative Percent Difference
SDP	Sea Dumping Permit
SPL	Species Protection Level
SI%	Percent Surface Irradiance
TSS	Total Suspended Sediment
WAL/IS JV	WA Limestone / Italia Stone Joint Venture
ZoI	Zone of Impact
ZoMI	Zone of Medium Impact
ZoHI	Zone of High Impact

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EXECUTIVE SUMMARY

The Koombana Bay Marine Structures (KBMS) is a Strategic Proposal (Ministerial Statement 1226) approved under Part IV of the *Environmental Protection Act 1986* (EP Act) for the construction and operation of small craft marine infrastructure in Koombana Bay, located in Bunbury, Western Australia.

The Casuarina Boat Harbour (CBH) proposal was approved as a Derived Proposal under the Strategic Proposal on 23 July 2024. The CBH Proposal includes a dredging and dredge spoil disposal component, a piling component, land reclamation and construction of breakwater and revetment walls. The marine infrastructure includes the construction and operation of a wharf, jetties, boat ramps and boat pens. Construction is proposed to be completed in two phases. The CBH Phase 1 dredge and construction program, includes the northern breakwater, associated reclamation area and internal jetties and boat pens.

The CBH Phase 1 dredge and construction program commenced on 15 August 2024 and capital dredging required for Phase 1 of the CBH Proposal was completed on 12 November 2024. Construction of the breakwater and revetment walls is ongoing and expected to be completed by October 2025.

A Marine Construction Monitoring and Management Plan (MCMMP) has been approved under the Strategic Proposal. The KBMS MCMMP requires regular monitoring of ambient water quality for several parameters of concern to determine whether Environmental Quality Guidelines (EQG) and Environmental Quality Standards (EQS) are being met.

Baseline monitoring to characterise water quality in areas with defined levels of ecological protection (high, HEPA, and moderate, MEPA, levels of ecological protection areas) was implemented by a third-party consultant over four weeks between 26 July and 13 August 2024. In accordance with the prescriptions of the MCMMP, MScience has implemented monitoring campaigns weekly during the first five weeks of dredging/construction activities and fortnightly thereafter. Survey methods were those defined within the MCMMP. Water quality monitoring occurred at 11 sites: three Proximate sites (KB-Bay 3, KB-SW 1 and KB-SW 2), six Further Afield sites (KB-Bay 4, KB-Beach, IH-Mid, LI-West, LI-Mid and LI-Far), and two Reference sites (KB-Bay 1 and KB-Bay 2). Water quality parameters required to be measured included:

- Physical parameters – total suspended sediments (TSS), turbidity, light, temperature, conductivity, dissolved oxygen and depth;
- Metals – cadmium, copper, lead, mercury, nickel and zinc
- Organics – benzene and naphthalene
- Organometallics – tributyltin
- Nutrients – ammonia, nitrate-nitrite, orthophosphate, total nitrogen and total phosphorus
- Chlorophyll-a

Under Ministerial Condition D2-4 of MS 1226, a Compliance Assessment Report (CAR) must be prepared and submitted annually to the CEO of the Department of Water and Environmental and Regulation (DWER). This report provides a summary of the data collected under the MCMMP between 02 July 2024 and 08 July 2025 and forms part of the CAR.

Threshold values for physical parameters specified within the MCMMP were restricted to TSS. The status of TSS, metals, organics and organometallics EQGs and EQS for the reporting period are shown below using the following key:

Indicator	Status
Green	EQG/EQS met
Yellow	EQG/EQS not entirely met or uncertain results
Red	EQG/EQS exceeded

Total Suspended Sediments (TSS): Mean TSS across all sites ranged from 3.5 to 18 mg/L (median = 2.5 to 9 mg/L) during baseline monitoring and 4 to 9 mg/L (median = 3 to 8 mg/L) during operational (dredging and construction) monitoring. Ocean state was a primary driver of suspended sediments, especially for samples collected near the seabed. Monitoring during periods of high wind and high wave heights recorded elevations of TSS concentrations substantially above small effects seen close to dredging and construction.

The MCMMP established the environmental quality trigger based on TSS as a two-stage process. A Level 1 exceedance occurs when the average TSS of the Proximate sites is >2mg/L above their baseline average and leads to a test of the Level 2 trigger. The latter is exceeded when the average TSS of Further Afield sites is >2mg/L above their baseline and leads to investigation of the cause of the exceedance and its probability of persisting for a critical 18 day period. Five exceedances of Level 1thresholds were recorded over the monitoring campaigns, of which only two were associated with Level 2 exceedances.

Investigations were conducted as a result of exceeding Level 1 and 2 thresholds in survey campaigns 03 and 10. During monitoring campaign 13, there was an exceedance of the EQG Trigger Level 2 without exceedance of the Level 1 trigger. As a precaution, an investigation was also conducted for that survey.

These investigations concluded that the EQG Trigger Level 2 exceedances were not considered to be attributable to the Project but were a result of high energy wind-wave conditions. Weather forecasts examined suggested that the high energy metocean conditions were not likely to persist for 18 continuous days and daily monitoring of TSS to test the EGS was not required.

Metals: Concentrations of cadmium, copper, lead, mercury, nickel and zinc were reported below their respective MEPA EQGs for all sites within the relevant level of ecological protection area during all monitoring campaigns.

All metals, except copper, were reported below their respective HEPA EQGs for all sites during all monitoring campaigns. Copper exceeded the HEPA EQG at all sites located within the High level of ecological protection. However, copper concentrations recorded in operational monitoring were well below the average baseline concentration and did not show a spatial pattern consistent with a dredging or construction origin.

Organics: Benzene and naphthalene were not detected above the limit of reporting during dredging and construction monitoring campaigns. As such, there was no exceedance of the EQG or EQS for these analytes.

Organometallics: Tributyltin (TBT) was not detected in any sample taken in monitoring during the dredging and construction phases. Interpretation of that result is qualified by the practical quantitation limit for TBT in the laboratory assay used in baseline and operational monitoring programs being 0.002 µg/L when the HEPA EQG for TBT is 0.0004 µg/L.

In Australia, only the Commonwealth Department of Industry, Science and Resources National Measurement Institute (NMI) claims an LoR of 0.0004 µg/L. This claim comes with the caveat that the NMI laboratory method can report false positives for organotin compound contamination at these low concentrations. For the 10th and 11th monitoring campaigns, water samples were sent to NMI to assess TBT concentrations against the lower LoR. The concentration of TBT in samples collected from all monitoring sites during these two campaigns was reported to be below 0.0004 µg/L.

Based on the above, the EQG for TBT was considered to be met.

Monitoring was conducted as set out in the MCMMP for the period July 2024 to July 2025. Results showed no exceedances of guidelines to environmental protection were recorded that could be assigned to the Project dredging or construction activities.

1 INTRODUCTION

1.1 Project Background

The Koombana Bay Marine Structures (KBMS) is a Strategic Proposal (Ministerial Statement [MS] 1226) approved under Part IV of the *Environmental Protection Act 1986* (EP Act) for the construction and operation of small craft marine infrastructure in Koombana Bay, located in Bunbury, Western Australia.

The future proposals identified under the Strategic Proposal include the construction and operation of:

- Casuarina Boat Harbour (CBH);
- Koombana Bay Sailing Club (KBSC) marina; and
- Dolphin Discovery Centre (DDC) finger jetty.

The CBH Proposal was approved as a Derived Proposal under the Strategic Proposal on 23 July 2024. The CBH Proposal includes a dredging and dredge spoil disposal component, a piling component, land reclamation and construction of breakwater and revetment walls. The marine infrastructure includes the construction and operation of a wharf, jetties, boat ramps and boat pens. Construction is proposed to be completed in two phases. The CBH Phase 1 dredge and construction program, includes the northern breakwater, associated reclamation area and internal jetties and boat pens.

The CBH Phase 1 dredge and construction program commenced on 15 August 2024 and capital dredging required for Phase 1 of the CBH Proposal was completed on 12 November 2024. Construction of the breakwater and revetment walls is ongoing and expected to be completed by October 2025.

A Marine Construction Monitoring and Management Plan (MCMMP) (RPS 2024) has been approved under the Strategic Proposal. This management plan outlines the management and monitoring actions required to minimise the environmental impact of marine construction and dredge uplift (excluding dredge disposal) activities associated with construction of the future proposals identified under the KBMS Strategic Proposal.

Marine monitoring stipulated by the approved MCMMP is described in the following section and includes:

- Visual monitoring of turbid plumes (reported by the dredging contractor and not discussed in this report).
- Water quality monitoring:
    - Qualitative assessment of aesthetic appearance of monitoring sites.
    - Measurement of TSS concentrations for comparison against background concentrations
    - Measurement of additional physical water quality parameters for comparison against background concentrations.
    - Measurement of toxicants (metals, organics, organometallics) and nutrients in water for comparison against environmental quality criteria (EQC) for protecting marine ecosystems.
- Monitoring of benthic communities and habitats (BCH), specifically seagrass and macroalgae, in the event of an exceedance of TSS threshold values.

1.2 MCMMP Water Quality Monitoring Program

1.2.1 Intent

- Demonstrate that ambient waters inside areas with defined levels of ecological protection comply with the environmental quality guidelines and standards listed in Table 16 of the MCMMP (reproduced in Table 1-1 of this document).

- Inform ongoing construction and dredging uplift activities and any requirement to manage these; and
- Assess potential impacts to BCH (i.e. seagrass shading) should water quality trigger criteria be exceeded.

1.2.2 Frequency

During dredging/construction, routine water quality monitoring (i.e. if there are no exceedances of the MCMMP water quality triggers for the duration of project dredging/construction activities) will occur:

- Weekly during the first four weeks of dredging/construction activities.
- Fortnightly for the remainder of dredging/construction activities.

In the event of an exceedance of the MCMMP water quality trigger values (TSS and/or toxicants), sampling must be increased as per the directions in Table 1-1.

1.2.3 Monitoring locations

Water quality monitoring will occur at 11 sites in accordance with the MCMMP (Figure 1-1):

- Three sites Proximate to CBH (KB-Bay 3, KB-SW 1 and KB-SW 2) within Koombana Bay (KB).
- Six sites Further Afield to CBH (KB-Bay 4, KB-Beach, IH-Mid, LI-West, LI-Mid and LI-Far) within KB, the Inner Harbour (IH) and the old Preston River course (termed Leschenault Inlet [LI] within the MCMMP).
- Two reference sites for the purpose of assessing the minor impacts, if assessment criteria are exceeded at the other monitoring sites (KB-Bay 1 and KB-Bay 2).

1.2.4 Analysis

Parameters to be measured are those included in Table 16 and Section 6 of the MCMMP, including:

- Physical parameters – total suspended sediments (TSS), turbidity, light, temperature, conductivity, dissolved oxygen and depth;
- Metals – cadmium, copper, lead, mercury, nickel and zinc
- Organics – benzene and naphthalene
- Organometallics – tributyltin
- Nutrients – ammonia, nitrate-nitrite, orthophosphate, total nitrogen and total phosphorus
- Chlorophyll-a

While there are no threshold values for physical parameters (excluding TSS), nutrients or chlorophyll-a within the MCMMP that would trigger a management action, Section 6.1.1 of that document requires that these parameters should be assessed and reported.

1.2.5 Assessment of Outcome-Based Provisions

Outcome-based management targets have been developed for the Strategic Proposal for the purpose of meeting the environmental quality objectives (EQOs) outlined in the MCMMP, the EQOs being:

- Maintain ecosystem integrity within high and moderate levels of ecological protection areas.
- Maintain seafood safe for human consumption within high and moderate levels of ecological protection areas.
- Maintain primary and secondary contact recreation values within high and moderate levels of ecological protection areas.
- Maintain aesthetic values within high and moderate levels of ecological protection areas.

Two levels of trigger criteria were established within the MCMMP:

1. Environmental quality guidelines (EQGs) – threshold numerical values or narrative statements, when satisfied indicate a high degree of certainty that the associated EQO is achieved. If not satisfied, then assessment against an environmental quality standard is triggered because of uncertainty as to whether the associated EQO has been achieved.
2. Environmental quality standards (EQS) - threshold numerical values or narrative statements, when not satisfied indicate a significant risk that the associated EQO is not achieved, and with continued EQS exceedance a management response is triggered.

The trigger criteria level for the EQO relevant to the CBH harbour and associated narrative statement and management action has been provided in Table 1-1.

Table 1-1. MCMMP trigger criteria and management actions

Trigger Criteria	**Narrative**	**Management Action**
Ecosystem health- **Water Quality** **Note: Water quality trigger criteria were outdated and amended – see explanation in Section 2.5.1**		
EQG Trigger	TSS > 2mg/L above background during routine water quality monitoring.	• Review daily plume to determine whether the plume is a result of dredging / construction works • If visible plume is attributable, undertake a visual check for ongoing turbidity from dredging / works areas to determine source and extent of plume • Continue to monitor TSS and commence monitoring EQS
EQS Threshold	TSS > 2mg/L above background for 18 consecutive days	If the exceedance is attributable to dredging and construction, visual check for ongoing turbidity outside of development envelope for source and the extent and duration of plume: • Review visual plume observations to determine extent of visible plume over the previous fortnight (or exceedance period) • Increase water quality monitoring to daily until levels reduce to EQG thresholds • Review rock quarry processes • Review management of dredging / construction works to determine what additional contingency actions are required. This may include: – Modification of dredge / construction methodology – Reduction or cessation of construction during certain weather events
Ecosystem health- **Seagrass and macroalgae extent and composition**		
EQG Trigger 1	Depth- and time-averaged TSS concentration at proximate monitoring sites is greater than 2 mg/L above average background levels for a measurement campaign	• Investigate If EQG Trigger 2 has been exceeded at further afield monitoring sites.
EQG Trigger 2	Depth- and time-averaged TSS concentration at further afield monitoring sites is greater than 2	• Investigate whether exceedance was caused by dredging / construction works.

Trigger Criteria	Narrative	Management Action
	mg/L above average background levels for a measurement campaign	• Assess if metocean conditions are likely to persist for a continuous period of greater than 18 days. • If reversible (or irreversible) impact to light sensitive benthic habitat is anticipated because of increased turbidity / sedimentation associated with the dredge plume reduce, modify or cease marine construction work.
EQS Threshold	No measurable impacts to seagrass or macroalgae communities' extent and composition outside of the development envelopes boundary TSS >2mg/L above background for 18 consecutive days	• Complete towed video transects at KB-SW1, KB-SW2, KB-Beach and KB Bay 3. Compare seagrass and macroalgae communities' extent and composition against the current extent and composition identified in RPS (2023) for KB-SW1, KB-SW2 and KB-Beach and pre-construction towed video transects for KB-Bay 3. • Quantify and assess extent of impact to benthic communities and habitats outside the future proposal development envelope(s) based on comparison with the current extent and composition identified in RPS (2023).
Ecosystem Health- **Toxicants in water** **Note: The toxicants in water trigger criteria were outdated and amended – see explanation in Section 2.5.1**		
EQG Trigger	Monitoring sites within High Ecological Protection Area (HEPA): EQG concentrations for metals, organics and organometallics (refer to MCMMP and/or Section 3.4 for values) at ZoHI boundary must not be exceeded Monitoring sites within Moderate Ecological Protection Area (MEPA): EQG concentrations for metals, organics and organometallics (refer to MCMMP and/or Section 3.4 for values) at ZoMI boundary must not be exceeded.	• Investigate source of contamination e.g. visual check for hydrocarbon leaks/spills. • If attributable implement sampling program to define extent of contamination. • Monitor EQS and increase frequency of monitoring.
EGS Threshold	Monitoring sites within HEPA: EQS high protection bioavailable measures and indirect biological measures (refer to MCMMP) must not be exceeded. Monitoring sites within MEPA: EQS moderate protection bioavailable measures and indirect biological measures (refer to MCMMP) must not be exceeded.	• Investigate source of contamination e.g. visual check for hydrocarbon leaks/spills. • If attributable to dredging/construction, manage, reduce, modify or cease construction to achieve EQG.

Figure 1-1. MCMMP water quality monitoring locations

1.3 Document Purpose

Under Ministerial Condition D2-4 of MS 1226, a Compliance Assessment Report (CAR) must be prepared and submitted annually to the CEO of the DWER:

Each annual Compliance Assessment Report must:

(1) state whether each condition of this Statement has been complied with, including:
- *a. exceedance of any proposal limits and extents;*
- *b. achievement of environmental outcomes;*
- *c. achievement of environmental objectives;*
- *d. requirements to implement the content of environmental management plans;*
- *e. monitoring requirements;*
- *f. implement contingency measures;*
- *g. requirements to implement adaptive management; and*
- *h. reporting requirements;*

(2) include the results of any monitoring (inclusive of any raw data) that has been required in order to demonstrate that any outcomes or any objectives are being met;

(3) provide evidence to substantiate statements of compliance, or details of where there has been a non-compliance;

(4) include the corrective, remedial and preventative actions taken in response to any potential non-compliance;

(5) be provided in a form suitable for publication on the proponent's website and online by the Department of Water and Environmental Regulation;

(6) be prepared and published consistent with the latest version of the Compliance Assessment Plan required by condition D2-5 which the CEO has confirmed by notice in writing satisfies the relevant requirements.

This report provides a summary of the data collected under the MCMMP between 02 July 2024 and 08 July 2025 and forms part of the CAR.

1.3.1 Structure of this Document

The document provides:

- The background to the Project;
- A summary of the MCMMP;
- The MCMMP monitoring frequency and methodology;
- Summary data for the monitoring implemented between 02 July 2024 and 08 July 2025; and
- Identification of trigger exceedances, assessment of impacts and corrective, remedial and/or preventative actions taken.

The document is current as at the date on the cover page and is referenced as Version 2 (Documents with a lower version number are superseded by this document).

2 METHODOLOGY

2.1 Monitoring Frequency

The number and date of water quality monitoring campaigns implemented within the 2024/25 reporting period is summarised in Table 2-1. Baseline monitoring was implemented by a third-party consultant over four weeks between 26 July and 13 August 2024. In accordance with the prescriptions of the MCMMP, MScience implemented monitoring campaigns weekly during the first five weeks of dredging/construction activities and fortnightly thereafter.

Table 2-1. MCMMP water quality monitoring campaign schedule

Campaign Number	Campaign Date
Baseline 1	26/07/2024
Baseline 2	02/08/2024
Baseline 3	08/08/2024
Baseline 4	13/08/2024
1	21/08/2024
2	28/08/2024
3	5/09/2024
4	12/09/2024
5	19/09/2024
6	7/10/2024
7	22/10/2024
8	7/11/2024
9	18/11/2024
10	4/12/2024
11	17/12/2024
12	8/01/2025
13	23/01/2025
14	5/02/2025
15	20/02/2025
16	6/03/2025
17	18/03/2025
18	1/04/2025
19	16/04/2025

Campaign Number	Campaign Date
20	30/04/2025
21	13/05/2025
22	28/05/2025
23	12/06/2025
24	25/06/2025
25	8/07/2025

2.2 Monitoring Design

The monitoring design implemented was consistent with Table 16 and Section 6 of the MCMMP (RPS 2024).

2.2.1 Monitoring locations

During the monitoring campaign, data was collected from locations as close as possible to the proposed monitoring site coordinates listed in Table 2-2, as shown in Figure 1-1.

Table 2-2. MCMMP water quality monitoring site locations

Site ID	Site Function	Site Depth (m)*	Easting (GDA2020z50)	Northing (GDA2020z50)
KB-Bay 1	Reference site	8.5	374338	6313990
KB-Bay 2	Reference site	2.5	375187	6312933
KB-Bay 3	Proximate Monitoring site	4.5	373931	6313457
KB-Bay 4	Further Afield Monitoring site	3.5	374116	6312751
KB-Beach	Further Afield Monitoring site	3.0	374279	6312442
KB-SW 1	Proximate Monitoring site	2.0	373408	6312686
KB-SW 2	Proximate Monitoring site	2.0	373652	6312983
IH-Mid	Further Afield Monitoring site	10.5	375383	6311997
LI-Far	Further Afield Monitoring site	1.7	375182	6311528
LI-Mid	Further Afield Monitoring site	2.5	374340	6311622
LI-West	Further Afield Monitoring site	2.5	373731	6312032

*average depth recorded over the monitoring period

2.3 Field Procedures

Sample collection and processing were conducted in accordance with the procedures stated in Section 3 of the Department of Transport and Major Infrastructure (DTMI) approved sampling and analysis plan (MScience 2024).

2.3.1 Physical Water Quality

Physico-chemical water quality records (NTU, PAR, conductivity, temperature, pH, dissolved oxygen and depth) were obtained with a YSI ProDSS multiparameter sonde and Licor-192 Underwater Quantum PAR sensor. To meet standard practice, PAR was converted to the percentage of surface irradiance (%SI) where surface irradiance was measured as the out-of-water reading of PAR at each site.

All parameters were recorded at a surface (0.5 m), mid-water column (full depth/2) and bottom (0.5 m off the seabed) depth profile at each monitoring site (Figure 1-1). Where site depth was less than 2.5 m, no mid-water sample was collected.

In addition, depth-integrated water samples were collected for laboratory analysis of TSS (refer to Section 2.3.2 for methodology).

2.3.2 Chemical Water Sampling

Depth-integrated water samples were collected using a SuperTwister submersible pump. The pump was lowered slowly between the surface (0.5 m) and bottom (0.5 m off the seabed) of the water column to collect a homogenised sample into a clean BPA free container. Subsamples were taken from the depth-integrated sample for each site in accordance with the sample requirements for each parameter listed in Table 2-3.

Samples for dissolved metals were passed through a Minisart® 0.45 µm sterile filter into the appropriate sample containers.

All field staff in contact with the sample material wore nitrile gloves while transferring sample material. Before the initial deployment of the SuperTwister pump and between each subsequent deployment, the SuperTwister pump was rinsed in seawater, washed with Decon 90 cleaning solution, rinsed again with ambient seawater and then received a final rinse with distilled water.

All water samples were stored in cool boxes with ice on board the vessel immediately after collection. Samples were kept chilled (≤4°C) and delivered to the analytical laboratory on the same day with the attendant chain of custody (CoC) form.

2.4 Laboratories

The detection limits and sample requirements for the analyses performed are provided in Table 2-3.

Analyses were undertaken by the Marine and Freshwater Research Laboratory (MAFRL) at Murdoch University and Australian Laboratory Servies (ALS) using methods accredited under the National Association of Testing Authorities (NATA). Samples were consigned to MAFRL and ALS for analysis using a CoC.

2.4.1 Organotin Limit of Reporting

Table 16 of the MCMMP indicates the concentrations of TBT reported at monitoring sites located within the HEPA must be less than the EQG trigger value of 0.0004 µg/L (0.4 ng/L). Laboratories in Australia, using methods accredited under NATA, can achieve a practical quantification limit for TBT of 2 ng/L (0.002 µg/L). Only the Commonwealth Department of Industry, Science and Resources National Measurement Institute claims a limit of reporting (LoR) of 0.4 ng/L. This claim comes with the caveat that the NMI laboratory method can report false positives for organotin compound contamination at these low concentrations.

Discussions were held with WA Limestone and the Department of Transport (now Department of Transport and Major Infrastructure, DTMI) in August 2024 to agree an approach for the TBT monitoring prior to its commencement. DTMI advised to use a NATA accredited laboratory that could meet an LoR of 2 ng/L to align with the baseline monitoring implemented by a third-party consultant. If samples routinely reported concentrations < 2 ng/L the approach may be reassessed. As such, samples were sent to ALS and assessed at the 2 ng/L LoR.

All samples collected and sent to ALS during the first seven monitoring campaigns reported TBT concentrations < 2 ng/L. As such, as advised by DTMI, one additional water sample was collected from site KB-SW2 during the eighth monitoring campaign (on 07 November 2024) and sent to NMI for analysis at the lower LoR for comparison against the ALS result. TBT was not detected above the ALS LoR (2 ng/L) but was detected at a concentration of 1 ng/L by NMI.

For the 10th and 11th monitoring campaigns, the concentration of TBT from all monitoring sites was reported by NMI to be below the 0.4 ng/L LoR. As such, and in agreement with DTMI, assessment of TBT reverted to the 0.002 µg/L limit of reporting, with consideration of the following additional reasons:

- Reverting to a limit of reporting of 0.002 µg/L will align with the baseline monitoring.
- Dredging provides the greatest risk to mobilising TBT from sediments. Phase 1 dredging activities have been completed, and rock dumping is not occurring within the area of known TBT contamination.
- Utilising a WA based laboratory, rather than the NSW based National Measurement Institute, will significantly reduce costs and improve the reporting timeframe of fortnightly monitoring campaign results.

Table 2-3. Laboratory analysis, limits of reporting and sample requirements

Parameter	Laboratory	Limit of Reporting	Sample Requirements	Storage and Holding Time
Ammonia (NH^4-N)	MAFRL	3 µg.N.L^{-1}	Field filtered 2 x 10 ml PP tube	Store: Cold - 24hrs Freeze - 1 month
Nitrate+Nitrite (NO_x-N)	MAFRL	2 µg.N.L^{-1}		
Phosphate (PO_4-P)/FRP	MAFRL	2 µg.P.L^{-1}		
Total Nitrogen (TN)	MAFRL	50 µg.N.L^{-1}	Unfiltered 2 x 125 ml HDPE bottles	Store: Cold - 24hrs Freeze - 1 month
Total Phosphorus (TP)	MAFRL	5 µg.P.L^{-1}		
Chlorophyll a	MAFRL	0.1 µg.L^{-1}	Unfiltered. 1 x 5 L HDPE bottle	Store cold in dark – 48 hrs
Total Suspended Sediment (TSS)	MAFRL	0.5 mg.L^{-1}		Store cold – 7 days
Cadmium	MAFRL	0.1 µg.L^{-1}	Field filtered 2 x 10 ml PP tube	2 weeks before acidification then 6 months
Copper	MAFRL	0.2 µg.L^{-1}		
Nickel	MAFRL	0.3 µg.L^{-1}		
Lead	MAFRL	0.1 ug.L^{-1}		
Zinc	MAFRL	1 ug.L^{-1}		
Mercury	MAFRL	0.1 µg.L^{-1}	Field filtered. 1 x 125 ml glass bottle.	2 weeks before acidification then 6 months

Parameter	Laboratory	Limit of Reporting	Sample Requirements	Storage and Holding Time
BTEXN	ALS	1-5 µg/L	2 x 40 ml Amber VOC Vial – Sulfuric Acid.	Store Cold – 7 days
Organotins (TBT)	ALS	2 ngSn/L or 0.002 µg/L	1 x 500 ml Amber Glass Bottle – Unpreserved	Store Cold – 7 days

2.4.2 QA/QC Procedures

As part of standard procedures, nominated laboratories undertook the required testing of blanks, spikes and standards, and completed laboratory duplicates to the satisfaction of the NATA. Reports of these results are provided in Appendix D.

At 5% of the monitoring sites, intra-laboratory duplicates (split samples) were collected. That is, one sample was thoroughly homogenised as normal and then split into two containers to assess within (intra) laboratory variation. Split samples were labelled consecutively with different ID numbers, so they were not apparent as splits at the nominated laboratories.

Split sample numbers were calculated from the total number of sites (11) described for MCMMP. As such, one split was collected each campaign.

2.5 Data Analysis

Data analysis was completed as set out within Sections 6.1.8 and 6.1.9 of the MCMMP. Statistics were calculated as recommended by the MCMMP and derived using either Microsoft Excel 365™ or Statistica 11 (StatSoft Inc 2011).

Concentrations of laboratory analytes below the LoR were assigned a value of LoR/2 for inclusion in statistics. Where site depth was less than 2.5 m, no mid-water sample was collected. For many sites the mid-water sample was only collected on a few occasions, and this was found to bias statistical results. As such, only surface and bottom physical water quality profile readings were used for inclusion in descriptive statistics.

2.5.1 Trigger Tests

The EQG trigger criteria for TSS were tested in accordance with instructions provided in the MCMMP. Due to conflicting statements between text and tables in the MCMMP, the EQG trigger for water quality was aligned with that for seagrass to make it more comprehensive. This avoids having different triggers measuring the same parameter. In the current context, the EQG trigger process for both water quality and seagrass follow the rationale of Figure 2-1. Exceedance of the EQS for TSS was defined as an exceedance of the EQG for >18 consecutive days.

EQG and EGS trigger criteria for toxicants in water were tested against the metals, organics and organometallics concentration values provided in Table 16 of the MCMMP and the baseline data. The EQG for an analyte was considered to be exceeded if the concentration at an individual site was above both the value for that analyte provided in Table 16 of the MCMMP and the average of the baseline data for all sites.

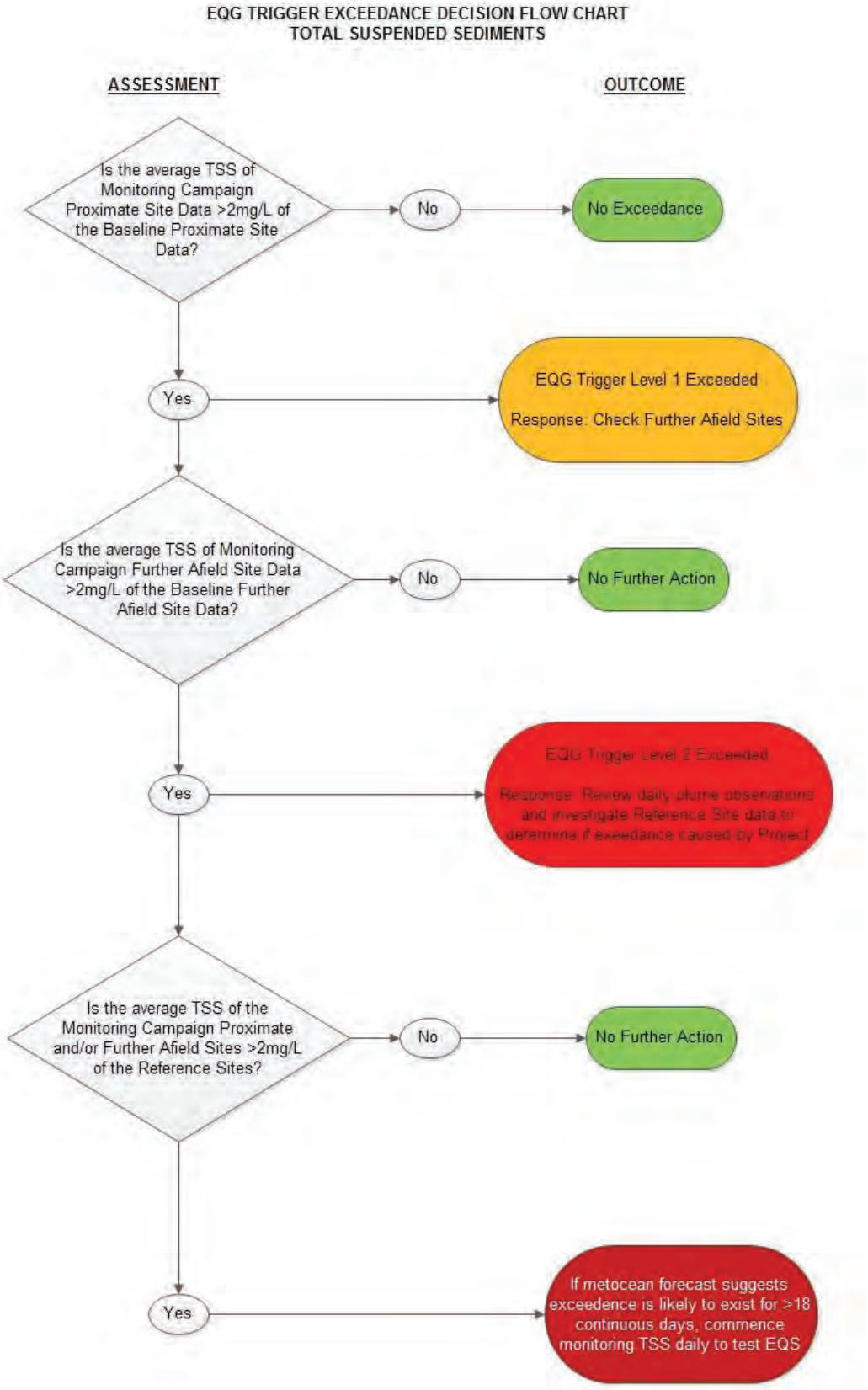

Figure 2-1. TSS EQG trigger exceedance decision flow chart

3 RESULTS

3.1 Aesthetic Observations

Aesthetic field observation sheets for the reporting period are presented in Appendix A.

In most monitoring campaigns, no algae/plant material (visible on surface), dead marine organisms, noticeable colour variation, noticeable odour or oil/other films (on surface) were observed at any site. Water clarity across all sites was observed to be between 0.25 m and 3.2 m.

Turbid plumes were observed at site KB-Bay 3 due to tidal water outflow through 'The Cut' from the Leschenault Estuary during monitoring campaign 07 and 11. Similarly, turbid plumes were observed at IH-Mid during campaigns 05, 10 and 24 due to tug and shipping movements within the Port of Bunbury. A fine layer of wood dust was observed at IH-Mid during monitoring campaign 15, likely as a result of loading operations within the port. Loose decaying blades of seagrass were observed on the water surface at KB-Beach during monitoring campaigns 13 and 15. Algae was observed on the water surface across the LI sites and KB sites during monitoring campaigns 04 and 17, respectively.

3.2 Physical Water Quality

Physical water quality data collected during the baseline monitoring was reported prior to the start of the campaign by O2 Marine (2024).

A statistical summary of the vertical profiling data for each physical water quality parameter recorded by the current program is provided in the section below and analysed against trigger criteria in Section 4. Detailed site by site statistics are provided in Appendix B.

3.2.1 Total Suspended Sediments

Table 3-1 and Table 3-2 present TSS data summarised by means, median and percentile statistics calculated for the baseline monitoring period (O2 Marine 2024) and the operational (dredging and construction) monitoring period (this study). The TSS data for each monitoring site and monitoring campaign are provided in laboratory reports in Appendix D.

Mean TSS across all sites ranged from 3.5 to 18 mg/L (median = 2.5 to 9 mg/L) during baseline monitoring and 4 to 9 mg/L (median = 3 to 8 mg/L) during operational monitoring. Whilst the ranges were similar between baseline and operational monitoring, most KB sites reported lower median TSS concentrations during operational monitoring. Conversely, LI sites tended to report higher median TSS concentrations during operational monitoring. Exceedances of TSS are discussed further in Section 4.

Table 3-1. Descriptive statistics for TSS (mg/l) during baseline monitoring

Site	n	Median	Mean	20th percentile	80th percentile	Minimum	Maximum
Reference Site Group							
KB-Bay 1	4	4.5	4.5	4.0	5.0	4.0	5.0
KB-Bay 2	4	5.0	4.8	3.0	6.0	3.0	6.0
Proximate Site Group							
KB-Bay 3	4	4.0	4.3	4.0	5.0	4.0	5.0
KB-SW 1	4	6.0	5.3	3.0	6.0	3.0	6.0
KB-SW 2	4	4.5	4.8	4.0	6.0	4.0	6.0

Site	n	Median	Mean	20th percentile	80th percentile	Minimum	Maximum
Further Afield Site Group							
KB-Bay 4	4	4.5	5.0	4.0	7.0	4.0	7.0
KB-Beach	4	5.0	5.0	3.0	7.0	3.0	7.0
LI-Far	4	9.0	18.0	3.0	51.0	3.0	51.0
LI- Mid	4	4.0	4.0	2.0	6.0	2.0	6.0
LI- West	4	2.5	3.5	2.0	7.0	2.0	7.0
IH-Mid	4	3.5	4.0	2.0	7.0	2.0	7.0
All Site Groups							
All Sites	44	4.0	5.7	3.0	6.0	2.0	51.0

Table 3-2. Descriptive statistics for TSS (mg/l) during dredging and construction

Site	n	Median	Mean	20th percentile	80th percentile	Minimum	Maximum
Reference Site Group							
KB-Bay 1	25	3.0	4.7	1.5	6.0	1.0	24.0
KB-Bay 2	25	3.0	4.0	2.0	5.5	0.5	13.0
Proximate Site Group							
KB-Bay 3	25	4.0	6.6	2.0	8.0	1.0	35.0
KB-SW 1	25	5.0	7.3	3.0	11.0	2.0	41.0
KB-SW 2	25	5.0	6.7	3.0	7.5	2.0	41.0
Further Afield Site Group							
KB-Bay 4	25	4.0	5.5	2.5	7.5	0.5	30.0
KB-Beach	25	4.0	5.4	3.0	7.5	2.0	24.0
LI-Far	25	8.0	9.0	5.0	12.5	2.0	26.0
LI- Mid	25	7.0	8.9	4.0	11.0	2.0	50.0
LI- West	25	5.0	5.4	4.0	7.0	2.0	13.0
IH-Mid	25	4.0	4.6	3.0	6.0	1.0	12.0
All Site Groups							
All Sites	275	4.0	6.2	3.0	8.0	0.5	50.0

3.2.2 Turbidity

Mean turbidity (Table 3-3) at the Proximate site and Further Afield groups was greater than that of the Reference site group (ANOVA $p<0.05$). Turbidity minima and maxima ranged from 0.1 to 33.4 NTU, with maximum mean turbidity recorded in September 2024 (14 NTU) and minimum mean turbidity recorded in April 2025 (1.1 NTU).

Elevated turbidity occurred during periods of rainfall and high wind speeds (particularly when prevailing from the north). This was consistent with observations reported during KBMS Strategic Proposal baseline water quality monitoring (GHD 2023) and the MCMMP baseline monitoring (O2 Marine 2024). These factors appeared to have a stronger influence on turbidity than did proximity to dredging.

Table 3-3. Mean turbidity by functional group (all campaigns)

Functional Group	Turbidity (NTU)	STD Error (±)
Proximate Sites	4.1	0.47
Further Afield Sites	3.3	0.17
Reference Sites	2.7	0.26

Patterns in turbidity were very similar to those of TSS concentrations. Depth averaged turbidity values showed a strong positive correlation with the depth aggregated TSS values ($r= 0.93$, Figure 3-1). Turbidity proved an excellent surrogate for TSS with an equation of TSS = 1.42*NTU explaining over 80% of TSS variation. Turbidity as a measured parameter is simpler, cheaper, quicker and easier to collect than TSS measurements. Future monitoring of dredging impacts in this area would be better served by measuring turbidity rather than TSS.

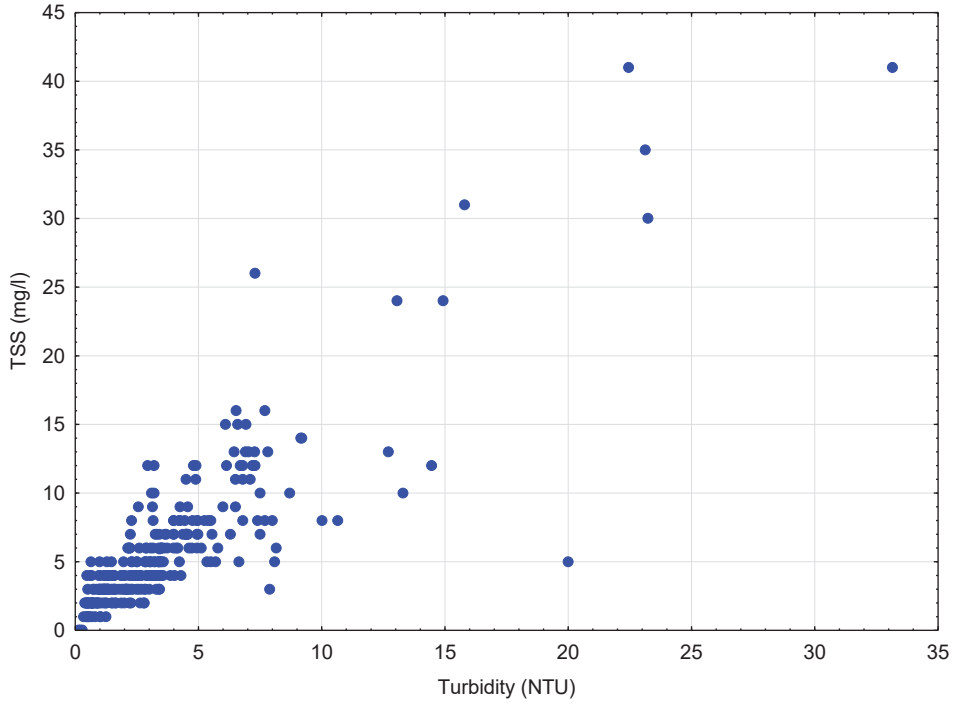

Figure 3-1. Turbidity and TSS relationship using depth averaged data from all sites across the monitoring period.

3.2.3 PAR (as SI)

Photosynthetically Active Radiation (PAR) was collected in all campaigns at surface, middle and bottom profiles (where depth allowed). PAR has been calculated and summarised as percent Surface Irradiance (%SI) at the seabed for functional groups in Table 3-4.

%SI at the seabed was strongly dependant on site depth, ranging from 0.6 %SI at the deepest site lH-Mid to 29.8 %SI at the shallowest site LI-Far. During dredging and construction, surface, mid and bottom profiles recorded mean %SI of 25.7, 10.7 and 1.9% respectively.

Table 3-4. Mean percentage of surface irradiance (%SI) at seabed by functional group (all campaigns)

Functional Group	%SI	STD Error (±)
Proximate Sites	11.0	1.35
Further Afield Sites	7.4	0.61
Reference Sites	6.4	1.02

3.2.4 Temperature

Mean water temperature at all site groups was similar throughout the campaigns (Table 3-5).

Mean minimum temperatures were recorded during July 2025 (15.2 °C) whilst mean maximum water temperatures were recorded during February 2025 (23.9 °C). Site LI-Far (the shallowest site) recorded the largest range in water temperature (13.9 to 26.3 °C) and KB-Beach recorded the smallest (14.3 to 23.9 °C).

Table 3-5. Mean water temperature by functional group

Functional Group	Temperature (°C)	STD Error (±)
Proximate Sites	18.6	0.24
Further Afield Sites	18.8	0.16
Reference Sites	18.8	0.24

3.2.5 Conductivity

Conductivity principally reflects salinity and temperature of the water. Mean conductivity at Proximate and Reference sites was similar (Table 3-6). Further Afield sites reported a mean conductivity lower than other groups, due to the inclusion of the LI sites which are estuarine rather than oceanic and thus subject to a low salinity catchment.

Table 3-6. Mean conductivity by functional group (all campaigns)

Functional Group	Conductivity (µS/cm)	STD Error (±)
Proximate Sites	51,240	424
Further Afield Sites	50,971	313
Reference Sites	51,553	374

3.2.6 pH

Mean pH was similar at Proximate, Further Afield and Reference site groups (Table 3-7). pH showed some seasonal variation with mean minimum pH ranging from 7.8 in April 2025 and mean maximum pH peaking at 8.17 in January 2025. pH generally increased with water temperature.

Table 3-7. Mean pH by functional group (all campaigns)

Functional Group	pH	STD Error (±)
Proximate Sites	7.99	0.01
Further Afield Sites	8.01	0.00
Reference Sites	8.01	0.01

3.2.7 Dissolved Oxygen

Dissolved oxygen saturation (%) at Proximate, Further Afield and Reference sites was similar throughout the campaigns (Table 3-8).

Mean minimum dissolved oxygen saturation was recorded at the deepest site IH-Mid (91.2%) whilst mean maximum dissolved oxygen saturation was recorded at the most proximate site to dredging and construction (KB-Bay 3, 95.8%).

Table 3-8. Mean dissolved oxygen saturation by functional group (all campaigns)

Functional Group	DO (%)	STD Error (±)
Proximate Sites	95.2	0.28
Further Afield Sites	93.9	0.29
Reference Sites	95.3	0.3

3.3 Chemical Water Quality

Chemical water quality data collected during the baseline monitoring was reported prior to the start of the campaign by O2 Marine (2024).

3.3.1 Metals

Under the prescriptions of the MCMMP, chemical water quality monitoring for dissolved metals included cadmium, copper, lead, mercury, nickel and zinc.

3.3.1.1 MERCURY AND CADMIUM

Mercury and cadmium were not detected above the LoR (0.0001 µg/L and 0.1 µg/L respectively), in any sample across all monitoring campaigns.

3.3.1.2 LEAD

Lead was only detected above the LoR in one sample during dredging and construction monitoring at site KB-Bay 3 (0.2 µg/L). Concentrations always reported below the EQG at HEPA (2.2 µg/L) and MEPA (6.6 µg/L) at all sites.

3.3.1.3 NICKEL

The concentration of nickel ranged from not detected to 0.4 µg/L and never exceeded the HEPA EQG (7.0 µg/L) or MEPA EQG (200 µg/L) at any site located within the relevant ecological protection area. Thirty-two (32) percent of samples assayed reported concentrations above the LoR.

3.3.1.4 ZINC

The concentration of zinc ranged from not detected to 6.0 µg/L and never exceed the HEPA EQG (7.0 µg/L) or MEPA EQG (23 µg/L) at any site located within the relevant ecological protection area. Fifty-four (54) percent of samples assayed reported concentrations above the LoR.

3.3.1.5 COPPER

The concentration of copper was highest in the first two baseline monitoring surveys. The concentration of copper never exceeded the MEPA EQG (3 ug/L) at Inner harbour site IH-Mid. The concentration of copper exceeded the HEPA EQG (0.3 µg/L) at most sites located within the HEPA during baseline and dredging and construction. The LI sites reported the highest median concentrations of copper during baseline and dredging and construction monitoring (Table 3-9, Table 3-10). Exceedances of copper are discussed further in Section 4.2.

Table 3-9. Descriptive statistics for copper (µg/L) during baseline monitoring, LoR = 0.2 µg/L

Site	LEP (EGQ)	n	Median	Mean	20th percentile	80th percentile	Minimum	Maximum
KB-Bay 1	HEPA (0.3 µg/L)	4	0.5	0.7	0.3	1.5	0.3	1.5
KB-Bay 2		4	0.6	0.9	0.4	1.9	0.4	1.9
KB-Bay 3		4	0.7	0.9	0.4	1.8	0.4	1.8
KB-Bay 4		4	0.6	0.8	0.1	1.8	0.1	1.8
KB-Beach		4	0.6	0.8	0.3	1.8	0.3	1.8
KB-SW 1		4	1.2	1.3	0.3	2.7	0.3	2.7
KB-SW 2		4	0.9	1.2	0.2	3.0	0.2	3.0
LI-Far		4	1.6	3.5	0.9	10.0	0.9	10.0

Site	LEP (EGQ)	n	Median	Mean	20th percentile	80th percentile	Minimum	Maximum
LI- Mid		4	1.6	2.3	1.0	4.8	1.0	4.8
LI- West		4	1.2	1.6	0.8	3.1	0.8	3.1
All HEPA Sites		**40**	**0.8**	**1.4**	**0.5**	**1.9**	**0.1**	**10**
IH-Mid	MEPA (3 µg/L)	4	0.6	0.9	0.3	1.9	0.3	1.9
All Groups		**44**	**0.8**	**1.3**	**0.4**	**1.9**	**0.1**	**10.0**

Table 3-10. Descriptive statistics for copper (µg/L) during dredging and construction, LoR = 0.2 µg/L

Site	LEP (EGQ)	n	Median	Mean	20th percentile	80th percentile	Minimum	Maximum
KB-Bay 1		25	0.3	0.3	0.2	0.4	0.1	0.6
KB-Bay 2		25	0.4	0.5	0.3	0.6	0.2	1.3
KB-Bay 3		25	0.4	0.4	0.3	0.4	0.1	0.9
KB-Bay 4		25	0.4	0.4	0.3	0.5	0.1	0.7
KB-Beach	HEPA	25	0.4	0.4	0.3	0.6	0.1	0.7
KB-SW 1	(0.3 µg/L)	25	0.5	0.5	0.3	0.7	0.3	0.9
KB-SW 2		25	0.5	0.5	0.3	0.6	0.2	0.7
LI-Far		25	1.0	0.9	0.8	1.1	0.5	1.4
LI- Mid		25	1.1	1.1	0.8	1.3	0.6	1.5
LI- West		25	0.9	0.9	0.6	1.1	0.4	1.3
All HEPA Sites		**250**	**0.5**	**0.6**	**0.3**	**0.9**	**0.1**	**1.5**
IH-Mid	MEPA (3 µg/L)	25	0.6	0.7	0.5	0.9	0.3	1.2
All Groups		**275**	**0.5**	**0.6**	**0.3**	**0.9**	**0.1**	**1.5**

3.3.2 Organics

Benzene and naphthalene were not detected above the limit of reporting during dredging and construction monitoring campaigns. As such, there was no exceedance of the EQG or EQS for these analytes.

3.3.3 Organometallics

Tributyltin (TBT) was not detected above the 2 ng/L LoR in any sample collected during dredging and construction monitoring campaigns. Refer to Section 2.4.1 for discussion on the actions taken to assess TBT at the LoR required to meet the TBT EQG at the ZoHI boundary.

3.3.4 Nutrients and Chlorophyll-a

There are no specific EQG or EQS for nutrients or chlorophyll-a prescribed in the MCMMP, however a summary has been provided below.

The LI sites generally recorded concentrations of total phosphorus, total nitrogen and nitrate-nitrite (NOx) above KB and IH sites in the dredging and construction monitoring periods (Table 3-11).

Table 3-11. Descriptive statistics for nutrients during dredging and construction (µg/L)

Site	n	Mean Ammonia	Mean Ortho-P	Mean NOx	Mean Total P	Mean Total N	Mean Chl-a
Reference Site Group							
KB-Bay 1	25	5.7	4.4	6.2	18.4	156.4	1.5
KB-Bay 2	25	7.9	4.8	8.0	18.7	162.0	1.8
Proximate Site Group							
KB-Bay 3	25	7.3	4.6	8.6	21.2	178.0	1.6
KB-SW 1	25	8.6	4.9	9.6	23.8	200.8	2.6
KB-SW 2	25	7.6	4.9	9.4	22.5	186.0	2.1
Further Afield Site Group							
KB-Bay 4	25	8.2	4.7	8.0	21.2	173.2	2.0
KB-Beach	25	9.7	5.2	7.2	21.4	173.6	2.2
LI-Far	25	5.9	4.0	19.4	35.5	302.8	5.2
LI- Mid	25	6.3	4.0	16.9	30.3	272.4	4.8
LI- West	25	6.4	4.2	17.0	25.1	235.6	2.9
IH-Mid	25	17.5	6.0	8.6	22.0	185.2	2.6
All Site Groups							
All Sites	275	8.3	4.7	10.8	23.6	202.4	2.7

3.4 Data Validation – Quality Assurance and Quality Control (QA/QC)

This section examines the validity of the analytical data used in this assessment. The laboratory QA/QC compliance report (Appendix D) outlines the results of the internal QA/QC procedures.

3.4.1 Sample Holding Times

Sample integrity was maintained by ensuring samples were stored in the laboratory supplied containers, preserved at the correct temperature (<4 °C) and CoC records were maintained and receipted throughout the transfer of samples to the analytical laboratories.

Analysis of all water samples was completed within the recommended holding times for all analytes.

3.4.2 Laboratory Blanks

For the QC report, method blank results are compared to the LoR. There were no method blank outliers reported for the QC investigation during any campaign.

3.4.3 Standards and Spikes

Laboratory control standards (LCS) and matrix spike (MS) recoveries are measured as the percentage of analyte recovered from the sample compared to the amount of analyte spiked into the sample. The QC report indicated there were no laboratory control or matrix spike recovery issues during any campaign.

3.4.4 Laboratory Duplicates

The repeatability of the analytical method is determined with laboratory analysis of duplicate samples. Laboratory duplicate (DUP) and matrix spike duplicate (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.

Duplicate assessment was performed as part of the laboratory in-house validation process, with the QC report indicating all duplicate analyses were within the acceptable range. These results suggest that the precision of the assays was appropriate, and results should be considered as exact values.

3.4.5 Field Replicates

Analysis of replicate samples collected in the field was also performed for the sample program, with the inclusion of intra-laboratory duplicates (method checks).

Duplicate samples were two replicate samples obtained from the same homogenised water sample. Comparison of samples one and two provided an estimate of intra-laboratory (within-assay) variability. Laboratory duplicates should be within a relative percent difference (RPD) of ±35%; where RPDs that fall outside of these limits are to be flagged as estimates rather than precise values.

The intra-laboratory comparison showed RPDs were within the ±35% criteria for benzene, naphthalene, TBT, total phosphorus, total nitrogen, cadmium, lead and mercury (Table 3-12). These analytes should be considered to have met the criteria for precision outlined by the MCMMP.

The intra-laboratory comparison for TSS was greater than the allowable limits in four campaigns (Table 3-12). The outcome for TSS in these instances related to measurements below or at LoR. The reliability of concentrations near the LoR is known to decrease as concentrations approach the LoR.

The intra-laboratory comparison showed RPDs were greater than 35% for the metals nickel, copper and zinc in five, two and four monitoring campaigns, respectively (Table 3-12). Similarly, the intra-laboratory RPD for ammonia, orthophosphate and nitrate-nitrite was greater than the allowable limits in four, six and six monitoring campaigns, respectively (Table 3-12). The outcome for these metals and nutrients again related to measurements below or at LoR. Given there are no specific EQG or EQS for nutrients and the low concentration of metals detected, the potential measurement error should not invalidate the outcome of this investigation.

Table 3-12. Relative percent difference of field replicate samples per campaign

Campaign	NH^4-N	PO_4-P	NO_x-N	TP	TN	Chl-a	TSS	Hg	Ni	Cu	Zn	Cd	Pb	Benzene	Naphthalene	TBT
1	5.7	16.7	0.0	4.5	8.8	14.3	0.0	0.0	0.0	18.2	0.0	0.0	0.0	0.0	0.0	0.0
2	2.8	0.0	0.0	4.0	0.0	16.2	75.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	75.0	50.0	28.0	5.9	3.6	73.3	33.3	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	25.0	60.0	17.6	23.8	6.1	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	5.0	5.0	7.7	0.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	25.0	0.0	10.0	0.0	16.0	40.0	0.0	50.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0
7	20.0	33.3	50.0	4.8	25.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	22.0	20.0	16.7	14.3	0.0	11.1	11.1	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	50.0	0.0	5.6	4.0	0.0	10.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	40.0	66.7	11.4	3.8	0.0	15.4	0.0	25.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	25.0	300.0	4.7	3.1	7.5	6.7	0.0	50.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0
12	0.0	25.0	0.0	6.5	0.0	8.8	0.0	0.0	50.0	18.2	33.3	0.0	0.0	0.0	0.0	0.0
13	0.0	200.0	0.0	0.0	3.4	7.7	25.0	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0
14	700.0	25.0	500.0	6.7	0.0	2.3	11.1	0.0	25.0	10.0	100.0	0.0	0.0	0.0	0.0	0.0
15	62.5	0.0	33.3	8.3	10.0	10.9	0.0	0.0	0.0	40.0	66.7	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	200.0	12.5	15.8	35.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Campaign	NH^4-N	PO_4-P	NO_x-N	TP	TN	Chl-a	TSS	Hg	Ni	Cu	Zn	Cd	Pb	Benzene	Naphthalene	TBT
17	0.0	20.0	0.0	0.0	0.0	5.4	0.0	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	20.0	0.0	0.0	16.7	0.0	0.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	16.7	0.0	0.0	0.0	13.3	20.0	0.0	50.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0
20	62.5	25.0	0.0	6.7	8.3	5.6	16.7	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0
21	28.6	60.0	0.0	0.0	0.0	5.9	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	4.2	0.0	5.2	16.7	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	16.7	0.0	0.0	12.0	15.8	0.0	0.0	0.0	75.0	0.0	0.0	0.0	0.0	0.0
24	16.7	50.0	17.6	11.8	5.9	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	20.0	16.7	0.0	4.8	5.4	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Red cells indicate RPD outside of allowable limits (35%)

4 TRIGGER EXCEEDANCES AND CORRECTIVE ACTION

4.1 Total Suspended Sediments

There were five occasions during operational monitoring on which the average TSS of the Proximate sites was >2 mg/L of the average of the Proximate sites during the baseline, which exceeds the EQG Trigger Level 1 (Table 4-1 and Figure 4-1). Specified management action for the Level 1 exceedances was to test whether the mean of sites Further Afield was elevated by >2 mg/L above their baseline average. On three of the five Level 1 exceedances, the mean of the Further Afield sites was found to be <2 mg/L above the average of those sites during the baseline. As such, there was no exceedance of the EQG and no further assessment of the data was required for those three EQG Trigger Level 1 exceedances.

During monitoring campaigns 03 and 10, the average TSS concentration of the Further Afield sites was found to be >2 mg/L above the average of those sites during the baseline, which exceeds the EQG Trigger Level 2. During monitoring campaign 13, there was an exceedance of the EQG Trigger Level 2 but no exceedance of the Level 1 trigger. As such, investigations of the data collected during monitoring campaigns 03, 10 and 13 were conducted.

Table 4-1. Summary of TSS EQG Trigger Exceedances during dredging and construction

Campaign	Date	Average TSS (mg/L)			Attributable to Project
		Proximate Sites	Further Afield Sites	Reference Sites	
1	21/08/2024	7.6	6.1	7.0	N/A
2	28/08/2024	9	6	11	N/A
3	05/09/2024	39.0	11.8	18.5	No
10	04/12/2024	10	9.2	6.0	No
13	23/01/2025	4	9.2	2	No
23	12/06/2025	14.6	7.0	8.5	N/A
Baseline Average TSS		4.8	6.6	4.6	

Orange Cells indicate average TSS of proximate sites > 2mg/L above average background levels (Trigger Level 1)
Red Cells indicate average TSS at further afield sites > 2mg/L above average background levels (Tigger Level 2).

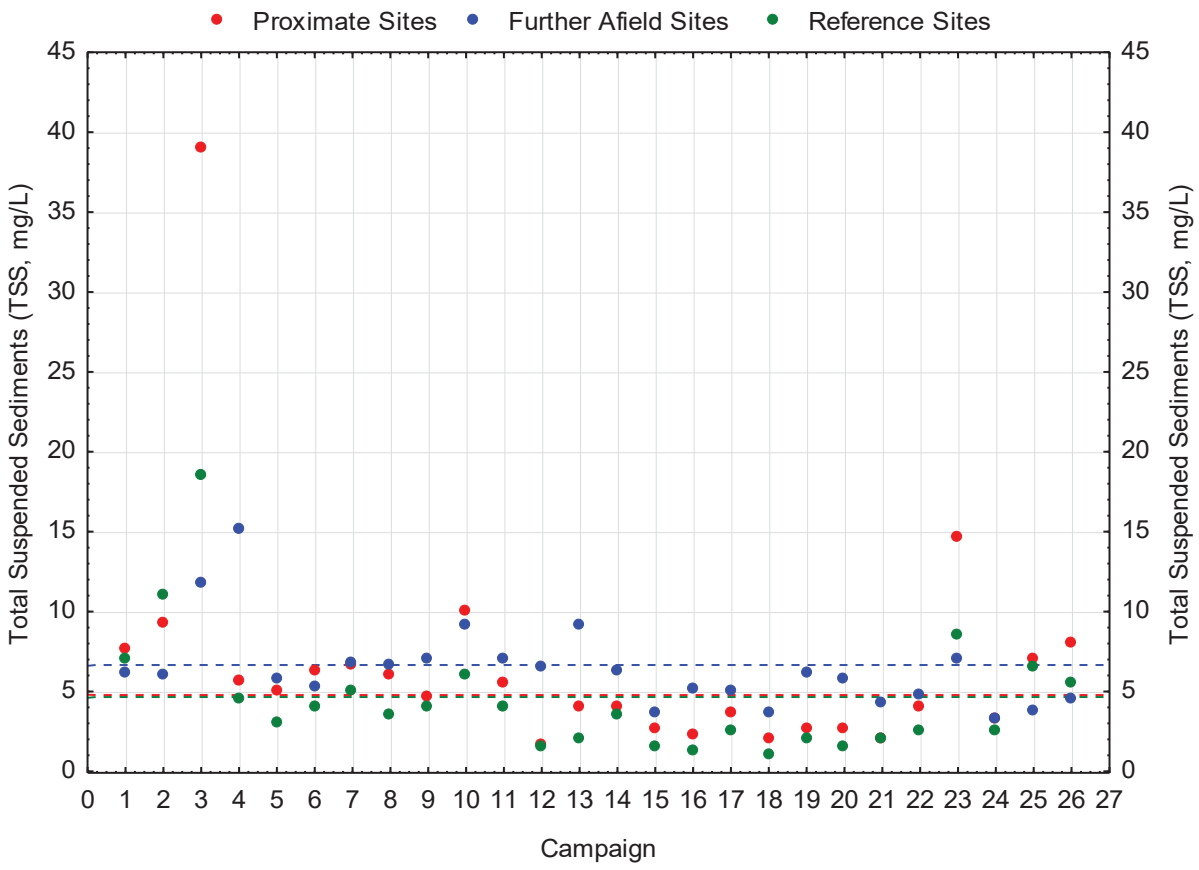

Figure 4-1. Average TSS of functional groups by campaign (dashed lines = baseline average of group)

A summary of the exceedance investigations for monitoring campaigns 03, 10 and 13 is provided below:

Monitoring Campaign 03

Monitoring campaign 03 was implemented on 05 September 2024 during Phase 1 capital dredging for the CBH Proposal.

Following the EQG Trigger Level 2 exceedance, review of the daily plume sketches for the fortnight leading up to the day of monitoring (22 August to 05 September) was undertaken. That review indicated the visible dredge plume did not reach any Proximate monitoring sites and was largely contained to within the dredging footprint.

High energy wind-wave conditions were prevalent on the day of monitoring. Winds, gusting to 65 km/h, prevailed from the west-south-west, and ~6 mm of rainfall was recorded between 0100 and 1200 on the day of sampling (Figure 4-2).

Review of the average Reference site data for the monitoring campaign showed TSS was elevated by 14 mg/L when compared to the average baseline data for those sites (Table 4-1). However, comparison of the Proximate site data to the reference sites on the day of sampling showed the average elevation in TSS of the Proximate sites was x8 while elevation of the Reference sites was only x4. This suggests dredging during the high energy metocean conditions may have contributed to the higher TSS concentrations reported at the proximate sites.

Weather forecasts on the afternoon of sampling suggested that these strong wind conditions were unlikely to persist for more than a few days and it was determined that any exceedance was very unlikely to persist

for the 18 days required to trigger additional management. Review of the weather observations for the days following 05 September at the time of the exceedance investigation confirmed winds were still westerly and strong until 08 September before they calmed (<5 knots) and changed more southerly.

The TSS results for monitoring campaign 04 (implemented on 12 September 2024) reported the average TSS concentrations of the Proximate and Further Afield sites to be <2 mg/L of the average of the Proximate and Further Afield sites during the baseline monitoring. Thus, confirming the elevated TSS concentrations returned to acceptable levels within 18 days.

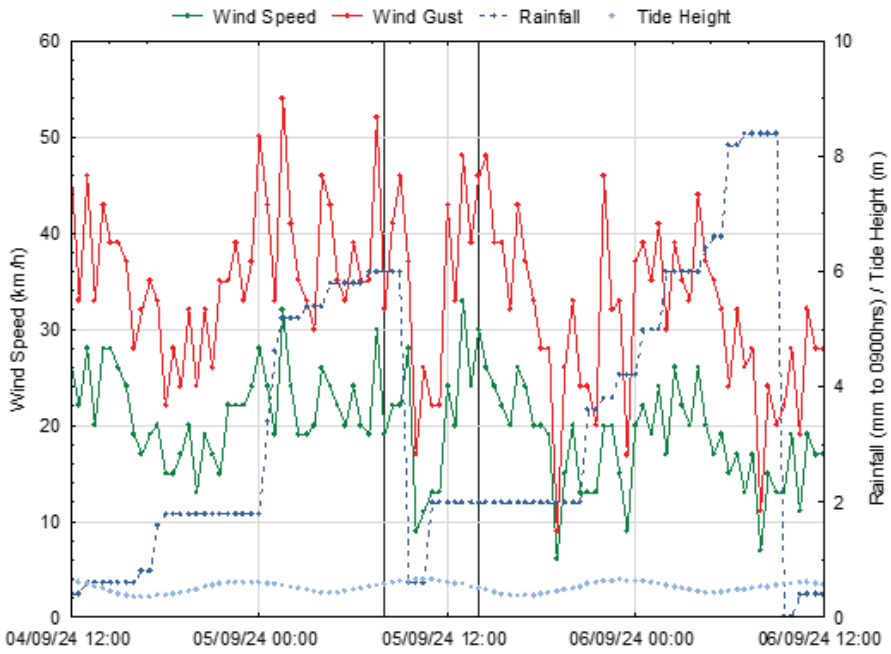

Figure 4-2. Metocean conditions 04 – 06 September 2025. Black vertical lines represent the period when sampling occurred.

Monitoring Campaign 10

Monitoring campaign 10 was implemented on 04 December 2024. Phase 1 dredging for the Project was completed on 12 November 2024. As such, dredging as a source of the elevated TSS was not considered further.

Following the EQG Trigger Level 2 exceedance, review of the daily breakwater construction images for the fortnight leading up to the day of monitoring (04 December 2024) indicated sediment plumes generated by construction activities (rock dumping) did not reach any Proximate monitoring sites and were largely contained within ~30 m of the construction footprint.

High energy wind-wave conditions, generated by north-westerly winds gusting to 40 km/h, were prevalent on the days leading up to 04 December 2024 (Figure 4-3). Due to their location, the Proximate sites KB-SW1 and KB-SW2 are afforded little protection from north-westerly winds. In addition, an extremely low tide (0.16 m) was observed during sample collection (shallow water increases the energy experienced at the seabed from a wave). The highest TSS concentrations were recorded at the four Proximate and Further Afield sites with a depth of ≤1.5 m at the time of sampling (KB-SW1, LI-Far, LI-Mid, Li-West).

Weather forecasts examined suggested that the high energy metocean conditions were not likely to persist for 18 continuous days and daily monitoring of TSS to test the EGS was not required. Review of the weather observations for the days following 04 December 2024 at the time of the exceedance investigation

confirmed that by 11 December, winds returned to the summer pattern of light (5-10 kts) easterlies in the mornings and moderate to strong (15 – 25 kts) southwesterlies in the afternoons.

The TSS results for monitoring campaign 11 (implemented on 17 December 2024) reported the average TSS concentrations of the proximate and Further Afield sites to be <2 mg/L of the average of the proximate and Further Afield sites during the baseline monitoring. Thus, confirming the elevated TSS concentrations returned to acceptable levels within 18 days.

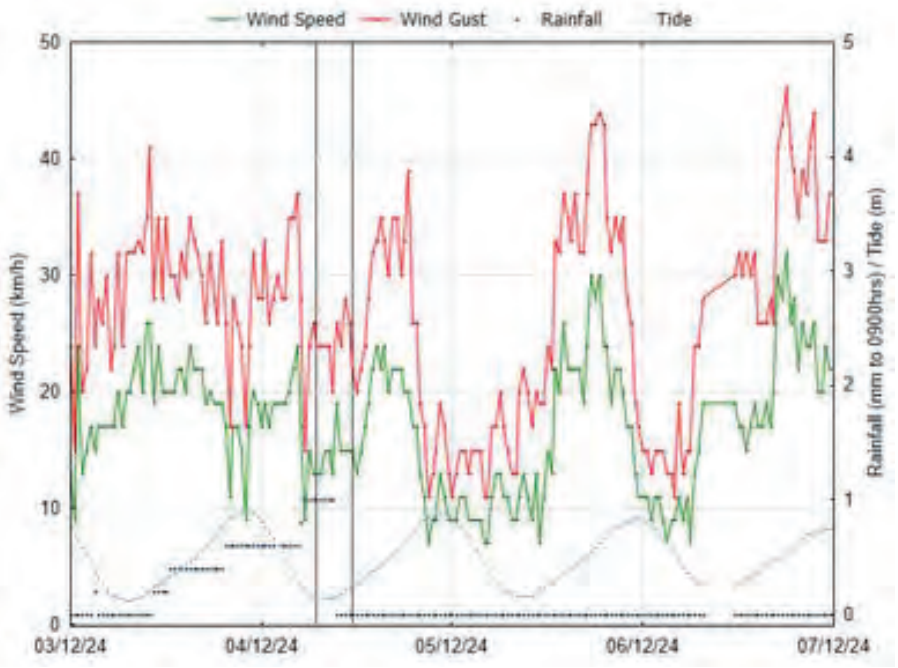

Figure 4-3. Metocean conditions between 03 and 07 December 2024. Black vertical lines represent the period when sampling occurred.

Monitoring Campaign 13

Monitoring campaign 13 was implemented on 23 January 2025. On the day of sampling, the average TSS of the Proximate sites was <2 mg/L above the average of the Proximate sites during the baseline monitoring but the average TSS concentration of the Further Afield sites was found to be >2 mg/L of the average of those sites during the baseline. Despite not triggering the TSS EQG trigger an investigation was conducted as a precautionary measure.

Review of the daily breakwater construction images for the fortnight leading up to the day of monitoring (08 to 23 January 2025) indicated surface sediment plumes generated by construction activities (rock dumping) were largely contained within ~50 m of the construction footprint.

The Further Afield site group exceedance resulted from high TSS values within the LI sites (LI-Far-26 mg/L, LI-Mid-10 mg/L and LI-West-11 mg/L)). TSS concentrations reported from the KB/IH Further Afield sites on the day of sampling were equivalent to baseline (2 – 5 mg/L), suggesting the elevation was caused by factors acting inside the old Preston River course in which the LI sites are located.

High energy wind-wave conditions gusting to >40 km/h, were observed on the days leading up to 23 January 2025 (Figure 4-4). The storm surge barrier to the old Preston River course was closed on the day of sampling due to an elevated storm surge as a result of Ex Tropical Cyclone Sean. Closure of the storm surge barrier would have limited the flushing of water between Koombana Bay and the old Preston River course, resulting in naturally higher suspended sediments within the closed-off water body, especially at the

far end of the water body where the site LI-Far is located. Furthermore, any turbid water within Koombana Bay potentially generated as a result of the Project's construction activities would be unlikely to enter the old Preston River course with the storm barrier closed.

On the basis of the above investigation, the EQG Trigger Level 2 exceedance was not considered to be a result of the Project's construction activities, and no further action was recommended.

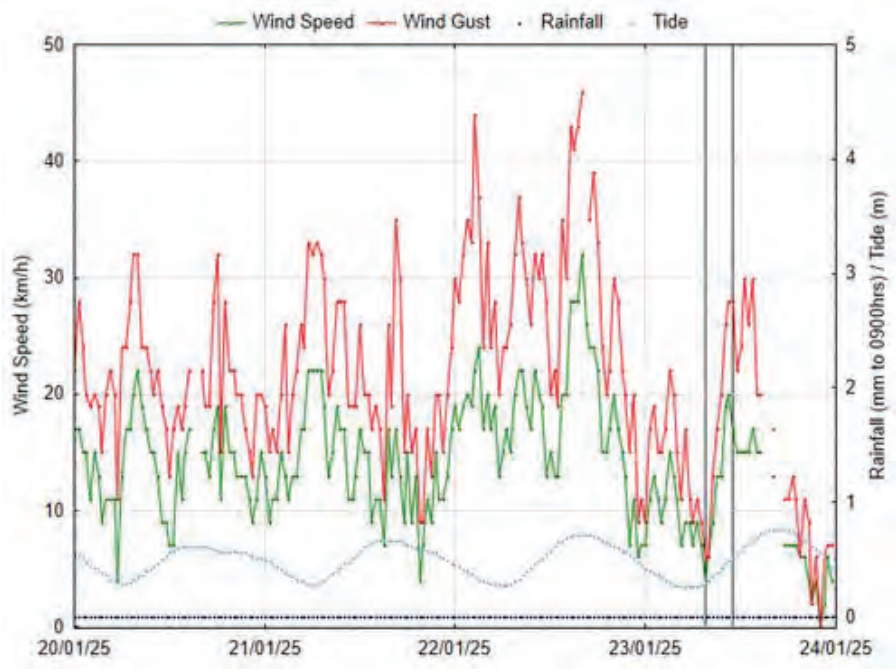

Figure 4-4. Metocean conditions between 20 and 24 January 2025. Black vertical lines represent the period when sampling occurred.

4.2 Dissolved Copper

The concentration of copper exceeded the HEPA EQG (0.3 µg/L) at all sites within the relevant ecological protection area during most baseline and dredging/construction monitoring campaigns. During baseline monitoring, 39 of the 44 samples collected (89%) exceeded the HEPA EQG. Whilst during dredging and construction monitoring, 210 of the 275 samples collected (76%) exceeded the HEPA EQG. The reported concentrations of copper were highest in the first two baseline monitoring surveys and at the LI sites (Figure 4-5, Figure 4-6, Figure 4-7). Following the EQG Trigger exceedances for copper, the source of the elevated copper was investigated.

The baseline condition of water quality was characterised for the KBMS Strategic Proposal using data collected between 2016-17 and in 2020 (GHD 2023). That report showed both the median and 80th percentile concentrations of copper within Koombana Bay (Median = 0.5 µg/L, 80th% = 0.6 µg/L), Casuarina Boat Harbour (Median = 0.9 µg/L, 80th% = 1.0 µg/L) and the old Preston River course (Median = 0.5 µg/L, 80th% = 1.0 µg/L) exceed the HEPA EQG (99% species protection level) prescribed by the MCMMP (0.3 µg/L).

Comparison of the copper concentration reported at the individual HEPA sites during dredging and construction to the average baseline concentration of all the HEPA sites (1.4 µg/L) found the concentration of copper did not exceed the average baseline concentration, in most instances. During monitoring campaign 15, the concentration of copper at site LI-Mid (1.5 µg/L) was slightly elevated compared to the baseline concentration for all the HEPA sites but was below the average copper concentration reported for LI-Mid during the baseline (2.3 µg/L). As such, the concentration of copper reported in samples collected for the

monitoring campaign likely already occurred in the waters of Koombana Bay and the old Preston River course and are not related to the projects dredging and/or construction activities.

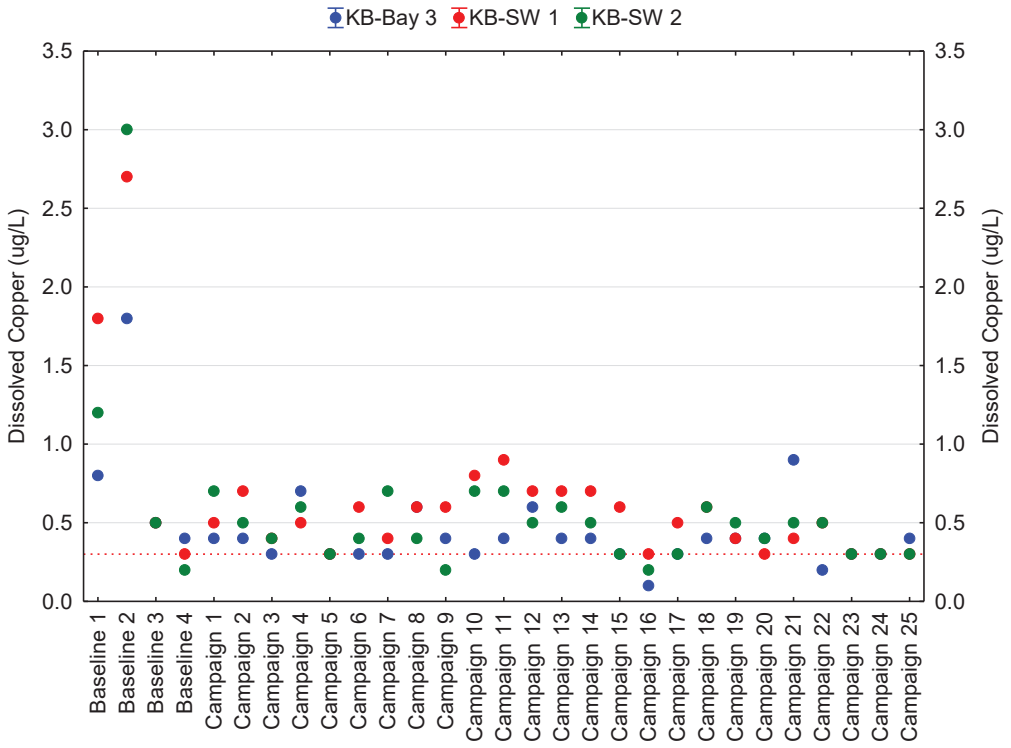

Figure 4-5. Copper concentrations at Proximate monitoring sites, red dashed line = HEPA EQG

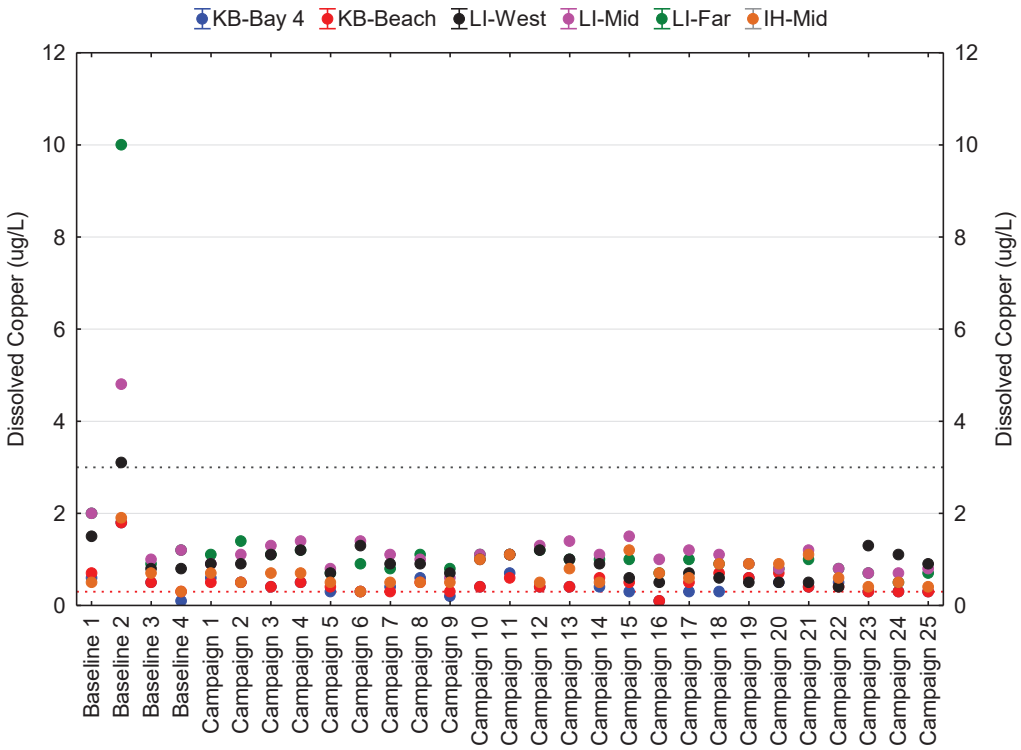

Figure 4-6. Copper concentrations at Further Afield sites, red dashed line = ZOHI EQG trigger, black dashed line = MEPA EQG trigger (site IH-Mid only).

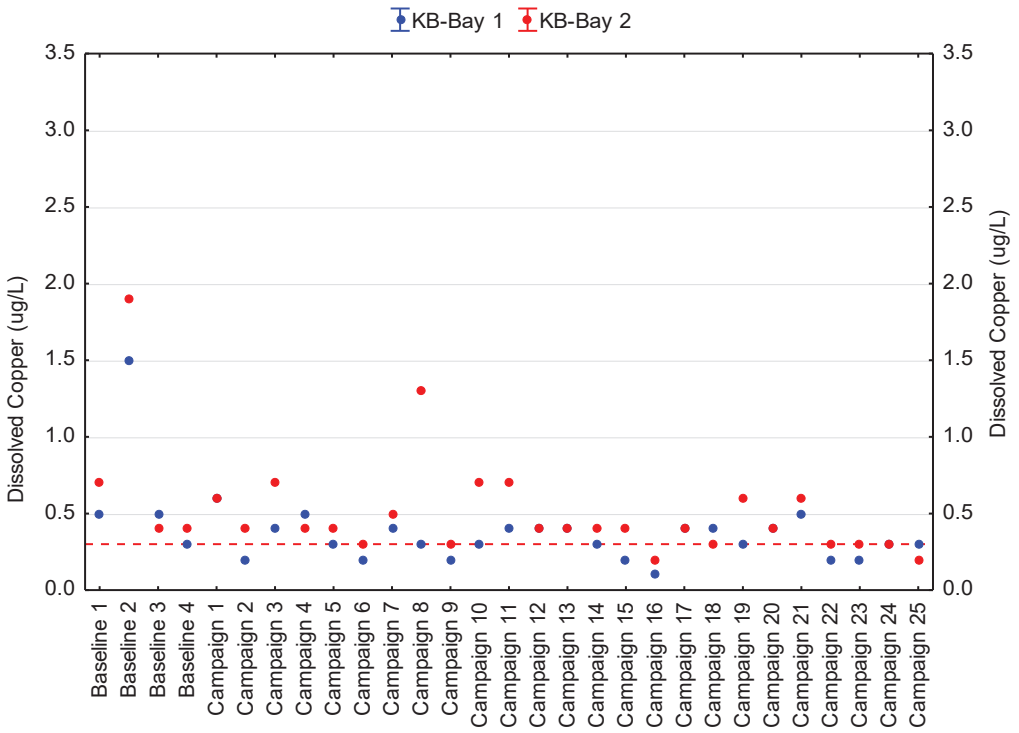

Figure 4-7. Copper concentrations at Reference sites, red dashed line = ZOHI EQG trigger

The seasonal variation of ambient copper concentration at the monitoring sites was investigated by comparing copper concentrations reported during baseline monitoring (July and August 2024) to the concentrations reported for dredging and construction monitoring campaigns implemented during the same months in 2025. The mean concentration of copper across all sites was x2.6 higher in winter 2024 (baseline) compared to winter 2025 (dredging/construction) (Table 4-2), further indicating there was likely no addition of copper from the Project.

Table 4-2. Copper concentrations (µg/L) during winter 2024 (baseline) and winter 2025 (construction) monitoring.

Site	LEP (EGQ)	Baseline Monitoring (July – August 2024)		Construction Monitoring (July – August 2025)	
		Mean	SE	Mean	SE
KB-Bay 1	HEPA (0.3 µg/L)	0.7	0.3	0.3	0.1
KB-Bay 2		0.9	0.4	0.4	0.1
KB-Bay 3		0.9	0.3	0.3	0.1
KB-Bay 4		0.8	0.4	0.4	0.1
KB-Beach		0.8	0.3	0.5	0.2
KB-SW 1		1.3	0.6	0.4	0.1
KB-SW 2		1.2	0.6	0.4	0.1
LI-Far		3.5	2.2	0.7	0.1
LI- Mid		2.3	0.9	0.8	0.0
LI- West		1.6	0.5	0.9	0.1
All HEPA Sites		**1.4**	**0.3**	**0.5**	**0.0**
IH-Mid	MEPA (3 µg/L)	0.9	0.4	0.7	0.3

5 REFERENCES

GHD (2023) Baseline Water Quality Monitoring. Koombana Bay Marine Structures SPER. Report Prepared for the South West Development Commission

MScience (2024) Koombana Bay Marine Structures Casuarina Boat Harbour Phase 1 Marine Monitoring. Sampling and Analysis Plan. Report: MSA343R01, Unpublished Report to WA Limestone, Perth, WA

O2 Marine (2024) DoT TBW Environmental Approvals Support Water and Sediment Quality and BCH Sampling. Report: 23/ENV240/T240269, Technical Memo to Department of Transport

RPS (2024) Marine Construction Monitoring and Management Plan. Koombana Bay Marine Structures, Bunbury. Report: AU213001693.003, Prepared for South West Development Commission, Subiaco, Western Australia

StatSoft Inc (2011) STATISTICA (data analysis software system), Version 10.

6 APPENDIX A – AESTHETIC OBSERVATION SHEETS

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (~~proximal or~~ Far Field) LL-M.D	
Time/Date: 1131 21/8/24	

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	No	
Dead marine organisms visible	No	
Water clarity	1-5m	
Noticeable colour variation	No	
Oil or other films on surface	No	
Floating debris on surface	No	
Noticeable odour	No	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (~~proximal or~~ Far Field) L1 - WEST	
Time/Date: 1154 21/8/24	

Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	No	
Dead marine organisms visible	No	
Water clarity	1.5m	
Noticeable colour variation	No	
Oil or other films on surface	No	
Floating debris on surface	No	
Noticeable odour	No	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (~~proximal or Far Field~~) REFERENCE KB BAY 2	
Time/Date: 1039 21/8/24	

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	No	
Dead marine organisms visible	NO	DOLPHIN SIGHTED
Water clarity	1M	
Noticeable colour variation	No	
Oil or other films on surface	No	
Floating debris on surface	No	
Noticeable odour	No	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (~~proximal~~ or Far Field) L1 - FAR	
Time/Date: 1113 21/8/24	

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	No	
Dead marine organisms visible	No	
Water clarity	1-5 m	
Noticeable colour variation	No	
Oil or other films on surface	No	
Floating debris on surface	No	
Noticeable odour	No	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (~~proximal~~ or Far Field)	IH-M13
Time/Date:	21/8/24

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	No	
Dead marine organisms visible	No	
Water clarity	0.75m	
Noticeable colour variation	No	
Oil or other films on surface	No	
Floating debris on surface	No	
Noticeable odour	No	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal ~~or Far Field~~) KBSM1	
Time/Date: 0855 21/8/24	

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	No	
Dead marine organisms visible	NO	
Water clarity	/A	
Noticeable colour variation	NO	
Oil or other films on surface	NO	
Floating debris on surface	NO	
Noticeable odour	NO	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (~~proximal or~~ Far Field) KB0AY 4	
Time/Date: 0935 21/8/24	

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	NO	
Dead marine organisms visible	NO	
Water clarity	1 M	
Noticeable colour variation	NO	
Oil or other films on surface	NO	
Floating debris on surface	NO	
Noticeable odour	NO	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: ~~(proximal or Far Field)~~ KB-SW2	
Time/Date: 0830 21/8/24	

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	NO	
Dead marine organisms visible	NO	DOLPHIN - 05 SEXLED
Water clarity	1.2m	
Noticeable colour variation	NO	
Oil or other films on surface	NO	
Floating debris on surface	NO	
Noticeable odour	NO	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (~~proximal~~ or Far Field) KB - BEACH	
Time/Date: 0915 21/08/24	

Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	NO	
Dead marine organisms visible	NO	
Water clarity	IM	
Noticeable colour variation	NO	
Oil or other films on surface	NO	
Floating debris on surface	NO	
Noticeable odour	NO	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: ~~(proximal or Far Field)~~ KB BAY-03	
Time/Date: 0800 21/8/24	

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	NO	
Dead marine organisms visible	NO	
Water clarity	1-2 M	
Noticeable colour variation	NO	
Oil or other films on surface	NO	
Floating debris on surface	NO	
Noticeable odour	NO	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: ~~(proximal or Far Field)~~ REFERENCE KB-BAY 1		
Time/Date: 1228 21/8/24		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	No	
Dead marine organisms visible	No	
Water clarity	0.5m	
Noticeable colour variation	No	
Oil or other films on surface	No	
Floating debris on surface	No	
Noticeable odour	No	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: KB Bay 3 (proximal or Far Field)		
Time/Date: 10-22		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	No	
Dead marine organisms visible	No	
Water clarity	Im	Brown
Noticeable colour variation	No	
Oil or other films on surface	No	
Floating debris on surface	No	
Noticeable odour	No	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field)		
Time/Date:		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	No	
Dead marine organisms visible	No	
Water clarity	2.0	
Noticeable colour variation	NO	
Oil or other films on surface	NO	
Floating debris on surface	Yes	Foamy Bubbk Patches
Noticeable odour	NO	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: KB SW2 (proximal or Far Field)		
Time/Date: 1010		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	NO	
Dead marine organisms visible	No	
Water clarity	I'm	Brown
Noticeable colour variation	No	
Oil or other films on surface	No	
Floating debris on surface	No	
Noticeable odour	No	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field) A		
Time/Date: KB BAY 0937		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	Yes	Marine Algae
Dead marine organisms visible	No	
Water clarity	0.5	
Noticeable colour variation	No	
Oil or other films on surface	No	
Floating debris on surface	Yes	Sea Kelp / Balls / floating on Surface
Noticeable odour	No	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: KB SW1 (proximal or Far Field)		
Time/Date: 1000		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	No	
Dead marine organisms visible	No	
Water clarity	1.0m	
Noticeable colour variation	No	
Oil or other films on surface	No	
Floating debris on surface	No	
Noticeable odour	No	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: KB Bay 4 (proximal or Far Field)		
Time/Date: 0942		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	No	
Dead marine organisms visible	No	
Water clarity	1.0	
Noticeable colour variation	No	Brownu / Green
Oil or other films on surface	Yes	Foamy
Floating debris on surface	No	
Noticeable odour	No	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: KB BAY 1 (proximal or Far Field)		
Time/Date: 0857		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	No	
Dead marine organisms visible	No	
Water clarity	1 meter	
Noticeable colour variation	Yes	Appears to be from estuary Brownish Water/Slick Parallel to Groin
Oil or other films on surface	Yes	Thick Protein Bubbles segregating Brown to less brown held Back by current
Floating debris on surface	Yes	1
Noticeable odour	No	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field) LI -WEST		
Time/Date: 0831		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	No	
Dead marine organisms visible	No	
Water clarity	1.0	
Noticeable colour variation	NO	
Oil or other films on surface	No	
Floating debris on surface	NO	
Noticeable odour	NO	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: LI-MID (proximal or Far Field) Time/Date: 0800 28/8		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	1.0m.	Green.
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: KD-SW1 (proximal or Far Field)		
Time/Date: 0825 5/7/24		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	.2m	
Noticeable colour variation	N	Brown
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: KB-SW2 (proximal or Far Field)		
Time/Date: 0800 5/9		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	0.2m	
Noticeable colour variation	✓	Brown
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field) KIS - DAY 4		
Time/Date: 0839 5/9/24		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	.2m	
Noticeable colour variation	N	BLOWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field) KB - BEACH		
Time/Date: 0855 5/9		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.4M	
Noticeable colour variation	N	LIGHT BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field) 1H - MID		
Time/Date: 0930 11/05/09		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	.8M	
Noticeable colour variation	Y	GREEN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field) KB-BAY 2		
Time/Date: 0950 5/9		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	.5 M	
Noticeable colour variation	Y	MORE GREEN THAN BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field) LI-FAR		
Time/Date: 1025 5/9		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	IM	
Noticeable colour variation	Y	MORE GREEN THAN BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field) LI-MID		
Time/Date: 1055 5/9/24		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	.8m	
Noticeable colour variation	Y	MORE GREEN THAN BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field) LI-WEST		
Time/Date: 1127 5/9		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	I M	
Noticeable colour variation	Y	GREEN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field) KG - DAY 3		
Time/Date: 1147 5/9		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	.2M	
Noticeable colour variation	Y	HEAVY BROWN.
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field) KO-BAY 1		
Time/Date: 1210 5/9/24		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	~2m	
Noticeable colour variation	N	BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field)	L1 FAR
Time/Date:	0812 12/9/24

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field)	L1-MID
Time/Date:	840 12/09/24

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	NO	
Dead marine organisms visible	NO	
Water clarity	0.5	
Noticeable colour variation	NO	
Oil or other films on surface	NO	
Floating debris on surface	NO	
Noticeable odour	NO	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field) L1 - West		
Time/Date: 0857 12/09/24		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	~~YES~~	little remenents of algae on water surface.
Dead marine organisms visible	NO	
Water clarity	0.5	
Noticeable colour variation	NO	
Oil or other films on surface	NO	
Floating debris on surface	NO	
Noticeable odour	NO	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field)	KB-SW 1
Time/Date:	0915 12/09/24

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	NO	
Dead marine organisms visible	NO	
Water clarity	~1m	
Noticeable colour variation	NO	
Oil or other films on surface	NO	
Floating debris on surface	NO	
Noticeable odour	NO	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field) KB - SW 2		
Time/Date: 0935 12/09/24		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	NO	
Dead marine organisms visible	NO	
Water clarity	≈ 1m	
Noticeable colour variation	NO	
Oil or other films on surface	YES	
Floating debris on surface	NO	
Noticeable odour	NO	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field)	KB-BAY 4
Time/Date:	0947 12/09/24

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	NO	
Dead marine organisms visible	NO	
Water clarity	≈1.5m	
Noticeable colour variation	NO	
Oil or other films on surface	~~YES~~ NO	
Floating debris on surface	NO	
Noticeable odour	NO	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field) KB-BEACH		
Time/Date: 12/09/24 0959		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	NO	
Dead marine organisms visible	NO	
Water clarity	≈1.5	
Noticeable colour variation	NO	
Oil or other films on surface	NO	
Floating debris on surface	NO	
Noticeable odour	NO	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field) IH-MID 12/09/24		
Time/Date: 1020		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	NO	
Dead marine organisms visible	NO	
Water clarity	0.5	
Noticeable colour variation	NO	
Oil or other films on surface	NO	
Floating debris on surface	NO	
Noticeable odour	NO	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field) KB-BAY2		
Time/Date: 12/09/24 1028		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	NO	
Dead marine organisms visible	NO	
Water clarity	≈1-2m	
Noticeable colour variation	NO	
Oil or other films on surface	NO	
Floating debris on surface	NO	
Noticeable odour	NO	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field) KB-BAY1		
Time/Date: 12/09/24 1040		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	≈1.5m	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

AESTHETIC APPEARANCE QUESTIONNAIRE

Site: (proximal or Far Field) KB-BAY 3		
Time/Date: 12/09/24 1051		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	≈0.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: CI - MID		
Time/Date: 1008 19/9/24		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1m	
Noticeable colour variation	N	GREEN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: CI - FAR		
Time/Date: 1028 19/9/24		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.5	
Noticeable colour variation	Y	GREEN/BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: IH-MID		
Time/Date: 0900 19/9/24		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1m	
Noticeable colour variation	Y	GREEN/BROWN *
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

* LARGE BROWN PLUMES THROUGHOUT INNER HARBOUR

Site: KB-BAY 2		
Time/Date: 0920 19/9/24		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.1m	
Noticeable colour variation	N	GREEN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: CI - WEST		
Time/Date: 0945 19/9/24		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1m	
Noticeable colour variation	N	GREEN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: KB-SW 1		
Time/Date: 0810 19/9/24		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	.7m	
Noticeable colour variation	N	GREEN / BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: KB-BAY 4		
Time/Date: 0825 19/9/24		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	.8M	
Noticeable colour variation	N	GREEN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: KB-BEACH		
Time/Date: 0840 19/9/24		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1M	
Noticeable colour variation	N	GREEN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: KB-DAY 1		
Time/Date: 0725 19/9/24		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5m	
Noticeable colour variation	N	RELATIVELY CLEAR - GREEN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: KB-DAY 3		
Time/Date: 0745 19/9/24		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5m	
Noticeable colour variation	N	- GREEN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: KB-SW2		
Time/Date: 0800 19/9/24		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	.8m	
Noticeable colour variation	Y	SLIGHT BROWN AUG
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-BAY-1
Time/Date:	07/10/24 / 0752

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.0m	
Noticeable colour variation	-	GREEN WATER
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-3
Time/Date:	07/10/24 / 0809

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.0m	GREEN AS ABOVE.
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-SW-2/0824
Time/Date:	08/24

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.0	
Noticeable colour variation	N	Standard green.
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: KB-SW-1		
Time/Date: 0837		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	<1m	
Noticeable colour variation	N	Brown / Green / SHALLOW <1m.
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: KB-BEACH		
Time/Date: 0854		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.0	
Noticeable colour variation	N	Green / Brown
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: KB-MM4-A.		
Time/Date: 0909		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.0	Green/Brown
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	IH - MID
Time/Date:	0927

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	✓	SINGLE SEAGRASS STRAP FLOATING
Dead marine organisms visible	✗	
Water clarity	1.0m	
Noticeable colour variation	N	
Oil or other films on surface	✗ Y	BROWN SLICK / POSSIBLE HYDROCARBON
Floating debris on surface	N	
Noticeable odour	Y	Diesel from ship loading vessel at 300m west.

Site:	KB-BAY-2
Time/Date:	0945

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.0	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	LI - FAR
Time/Date:	1027

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.8m	
Noticeable colour variation	N	(more brown than green)
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: LI - MID 1043		
Time/Date:		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	0.8m	
Noticeable colour variation	✓	Brown/green & shallow.
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site: LI - WEST		
Time/Date: 1107		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	1.2	
Noticeable colour variation	–	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	LI-FAR	
Time/Date:	08:04	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	Poor (0.2)	Brown/green
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	LI-MID	
Time/Date:	0827	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.7	Brown from winds
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	LI-WEST	
Time/Date:	0842	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.35	Brown from winds
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-SW1
Time/Date:	0902

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.3	
Noticeable colour variation	N	Some brown as afes
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-SW2
Time/Date:	0913

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.3	
Noticeable colour variation	N	(Some brown off shallows @ jetty KB.
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY A
Time/Date:	0927

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.2	Brown/grey
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB - BEACH
Time/Date:	0951

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.25	Same as elsewhere
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB - MID
Time/Date:	1009

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.25	
Noticeable colour variation	Y	clearer green/blue
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB - BAY 2
Time/Date:	1022

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.5	
Noticeable colour variation	N	clearer than previous, less brown, Pale/Lots of it in crayne pocket
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-RAY 1
Time/Date:	1052

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	0.5	
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site:	KB-RAY - 3.
Time/Date:	1058.

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	0.2	
Noticeable colour variation	✓	Brown / grey — Likely Dredge related @ 150m
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: C1-FAR	
Time/Date: 0800 07/11/24	

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.25	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: C1-MID	
Time/Date: 0815 7/11/24	

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.25	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: C1-WEST	
Time/Date: 0832 7/11/24	

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB SW1
Time/Date:	0845 7/11/24

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	C.S	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB SW2
Time/Date:	0856 7/11/24

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	I	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB - BAY 4
Time/Date:	0909 7/11/24

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	I	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB BEACH
Time/Date:	0920 7/11/24

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB BAY 3
Time/Date:	0932

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB BAY 1
Time/Date:	0945 7/11/24

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-DM12
Time/Date:	1005 7/11/24

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	D-CPRINS
Water clarity	1.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	TH-MID
Time/Date:	1028 7/11/24

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB Bay - 3
Time/Date:	0746 / 18/11/24

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	3 x Dolphins
Water clarity		1.5m
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site:	KB - BAY - 1
Time/Date:	0758.

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	1.5m	
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site:	KB - BAY - 2
Time/Date:	0815

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	1.5m	
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: IH - MID		
Time/Date: 0835		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: KB - BEACH		
Time/Date: 0844		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: KB MAY - 4		
Time/Date: 0855		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-SW2
Time/Date:	0907

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	1.5	
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site:	KB-SW1
Time/Date:	0919

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	1.5	
Noticeable colour variation	~~Y~~	~~Slick~~ @ ~~Milky~~ Lane in shallow
Oil or other films on surface	✓	plume
Floating debris on surface	✓	
Noticeable odour	✓	

Site:	LI-WEST
Time/Date:	

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.5	Browner than all harbour
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	LI - MID	
Time/Date:	0958	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.4m	
Noticeable colour variation	Y	Brown
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	LI FAR	
Time/Date:	1015	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.3m	
Noticeable colour variation	Y	Brown
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

4/12/24

Site:	KB-BAY-1
Time/Date:	0746

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1m	
Noticeable colour variation	Y	MIX OF BROWN & GREEN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-3
Time/Date:	0808

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1m	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-2
Time/Date:	0824

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5m	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-Beach
Time/Date:	0903.

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.0	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	IH-MID
Time/Date:	0842

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.5	clear water
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY 4
Time/Date:	0918.

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.0.	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-SW2
Time/Date:	0936

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.0	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-SW1
Time/Date:	0932

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.0	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	LI-FAR
Time/Date:	1021.

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.25	
Noticeable colour variation	N	Brownish tinge in bay sites
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	LI - MID
Time/Date:	1038

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.4m	
Noticeable colour variation	N	Brown not green
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	LI - WEST
Time/Date:	1104

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.4	
Noticeable colour variation	N	Brown not green
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-BAY-3	
Time/Date:	17/12 0736hrs	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.30	LI Brown tannins on site, big tides from Cleveland estuary
Noticeable colour variation	N.	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-1	
Time/Date:	17/12 0753	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	15-20	
Noticeable colour variation	N	oil Deep dark green
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-2	
Time/Date:	0809	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	IH-MID
Time/Date:	0826

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.30	
Noticeable colour variation	Y	TUG WASH CREATING BROWN WHOLE HARBOUR GREEN @ SAMPLING LOCATION BUT.
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BEACH
Time/Date:	0839

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	Green, Same as IH MID
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-4
Time/Date:	0847

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-SW-1
Time/Date:	0909

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface		
Dead marine organisms visible		
Water clarity		
Noticeable colour variation		
Oil or other films on surface		
Floating debris on surface		
Noticeable odour		

Site:	LI-FAR
Time/Date:	0928

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.25	
Noticeable colour variation	N	Brown in LI, EAST WIND @ 10Kts. V shallow
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	LI-MID
Time/Date:	0940

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.3	
Noticeable colour variation	N	Brown in all LI
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	SW-2	
Time/Date:	0857	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.3	BROWN BAY, GREEN OUTER
Noticeable colour variation	Y	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	LI-WEST	
Time/Date:		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.30	BROWN, ALL OF LI SITES.
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-BAY-1
Time/Date:	0739 08/01/25

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1-5	Good Vis, Deep Green
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-2
Time/Date:	0758 08/01/25

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1-5-2	Good Deep Green
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	IH-MID
Time/Date:	0812 08/01/25

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1-5-2	〃 〃
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB - BEACH
Time/Date:	0825

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5+	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB - BAY - 4
Time/Date:	0834

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	Sargassum single
Dead marine organisms visible	N	
Water clarity	1.5+	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB - SW 2
Time/Date:	0848

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.0	slightly Brown
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KM-SW-1	
Time/Date:	0857	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	<1.0m	Brownish Plum all Harbour Sites
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	LI-FAR	
Time/Date:	0921	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	<1m	Brown, coffee Colour.
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	LI-MID	
Time/Date:	0948	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	<1m	Brown Coffee Colour
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	CI-WEST
Time/Date:	0959

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	<1	Coffee Brown
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-MA4-3
Time/Date:	1012

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.0	Deep green & clear
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-BAY-03
Time/Date:	0728 23/1/25

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	GREEN, PARK.
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-01
Time/Date:	0748

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.0	CREAMY GREEN
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-02
Time/Date:	0803

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.0	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	IH-MID	
Time/Date:	0818	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity		Brown/Green
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site:	KB-BEACH	
Time/Date:	0835	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity		
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site:	KB-BAY-4	
Time/Date:	0846	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity		
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	Kb-SW-1
Time/Date:	0858

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	~~N~~ Y	Some fine Seagrass floating, Long & thin
Dead marine organisms visible	N	
Water clarity	0.8	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	Kb-SW2
Time/Date:	0913

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.2	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	LI - ~~BAD~~ WEST
Time/Date:	1000

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	LI - MID
Time/Date:	1025

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.5m	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	LI - ~~EAST~~ FAR
Time/Date:	1045

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	<0.5	NOTICABLY BROWN COMPARED TO WEST
Noticeable colour variation	N	& MID IN LI.
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: LI - W		
Time/Date: 0745		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.0m	Brown
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: LI - MID		
Time/Date: 0759		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.5	Browner than LI-W
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

(DUP)

Site: LI - FAR		
Time/Date: 0818		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity		
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-BAY 4	
Time/Date:	0855	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	1.25m	GREEN 1.25 – 2.0m, clear
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site:	KB-BEACH	
Time/Date:	0905	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	>1.5	GOOD, 2m vis ✓
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site:	IH-MID	
Time/Date:	0923	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity		
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

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Site: KB-MA4 2.		
Time/Date: 0925		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	2.0m	clear, green
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

* Jetskis & towing vessels, watch for toluene & Benzene

Site: KB-SW1		
Time/Date: 0958		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	1.5+	GREEN, NOT 100% clear like above
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site: KB-SW2		
Time/Date: 1004		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	2.0~	
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-BAY-3
Time/Date:	1012

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.0m	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-1
Time/Date:	1028

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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20/2/25

AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-BAY-1
Time/Date:	0746 hrs.

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	12.0	
Noticeable colour variation	✓	Clear, green
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site:	KB-BAY-3
Time/Date:	0800.

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	12.0	clear/green
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site:	KB-BAY-2
Time/Date:	0815

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	12.0	Green/clear
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	IH-MID
Time/Date:	0828.

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	>20m	
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	~~✓~~ Y	FINE WOOD DUST & SOME plankton
Noticeable odour	✓	

Site:	KB-BEACH
Time/Date:	0845

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	~~✓~~ Y	OVALS/DECIP LEAF, GREEN, RECENT
Dead marine organisms visible	✓	
Water clarity	1.5	
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site:	KB-BAY-4
Time/Date:	0900

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	>2.0	Green/clear
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-SW-2
Time/Date:	0915

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	>2.0	Green, clear
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-SW-1
Time/Date:	0925

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	<2.0	[redacted] Green clear
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	[redacted]-LI-FAR
Time/Date:	0952

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	~0.5	Brown,
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	LI-MID
Time/Date:	2 1009

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	Y	STRAPPY THIN SEAGRASS SHOOTS, Very Few.
Dead marine organisms visible	~	
Water clarity	~1.0	Green/Brown, (less brown than LI-FAR)
Noticeable colour variation	~	
Oil or other films on surface	~	
Floating debris on surface	~	
Noticeable odour	~	

Site:	LI-WEST
Time/Date:	1026

Duplicate.

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface		
Dead marine organisms visible		
Water clarity		
Noticeable colour variation		
Oil or other films on surface		
Floating debris on surface		
Noticeable odour		

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-BAY-3
Time/Date:	0732 6/3/25

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.0	Green / slight brown
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-1
Time/Date:	0756

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.0	As above
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-2
Time/Date:	0804

* Duplicate

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	>2.0	Good viz, clear.
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

* check nutrients in * & split, Some water exchange with EH.

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	IH-MID
Time/Date:	0821

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	~	
Dead marine organisms visible	~	
Water clarity	~1.2m	DIRTY GREEN / BROWN
Noticeable colour variation	~	
Oil or other films on surface	~	
Floating debris on surface	~	
Noticeable odour	~	

Site:	KB-BEACH
Time/Date:	0834

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	~	
Dead marine organisms visible	~	
Water clarity	0.5m	GREY / BROWN, EAST WINDS – Poor VIZ.
Noticeable colour variation	~	
Oil or other films on surface	~	
Floating debris on surface	~	
Noticeable odour	~	

Site:	KB-BAY-4
Time/Date:	0846.

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	~	
Dead marine organisms visible	~	
Water clarity	0.5m	as above / long kelp
Noticeable colour variation	~	
Oil or other films on surface	~	
Floating debris on surface	~	
Noticeable odour		

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: LI-MID		
Time/Date: 0925		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	~	
Dead marine organisms visible	~	
Water clarity	0.25-0.5m	marginally better than LI-FAR / more greens.
Noticeable colour variation	~	
Oil or other films on surface	~	
Floating debris on surface	~	
Noticeable odour	~	

Site: LI-FAR		
Time/Date: 0911		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	~	
Dead marine organisms visible	~	
Water clarity	~0.25	Brown, discoloured, high TSS
Noticeable colour variation	~	
Oil or other films on surface	~	
Floating debris on surface	~	
Noticeable odour	~	

Site: LI-West		
Time/Date: 0937		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.2m	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-BAY-Sw1
Time/Date:	0956

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	~	
Dead marine organisms visible	~	
Water clarity	<1.0	Brown / green
Noticeable colour variation	~	
Oil or other films on surface	~	
Floating debris on surface	~	
Noticeable odour	~	

Site:	KB-BAY Sw-2
Time/Date:	1006

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	~	
Dead marine organisms visible	~	
Water clarity	1-2m	Green / brown
Noticeable colour variation	~	
Oil or other films on surface	~	
Floating debris on surface	~	
Noticeable odour	~	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

fine plankton/algae in water, all KB.

Site: KB-BAY(3)		
Time/Date: 0740. 18/3		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	2.0m	clear green. no discolouration
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site: KB-BAY(1).		
Time/Date: 0755 18/3.		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	2.0	as above
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site: KB-BAY(2)		
Time/Date: 0815 18/3		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	2.0	as above
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	IH-M10
Time/Date:	0828.

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	~	
Dead marine organisms visible	~	
Water clarity	~	Aluminium Dust in air.
Noticeable colour variation	2.0m	
Oil or other films on surface	~	
Floating debris on surface	~	
Noticeable odour	~	

Site:	KB-BS4 cf
Time/Date:	0844

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	~	
Dead marine organisms visible	~	
Water clarity	~	green, clear, calm
Noticeable colour variation	2.5-3.0	
Oil or other films on surface	~	
Floating debris on surface	~	
Noticeable odour	~	

Site:	KB-BA4-4
Time/Date:	0857.

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	~	
Dead marine organisms visible	~	
Water clarity	7.5	
Noticeable colour variation	~	
Oil or other films on surface	~	
Floating debris on surface	~	
Noticeable odour	~	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-SW(1)
Time/Date:	0912

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	>2m (2.4)	algae covered SG blades floating
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site:	KB-SW(2)
Time/Date:	0922

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	2.0	
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site:	~~KB-SW(1)~~ LE-FAR
Time/Date:	~~0911~~

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	✗	~~Algae covered seagrass blades floating~~
Dead marine organisms visible	✓	
Water clarity	~~1.5~~ 0.5m	Brown, Pilbara style
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	LI-MID
Time/Date:	1005

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	1.5	
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site:	LI-WEST
Time/Date:	1020

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	2.0m	
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-BAY-3
Time/Date:	0735 1/4/25

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	3.5m	Deep dark clear green
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Slight haze @ clouds.

Site:	KB-BAY-1
Time/Date:	0750

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	3.5m	" "
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-2
Time/Date:	0805

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	4.0	clear, green, good viz.
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	IH-MID
Time/Date:	0820.

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.5-3	marginally browner than KB sites
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	Y	WOOD CHIP LOADING

Site:	KB-BEACH
Time/Date:	0835

Dup

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.5	Similar to IH, not as clear as KB 1, 2, 3
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-4
Time/Date:	0853.

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	N 4.5	Deep, Pale, green.
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-SW2
Time/Date:	0906

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	Brown / green
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-SW1
Time/Date:	0918

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	Brown / green
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KI-FAR
Time/Date:	0943

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.5	Brown, extreme light tide / storm surge
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	LI-MID
Time/Date:	0958

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	~	
Dead marine organisms visible	~	
Water clarity	2/m	Brown/green.
Noticeable colour variation	~	
Oil or other films on surface	~	
Floating debris on surface	~	
Noticeable odour	~	

Site:	LI-WEST
Time/Date:	10:11

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	~	
Dead marine organisms visible	~	
Water clarity	2.0	Brown/green (70%)
Noticeable colour variation	~	
Oil or other films on surface	~	
Floating debris on surface	~	
Noticeable odour	~	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-BAY-2	
Time/Date:	0742	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity		Brown, green, Not great clarity
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

NE @ 5-10 kts

Site:	IH-MID.	
Time/Date:	0800	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5m	green Brown as above, Not clear.
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BEACH	
Time/Date:	0820	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.7	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Full Sun

Site:	KB-BAY-4
Time/Date:	0835

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.0m.	Green/Brown, not clear
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB - SW 1
Time/Date:	0846.

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.7m	green/Brown/Not Clear
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-SW 2
Time/Date:	0853

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.7m	green/Brown, not clear
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	LI-FAR
Time/Date:	0920.

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	~	
Dead marine organisms visible	~	
Water clarity	0.7m	Very brown, chocolate milk.
Noticeable colour variation	~	
Oil or other films on surface	~	
Floating debris on surface	~	
Noticeable odour	~	

Full Sun

Site:	LI-MID
Time/Date:	0923

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	~	
Dead marine organisms visible	~	
Water clarity	1.0m	Brown, chocolate milk.
Noticeable colour variation	~	
Oil or other films on surface	~	
Floating debris on surface	~	
Noticeable odour	~	

Site:	LI-WEST
Time/Date:	0943.

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	~	
Dead marine organisms visible	~	
Water clarity	1.3	more green than brown
Noticeable colour variation	~	
Oil or other films on surface	~	
Floating debris on surface	~	
Noticeable odour	~	

Heavy Shade

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-BAY-1
Time/Date:	1005

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.7m	green & clear.
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-3
Time/Date:	1017

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	3.2m	green & clear.
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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30/04/2025 **AESTHETIC OBSERVATIONS – KBMS MCMMP**

Site: KB-BAY 3		
Time/Date: 0730		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: KB-BAY 1		
Time/Date: 0745		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: KB-BAY 2		
Time/Date: 0802		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	IH - MID
Time/Date:	0815

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.5	
Noticeable colour variation	Y	BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB - BEACH
Time/Date:	0834

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB - BAY 4
Time/Date:	0846

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-SW2
Time/Date:	0859

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB SW1
Time/Date:	0915

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	LI-FAR
Time/Date:	0937

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	L1-MID
Time/Date:	0950

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0-5	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	L1-WEST
Time/Date:	1007

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

13/5/25

Site:	KB - BAY 3	
Time/Date:	0742	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	2.5m	Green / Brown
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site:	KB - BAY 1	
Time/Date:	0755	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity	2.5m	Green / Brown
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

Site:	KB - BAY 2	
Time/Date:	0810	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	✓	
Water clarity		Green / Brown
Noticeable colour variation	✓	
Oil or other films on surface	✓	
Floating debris on surface	✓	
Noticeable odour	✓	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	TH-MD
Time/Date:	0824

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.0m	Green/Brown
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BEACH
Time/Date:	0842

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.6m	Green/clear
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	HM-Bay A
Time/Date:	0901

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.7	green/brown
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	SW-2
Time/Date:	0913

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.0	Brown / green
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	SW-1
Time/Date:	0927

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	Y	~P Stringy SG Floating, Brown, Poor Condition.
Dead marine organisms visible	N	
Water clarity	1.7m	green/brown
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	LI-FAL
Time/Date:	0950

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.8m	BROWN
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	LI-MID
Time/Date:	1006

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.7m	Brown. as LI-FAR
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	LI-WST
Time/Date:	1021

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.4	green/brown
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

10% cloud, fine.

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	LI - FAR	
Time/Date:	0756 28/5	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.9m	
Noticeable colour variation	N	Brown/green
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	LI - MID	
Time/Date:	0810 28/5.	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.9	
Noticeable colour variation	N	Brown/green, clearer than (FAR)
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	LI - WEST	
Time/Date:	0824 28/5	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.0m	green/clearer than others in LI
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	SW - 1	
Time/Date:	0842	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	✓	
Dead marine organisms visible	N	
Water clarity	1.1m	Green, Brown tinge
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	SW-2	
Time/Date:	0859	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.1m	Green, Brown tinge.
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-4	
Time/Date:	0914	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.2m	green
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-BEACH
Time/Date:	0929hrs

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5m	
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	IN-MID.
Time/Date:	0947

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.0	green/clear
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-2
Time/Date:	1005

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2-1m	green/clear
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	KB-BAY-1	
Time/Date:	1021	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.4	green & clear.
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-3	
Time/Date:	1034	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.2m	green & clear.
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: KB BAY 3		
Time/Date: 12/6/25 8:08		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	Y	SEAGRASS FLOATING - SMALL AMOUNT
Dead marine organisms visible	N	
Water clarity	1.8m	
Noticeable colour variation		BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

12 KNTS, N
FEW WHITE CAPS
1.0m SWELL
100% CLOUD COVER

Site: 12/6/25 8:30		
Time/Date: MB BAY 1		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5m	
Noticeable colour variation	Y	BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: KB BAY 2		
Time/Date: 12/6		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface		
Dead marine organisms visible	N	
Water clarity	1.5m	
Noticeable colour variation	Y	BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: LH MID		
Time/Date: 12/6 9.10		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.6m	
Noticeable colour variation		BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

LH MTS N
1m SWELL

Site: RB BEACH		
Time/Date: 12/6 9:29		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.6m	
Noticeable colour variation	Y	BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: KB B44 4		
Time/Date: 12/6 9:46		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	Y	SMALL AMOUNT OF SEAGRASS
Dead marine organisms visible	N	
Water clarity	1.7m	
Noticeable colour variation		BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

18 KNOTS N
1M SWELL

Site: LI FAR		
Time/Date: 12/6 10:14		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.0m	
Noticeable colour variation		BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: LI MID		
Time/Date: 12/6 10:28		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.5m	
Noticeable colour variation		BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: LI WEST		
Time/Date: 12/6 10:45		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1·2m	
Noticeable colour variation		BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: KB SW1		
Time/Date: 12/6 10:57		DUPLICATE
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1·2m	
Noticeable colour variation		BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

15 KNOTS N
0·6m SWELL

Site: KB SW2		
Time/Date: 12/6 11:17		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1·1m	
Noticeable colour variation		BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Bulk Carrier departing 0825 - 0835 (TUGBOAT)

Site:	IH-M10	
Time/Date:	0828	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.3m	Brown, very poor, no green
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB - BEACH	
Time/Date:	0844	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.6	Green, clear (relative)
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	KB-BAY-4	
Time/Date:	0852	
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.6	Green clear
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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25/6/25

AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: KB-BA4-3		
Time/Date: 0743		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.6m	Green, clear, some murky.
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: KB-BA4-1		
Time/Date: 0756		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.7m	green/brown, average VIS, discoloured.
Noticeable colour variation	N	ole same for outer KB.
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: KB-BA4-2		
Time/Date: 0810		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.2	green/brown, turbid
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	SW-2.
Time/Date:	0906

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.6m	Green, relatively clear.
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	SW-1
Time/Date:	0915

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.0	Brown/grey, poor vis
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site:	SW-FAR
Time/Date:	0939

Environmental Quality Guideline	Yes/No	Comment
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.2m	Brown/green
Noticeable colour variation	N	
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site:	CI-MID		
Time/Date:	0951		
Environmental Quality Guideline		**Yes/No**	**Comment**
Algae/plant material visible on surface		N	
Dead marine organisms visible		N	
Water clarity		~	BROWN
Noticeable colour variation		N	
Oil or other films on surface		N	
Floating debris on surface		N	
Noticeable odour		✓	

Site:	CI - WEST		
Time/Date:	1005		
Environmental Quality Guideline		**Yes/No**	**Comment**
Algae/plant material visible on surface		✓	
Dead marine organisms visible		✓	
Water clarity		1.3	BROWN/GREEN
Noticeable colour variation		✓	
Oil or other films on surface		✓	
Floating debris on surface		✓	
Noticeable odour		✓	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: KB SW2		
Time/Date: 9:05 8/7		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.1	
Noticeable colour variation		BROWN / GREEN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: KB SW1		
Time/Date: 9:20 8/7		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	0.60	
Noticeable colour variation		BROWN / GREEN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: KB BAK 3		
Time/Date: 10:00 8/7		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.3	
Noticeable colour variation		BROWN / GREEN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: L1 FAR		
Time/Date: 10:40 8/7		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.7	
Noticeable colour variation		BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: L1 MID		
Time/Date: 10:55 8/7		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	2.2	
Noticeable colour variation		BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: L1 WEST		
Time/Date: 11:15 8/7		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.8	
Noticeable colour variation		BROWN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: KB BAY 1		
Time/Date: 7:35 8/7/25		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.0	
Noticeable colour variation		BROWN / GREEN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: KB BAY 2		
Time/Date: 8:00 8/7		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.2	
Noticeable colour variation		BROWN / GREEN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: 1H MID		
Time/Date: 8:15 8/7		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.3	
Noticeable colour variation		BROWN / GREEN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

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AESTHETIC OBSERVATIONS – KBMS MCMMP

Site: KBBEACH		
Time/Date: 8:40 8/7		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.0	
Noticeable colour variation		BROWN/GREEN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

Site: KB BAY 4		
Time/Date: 8:55 8/7		
Environmental Quality Guideline	**Yes/No**	**Comment**
Algae/plant material visible on surface	N	
Dead marine organisms visible	N	
Water clarity	1.1	
Noticeable colour variation		BROWN/GREEN
Oil or other films on surface	N	
Floating debris on surface	N	
Noticeable odour	N	

7 APPENDIX B - SUMMARY PHYSICAL WATER QUALITY STATISTICS BY SITE

Site		Temperature (°C)	Conductivity (µS)	Dissolved Oxygen (%)	Turbidity (NTU)	PAR (µMol/m²/s)	pH
KB-Bay 1	N	75	75	75	75	75	75
	Mean	19.4	51619	95.6	3.0	82.0	8.0
	Median	19.4	53674	95.5	2.0	26.9	8.0
	Minimum	15.3	40599	87.1	0.2	0.0	7.7
	Maximum	24.2	56025	103.4	15.1	736.0	8.2
	20th %ile	16.0	47236	92.8	0.8	4.8	7.9
	80th %ile	22.8	55338	98.2	4.5	141.5	8.1
	Std. Dev.	2.9	4414.4	3.6	3.3	131.7	0.1
KB-Bay 2	N	68	68	68	68	68	68
	Mean	19.2	51479	94.9	2.4	160.3	8.0
	Median	19.2	53879	95.8	1.6	118.0	8.0
	Minimum	14.6	40500	84.6	0.1	0.5	7.8
	Maximum	24.0	55965	100.9	15.2	641.0	8.2
	20th %ile	16.0	46024	92.3	0.7	31.2	7.9
	80th %ile	22.7	55365	98.2	3.1	265.0	8.1
	Std. Dev.	3.0	4563.6	3.8	3.0	141.5	0.1
KB-Bay 3	N	74	74	74	74	74	74
	Mean	19.3	51265	95.8	3.9	114.3	8.0
	Median	19.4	53706	96.1	1.9	54.4	8.0
	Minimum	15.0	33777	87.7	0.3	0.0	7.6
	Maximum	23.9	55876	104.5	25.2	829.0	8.2
	20th %ile	15.9	45041	92.9	0.8	15.6	7.8
	80th %ile	22.9	55411	98.5	4.4	181.0	8.1
	Std. Dev.	3.0	4996.5	3.6	5.5	159.2	0.1
KB-Bay 4	N	74	74	74	74	74	74
	Mean	19.3	51492	94.4	3.4	157.9	8.0

Site		Temperature (°C)	Conductivity (µS)	Dissolved Oxygen (%)	Turbidity (NTU)	PAR (µMol/m²/s)	pH
	Median	19.5	53748	94.6	1.6	124.0	8.0
	Minimum	15.2	41860	85.3	0.2	0.0	7.8
	Maximum	23.9	55894	103.3	23.8	521.0	8.2
	20th %ile	15.9	45482	91.0	0.8	31.9	7.9
	80th %ile	22.8	55356	97.5	5.3	265.0	8.2
	Std. Dev.	3.0	4507.2	4.0	4.8	144.3	0.1
KB-Beach	N	70	69	70	70	70	70
	Mean	19.3	51433	94.2	2.8	159.3	8.0
	Median	19.5	53732	95.1	1.9	116.5	8.0
	Minimum	15.0	34290	82.6	0.3	0.9	7.8
	Maximum	23.9	55975	104.2	15.2	716.0	8.2
	20th %ile	15.8	45574	90.2	0.8	44.5	7.9
	80th %ile	22.7	55400	97.2	4.2	267.5	8.2
	Std. Dev.	3.0	4905.1	4.4	3.0	143.1	0.1
KB-SW1	N	33	33	33	33	33	33
	Mean	18.8	51087	94.7	4.8	239.9	8.0
	Median	18.4	53792	94.6	3.1	180.0	8.0
	Minimum	15.2	34751	87.8	0.7	3.4	7.8
	Maximum	23.9	56210	101.7	25.7	935.0	8.2
	20th %ile	15.7	44689	92.5	1.2	43.0	7.9
	80th %ile	22.5	55375	96.5	6.9	363.0	8.2
	Std. Dev.	3.0	5753.2	3.1	5.9	231.2	0.1
KB-SW2	N	51	51	51	51	51	51
	Mean	19.1	51304	94.8	3.8	235.3	8.0
	Median	19.1	53820	94.6	1.8	187.0	8.0
	Minimum	14.1	33265	87.0	0.4	0.0	7.8
	Maximum	24.0	56061	104.0	33.4	931.0	8.5
	20th %ile	15.8	44767	92.7	0.8	67.0	7.9
	80th %ile	22.6	55460	97.7	4.0	382.0	8.2

Site		Temperature (°C)	Conductivity (µS)	Dissolved Oxygen (%)	Turbidity (NTU)	PAR (µMol/m²/s)	pH
	Std. Dev.	3.0	5610.7	3.7	6.5	202.8	0.2
LI-Far	N	27	27	27	27	27	27
	Mean	19.5	49840	95.2	5.4	258.9	8.0
	Median	19.2	52747	94.6	5.8	202.0	8.0
	Minimum	13.9	29830	85.0	1.4	22.5	7.6
	Maximum	26.3	59350	111.0	9.2	800.0	8.2
	20th %ile	16.5	45810	91.2	3.1	110.0	7.9
	80th %ile	22.4	56144	98.9	7.4	400.0	8.1
	Std. Dev.	3.5	8411.2	5.6	2.2	189.9	0.1
LI-Mid	N	43	43	43	43	43	43
	Mean	18.9	49592	95.0	3.7	207.5	8.0
	Median	18.4	53293	94.8	3.1	160.0	8.0
	Minimum	14.8	29897	68.5	0.6	17.0	7.8
	Maximum	24.6	57352	108.4	9.2	701.0	8.2
	20th %ile	15.9	44002	89.8	2.0	72.0	7.9
	80th %ile	22.0	55992	98.7	6.0	343.8	8.1
	Std. Dev.	3.1	7569.9	7.0	2.1	160.4	0.1
LI-West	N	48	48	48	48	48	48
	Mean	19.0	49965	95.2	3.4	213.6	8.0
	Median	18.7	52831	95.1	3.1	163.6	8.0
	Minimum	13.9	31400	83.8	1.0	12.0	7.8
	Maximum	24.9	57216	103.3	7.2	674.0	8.1
	20th %ile	15.9	42920	91.7	2.2	68.0	7.9
	80th %ile	22.2	55790	99.6	4.5	342.0	8.1
	Std. Dev.	3.1	6610.7	4.8	1.6	164.9	0.1
IH-Mid	N	75	75	75	75	75	75
	Mean	19.5	51875	91.2	2.8	97.9	8.0
	Median	19.6	54118	91.7	2.0	23.0	8.0
	Minimum	15.6	42713	78.4	0.5	0.0	7.8

Site		Temperature (°C)	Conductivity (µS)	Dissolved Oxygen (%)	Turbidity (NTU)	PAR (µMol/m^2/s)	pH
	Maximum	24.1	57293	103.7	8.8	642.0	8.2
	20th %ile	16.2	47035	87.7	1.1	2.5	7.9
	80th %ile	22.8	55426	95.4	4.0	158.5	8.1
	Std. Dev.	2.9	4283.3	5.0	2.1	154.5	0.1

8 APPENDIX C - RAW PHYSICAL WATER QUALITY DATA BY SITE

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
1	21/08/2024	August	0900	Proximate	KB SW 1	S	0	15.4	34751	96.4	5.6	163	40	7.91	24.54
1	21/08/2024	August		Proximate	KB SW 1	B	1.5	15.7	39343	92.9	7.3	163	25	7.91	15.34
1	21/08/2024	August	0842	Proximate	KB SW 2	S	0.5	15	33265	97.4	3.75	388	62	7.86	15.98
1	21/08/2024	August		Proximate	KB SW 2	M	1	15.3	35340	94.9	3.56	388	33.8	7.86	8.71
1	21/08/2024	August		Proximate	KB SW 2	B	1.5	15.9	42230	95.4	3.92	388	37	7.86	9.54
1	21/08/2024	August	0811	Proximate	KB BAY 3	S	0.5	15	33777	98.4	3.84	261	67	7.6	25.67
1	21/08/2024	August		Proximate	KB BAY 3	M	2	15.9	42598	98.5	2.49	261	14	7.73	5.36
1	21/08/2024	August		Proximate	KB BAY 3	B	4	15.8	43534	98	2.79	261	2.4	7.78	0.92
1	21/08/2024	August	0943	Further Afield	KB BAY 4	S	0.5	15.2	41860	99.4	3.42	917	167	7.96	18.21
1	21/08/2024	August		Further Afield	KB BAY 4	M	2	15.8	42863	94.7	3.58	917	36	7.97	3.93
1	21/08/2024	August		Further Afield	KB BAY 4	B	3.5	15.9	43446	92.1	5.31	917	5.6	7.97	0.61
1	21/08/2024	August	0924	Further Afield	KB BEACH	S	0.5	15	34290	101.2	4.82	881	157	7.93	17.82
1	21/08/2024	August		Further Afield	KB BEACH	M	1.5	15.1	39600	97.1	4.69	881	52	7.94	5.90
1	21/08/2024	August		Further Afield	KB BEACH	B	3	15.8	43142	93	4.04	881	9	7.94	1.02
1	21/08/2024	August	1020	Further Afield	IH MID	S	0.5	16	42713	94.7	5.28	1090	158	8.01	14.50
1	21/08/2024	August		Further Afield	IH MID	M	5	15.9	43309	90.8	7.23	1090	0.6	8.01	0.06
1	21/08/2024	August		Further Afield	IH MID	B	10	15.9	43482	98.8	7.9	1090	0	8.01	0.00
1	21/08/2024	August	1140	Further Afield	LI MID	S	0.5	15.9	32000	97.1	2.33	1302	490	8.05	37.63
1	21/08/2024	August		Further Afield	LI MID	M	1	15.9	35130	92.7	2.98	1302	234	8.04	17.97
1	21/08/2024	August		Further Afield	LI MID	B	1.5	16.3	37729	87.3	2.53	1302	154	8.01	11.83
1	21/08/2024	August	1117	Further Afield	LI FAR	S	0.5	16.5	32069	98.9	2.03	1344	417	8.07	31.03
1	21/08/2024	August		Further Afield	LI FAR	B	1	16.5	35725	93.4	3.13	1344	322	8.02	23.96
1	21/08/2024	August	1211	Further Afield	LI WEST	S	0.5	15.8	40599	101.5	2.78	1275	407	8.06	31.92
1	21/08/2024	August		Further Afield	LI WEST	M	1	15.8	42484	102.3	3.55	1275	342	8.04	26.82
1	21/08/2024	August		Further Afield	LI WEST	B	2	16.2	42920	102.5	4.17	1275	12	7.94	0.94

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
1	21/08/2024	August	1048	Reference	KB BAY 1	S	0.5	16.9	40599	101.5	2.78	1275	438	8.11	34.35
1	21/08/2024	August		Reference	KB BAY 1	M	3	15.6	43172	102.6	1.9	1275	14.8	8.12	1.16
1	21/08/2024	August	1230	Reference	KB BAY 1	B	6.5	15.8	44050	92.9	4	1275	0	8.09	0.00
1	21/08/2024	August		Reference	KB BAY 2	S	0.5	15.8	40500	95.3	3.32	665	190	8.03	28.57
1	21/08/2024	August		Reference	KB BAY 2	B	1	15.8	43240	96.8	3	665	178	8.04	26.77
2	28/08/2024	August	846	Reference	KB-Bay 1	S	1	15.9	47503	91.4	9	750	50	7.95	6.67
2	28/08/2024	August		Reference	KB-Bay 1	M	4.5	15.9	47509	88	12.1	750	12	7.9	1.60
2	28/08/2024	August		Reference	KB-Bay 1	B	8	15.9	47602	90.3	5	750	1.08	7.92	0.14
2	28/08/2024	August	904	Reference	KB-Bay 2	S	0.5	15.9	46230	86.9	13.8	320	187.2	7.89	58.50
2	28/08/2024	August		Reference	KB-Bay 2	M	1.5	15.9	46709	87	15.2	320	40.9	7.95	12.78
2	28/08/2024	August		Reference	KB-Bay 2	B	2.5	15.9	47140	87.3	14.4	320	5.9	7.95	1.84
2	28/08/2024	August	1022	Proximate	KB-Bay 3	S	0.5	15.9	43000	89.6	12.4	550	40	7.87	7.27
2	28/08/2024	August		Proximate	KB-Bay 3	M	2	15.9	45885	90.3	11.5	550	5.5	7.9	1.00
2	28/08/2024	August		Proximate	KB-Bay 3	B	3.5	15.9	44010	88.1	16	550	2	7.87	0.36
2	28/08/2024	August	942	Further Afield	KB-Bay 4	S	1	15.9	45072	87	7.3	900	41	7.97	4.56
2	28/08/2024	August		Further Afield	KB-Bay 4	M	2	15.9	46402	88.2	8.4	900	53	7.9	5.89
2	28/08/2024	August		Further Afield	KB-Bay 4	B	3	15.9	46400	88.4	8.76	900	9	7.9	1.00
2	28/08/2024	August	928	Further Afield	KB-Beach	S	0.5	15.8	46480	82.6	8.9	240	58	7.96	24.17
2	28/08/2024	August		Further Afield	KB-Beach	M									
2	28/08/2024	August		Further Afield	KB-Beach	B	1.5	15.7	46380	85.6	12.4	240	25	7.92	10.42
2	28/08/2024	August	958	Proximate	KB-SW 1	S									
2	28/08/2024	August		Proximate	KB-SW 1	M	0.75	16.2	43800	87.8	20	430	100	7.98	23.26
2	28/08/2024	August		Proximate	KB-SW 1	B									
2	28/08/2024	August	1010	Proximate	KB-SW 2	S	0.5	16	44000	87	13.5	135	50	7.95	37.04
2	28/08/2024	August		Proximate	KB-SW 2	M									
2	28/08/2024	August		Proximate	KB-SW 2	B	1.5	16.1	44100	88.2	11.9	135	29	7.95	21.48
2	28/08/2024	August	755	Further Afield	LI-Far	S									

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
2	28/08/2024	August		Further Afield	LI-Far	M	0.75	16.6	29830	99.7	5.7	237	110	8.08	46.41
2	28/08/2024	August		Further Afield	LI-Far	B									
2	28/08/2024	August	801	Further Afield	LI- Mid	S	0.5	16.4	29897	97.7	4.7	237	135	8.08	56.96
2	28/08/2024	August		Further Afield	LI- Mid	M									
2	28/08/2024	August		Further Afield	LI- Mid	B	1.5	16.6	41000	68.5	7.9		92	8.08	
2	28/08/2024	August	828	Further Afield	LI- West	S	0.5	16.2	31400	84	6.1	400	112	7.95	28.00
2	28/08/2024	August		Further Afield	LI- West	M									
2	28/08/2024	August		Further Afield	LI- West	B	1.5	16.4	39104	83.8	7.2		68	7.95	
2	28/08/2024	August	919	Further Afield	IH-Mid	S	1	15.9	46682	84	7.4	310	60	7.95	19.35
2	28/08/2024	August		Further Afield	IH-Mid	M	6	15.9	47900	85.7	8.1	310	3.7	7.89	1.19
2	28/08/2024	August		Further Afield	IH-Mid	B	11.5	16	47900	87.9	8.75	310	0.02	7.85	0.01
3	5/09/2024	September	757	Proximate	KB-SW 2	S	0.5	15.3	43044	95	32.9	447	1.6	7.83	0.36
3	5/09/2024	September		Proximate	KB-SW 2	M	1	15.4	43043	93.8	33.4	447	0.02	7.84	0.00
3	5/09/2024	September		Proximate	KB-SW 2	B	1.3								
3	5/09/2024	September	821	Proximate	KB-SW 1	S	0.5	15.3	42760	96.8	19.2	998	58	7.97	5.81
3	5/09/2024	September		Proximate	KB-SW 1	M	1	15.4	42850	94.3	25.7	998	3.42	7.97	0.34
3	5/09/2024	September		Proximate	KB-SW 1	B	1.3								
3	5/09/2024	September	837	Further Afield	KB-Bay 4	S	0.5	15.5	43380	97.5	23.5	1073	16	7.99	1.49
3	5/09/2024	September		Further Afield	KB-Bay 4	M	2	15.6	43391	95.9	23.82	1073	0.25	7.98	0.02
3	5/09/2024	September		Further Afield	KB-Bay 4	B	4	15.6	43392	95.4	22.4	1073	0	7.98	0.00
3	5/09/2024	September	858	Further Afield	KB-Beach	S	0.5	15.5	43293	97	11.99	235	18.2	7.99	7.74
3	5/09/2024	September		Further Afield	KB-Beach	M	1.5	15.6	43319	95.2	12	235	5.8	7.99	2.47
3	5/09/2024	September		Further Afield	KB-Beach	B	3	15.5	43338	94.9	15.2	235	0.87	7.97	0.37
3	5/09/2024	September	931	Further Afield	IH-Mid	S	0.5	15.8	42743	97.7	3.01	876	283	8.01	32.31
3	5/09/2024	September		Further Afield	IH-Mid	M	6	16.1	43834	91.2	3.94	876	2.42	7.97	0.28
3	5/09/2024	September		Further Afield	IH-Mid	B	11	16.1	44023	88.6	3.89	876	0.8	7.96	0.09
3	5/09/2024	September	952	Reference	KB-Bay 2	S	0.5	14.6	41415	99.6	6.63	710	5.11	8.01	0.72

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
3	5/09/2024	September		Reference	KB-Bay 2	M	2	15.2	42029	97.2	6.21	710	0.5	8	0.07
3	5/09/2024	September		Reference	KB-Bay 2	B	4	15.5	42151	96.2	7.87	710	0.5	7.99	0.07
3	5/09/2024	September	1027	Further Afield	LI-Far	S	0.5	15	32985	100.5	7.9	839	95.9	8.18	11.43
3	5/09/2024	September		Further Afield	LI-Far	M	0.7								
3	5/09/2024	September		Further Afield	LI-Far	B	0.9								
3	5/09/2024	September	1100	Further Afield	LI- Mid	S	0.5	14.9	34400	101.3	0.63	722	211	8.15	29.22
3	5/09/2024	September		Further Afield	LI- Mid	M	1	15.9	39400	97.6	0.7	722	113	8.1	15.65
3	5/09/2024	September		Further Afield	LI- Mid	B	1.5								
3	5/09/2024	September	1126	Further Afield	LI- West	S	0.5	15	37081	100.3	0.95	1737	674	8.13	38.80
3	5/09/2024	September		Further Afield	LI- West	M	1	15.1	37282	100.3	0.99	1737	587	8.12	33.79
3	5/09/2024	September		Further Afield	LI- West	B	1.9								
3	5/09/2024	September	1145	Proximate	KB-Bay 3	S	1	15.5	43158	97.2	22	704	15.6	7.98	2.22
3	5/09/2024	September		Proximate	KB-Bay 3	M	2.5	15.4	43071	95.3	22.2	704	0.32	7.97	0.05
3	5/09/2024	September		Proximate	KB-Bay 3	B	4	15.4	43123	94.6	25.2	704	0.02	7.96	0.00
3	5/09/2024	September	1208	Reference	KB-Bay 1	S	1	15.5	43306	99.3	15.08	290	25.6	8.01	8.83
3	5/09/2024	September		Reference	KB-Bay 1	M	4	15.6	43519	97	14.83	290	0	8	0.00
3	5/09/2024	September		Reference	KB-Bay 1	B	8	15.6	43505	96.6	14.86	290	0	7.99	0.00
4	12/09/2024	September	1018	Further Afield	IH-Mid	S	0.5	16.1	45091	91.3	2.2	1475	563.9	7.95	38.23
4	12/09/2024	September		Further Afield	IH-Mid	M	5	15.9	45045	87.2	2.8	1475	22.52	7.98	1.53
4	12/09/2024	September		Further Afield	IH-Mid	B	10	16	45274	90.1	2.8	1475	3.6	8	0.24
4	12/09/2024	September	1040	Reference	KB-Bay 1	S	0.5	15.9	43460	95.6	1.94	1668	485.4	8.01	29.10
4	12/09/2024	September		Reference	KB-Bay 1	M	4	15.7	44507	90.7	2.54	1668	54.38	7.97	3.26
4	12/09/2024	September		Reference	KB-Bay 1	B	8	15.9	45253	87.1	3.01	1668	6.99	7.97	0.42
4	12/09/2024	September	1028	Reference	KB-Bay 2	S	0.5	16	45078	97.1	2.19	1541	496.3	8.01	32.21
4	12/09/2024	September		Reference	KB-Bay 2	M	1	15.8	44991	94	3.38	1541	240	8	15.57
4	12/09/2024	September		Reference	KB-Bay 2	B	1.5	15.8	44972	92.3	4.04	1541	274.3	8	17.80
4	12/09/2024	September	1053	Proximate	KB-Bay 3	S	0.5	15.9	43161	96.8	2.24	1432	531.9	8	37.14

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
4	12/09/2024	September		Proximate	KB-Bay 3	M	1.5	15.7	43449	95.2	1.93	1432	224.3	8	15.66
4	12/09/2024	September		Proximate	KB-Bay 3	B	3	15.7	44560	90.2	2.76	1432	95.75	7.97	6.69
4	12/09/2024	September	950	Further Afield	KB-Bay 4	S	0.5	15.7	43852	93.6	1.94	1268	384.7	7.98	30.34
4	12/09/2024	September		Further Afield	KB-Bay 4	M	1.2	15.7	44432	89.8	2.34	1268	256.7	7.98	20.24
4	12/09/2024	September		Further Afield	KB-Bay 4	B	2.8	15.7	44579	85.3	6.1	1268	86.71	7.95	6.84
4	12/09/2024	September	1003	Further Afield	KB-Beach	S	0.5	15.9	44468	91.8	2.6	1362	438.6	7.97	32.20
4	12/09/2024	September		Further Afield	KB-Beach	M	1	15.9	44644	85.3	4.8	1362	283.6	7.94	20.82
4	12/09/2024	September		Further Afield	KB-Beach	B	2	15.8	44583	84.4	6.1	1362	128.87	7.94	9.46
4	12/09/2024	September	917	Proximate	KB-SW 1	S	0.5	16	434829	88.9	3.47	1299	312.4	7.95	24.05
4	12/09/2024	September		Proximate	KB-SW 1	M									
4	12/09/2024	September		Proximate	KB-SW 1	B	1								
4	12/09/2024	September	936	Proximate	KB-SW 2	S	0.5	15.8	44570	87.84	4.48	1198	362.9	7.95	30.29
4	12/09/2024	September		Proximate	KB-SW 2	M									
4	12/09/2024	September		Proximate	KB-SW 2	B	1	15.7	44556	87.2	3.95	1198	277	7.95	23.12
4	12/09/2024	September	810	Further Afield	LI-Far	S	0.5	17.8	44507	94.8	6.1	732	400	7.89	54.64
4	12/09/2024	September		Further Afield	LI-Far	M									
4	12/09/2024	September		Further Afield	LI-Far	B	0.8								
4	12/09/2024	September	844	Further Afield	LI- Mid	S	0.5	17.5	43104	103.4	1.37	950	343.8	8	36.19
4	12/09/2024	September		Further Afield	LI- Mid	M									
4	12/09/2024	September		Further Afield	LI- Mid	B	1.2	17.7	44002	95.5	3.1	950	161.2	7.98	16.97
4	12/09/2024	September	858	Further Afield	LI- West	S	0.5	17.1	42186	102.3	1.3	1113	160.1	8	14.38
4	12/09/2024	September		Further Afield	LI- West	M	1	16.9	39009	98.1	1.8	1113	184.9	8	16.61
4	12/09/2024	September		Further Afield	LI- West	B	1.7	17.2	41118	103.3	4.2	1113	167.9	8	15.09
5	19/09/2024	September	900	Further Afield	IH-Mid	S	0.5	16.4	45184	93	3.9	1080	391	7.98	36.20
5	19/09/2024	September		Further Afield	IH-Mid	M	6	16.4	45200	86.2	7.4	1080	3.5	7.98	0.32
5	19/09/2024	September		Further Afield	IH-Mid	B	11	16.4	45208	85.5	8.2	1080	0.04	7.98	0.00
5	19/09/2024	September	722	Reference	KB-Bay 1	S	0.5	15.9	43727	94.8	1.78	402	108	7.91	26.87

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5	19/09/2024	September		Reference	KB-Bay 1	M	5	16.3	45166	92.5	2.8	402	9.6	7.9	2.39
5	19/09/2024	September		Reference	KB-Bay 1	B	8	16.3	45150	90.8	5.3	402	2.23	7.9	0.55
5	19/09/2024	September	918	Reference	KB-Bay 2	S	0.5	16.1	44955	93.8	2.05	1242	641	8	51.61
5	19/09/2024	September		Reference	KB-Bay 2	M	1	16.2	45003	90.7	2	1242	404	8	32.53
5	19/09/2024	September		Reference	KB-Bay 2	B	2	16.2	44974	89.2	2.17	1242	233	8	18.76
5	19/09/2024	September	741	Proximate	KB-Bay 3	S	0.5	15.9	44180	94	3.8	562	167	7.92	29.72
5	19/09/2024	September		Proximate	KB-Bay 3	M	2	16	44520	90.7	2.66	562	90.3	7.91	16.07
5	19/09/2024	September		Proximate	KB-Bay 3	B	4	16.1	44947	87.7	3.8	562	2.75	7.91	0.49
5	19/09/2024	September	824	Further Afield	KB-Bay 4	S	0.5	16.2	45013	94.2	2.4	902	503	7.98	55.76
5	19/09/2024	September		Further Afield	KB-Bay 4	M	2	16.2	45020	91.1	4.4	902	112	7.97	12.42
5	19/09/2024	September		Further Afield	KB-Bay 4	B	4	16.2	45036	88.3	6.7	902	17	7.97	1.88
5	19/09/2024	September	841	Further Afield	KB-Beach	S	0.5	16.1	44920	94	2.1	864	298	7.98	34.49
5	19/09/2024	September		Further Afield	KB-Beach	M	1	16.2	44991	90.4	2.2	864	137	7.98	15.86
5	19/09/2024	September		Further Afield	KB-Beach	B	2	16.2	44995	89.4	2.3	864	147	7.98	17.01
5	19/09/2024	September	815	Proximate	KB-SW 1	S	0.5	16	44689	90.4	3.5	794	156	7.95	19.65
5	19/09/2024	September		Proximate	KB-SW 1	M						794			
5	19/09/2024	September		Proximate	KB-SW 1	B						794			
5	19/09/2024	September	758	Proximate	KB-SW 2	S	0.5	15.9	44767	93.1	3.7	674	216	7.95	32.05
5	19/09/2024	September		Proximate	KB-SW 2	M	1	15.8	44684	91	4.3	674	124	7.95	18.40
5	19/09/2024	September		Proximate	KB-SW 2	B						674			
5	19/09/2024	September	1027	Further Afield	LI-Far	S	0.5	18.2	45810	85	5.5	687	121	7.94	17.61
5	19/09/2024	September		Further Afield	LI-Far	M						687			
5	19/09/2024	September		Further Afield	LI-Far	B						687			
5	19/09/2024	September	1007	Further Afield	LI- Mid	S	0.5	17	44110	95.2	2.12	1830	701	8	38.31
5	19/09/2024	September		Further Afield	LI- Mid	M	1	16.9	44078	91.6	1.9	1830	631	7.99	34.48
5	19/09/2024	September		Further Afield	LI- Mid	B	1.5	17	44356	89.2	1.93	1830	492	7.99	26.89
5	19/09/2024	September	942	Further Afield	LI- West	S	0.5	16.7	43965	93.3	2.24	444	97.5	7.99	21.96

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5	19/09/2024	September		Further Afield	LI- West	M	1	16.7	44007	91	2.75	444	89	7.99	20.05
5	19/09/2024	September		Further Afield	LI- West	B						444			
6	7/10/2024	October	928	Further Afield	IH-Mid	S	1	17.8	47101	95.2	3.6	1352	463	7.92	34.25
6	7/10/2024	October		Further Afield	IH-Mid	M	5	17.5	46969	94.1	3.4	1352	25.2	7.97	1.86
6	7/10/2024	October		Further Afield	IH-Mid	B	9	17.4	46850	93.4	3.5	1352	4	7.97	0.30
6	7/10/2024	October	752	Reference	KB-Bay 1	S	1	17.5	45038	98	2.96	660	198	7.93	30.00
6	7/10/2024	October		Reference	KB-Bay 1	M	4	17.3	46578	96.4	5.2	660	4.7	7.92	0.71
6	7/10/2024	October		Reference	KB-Bay 1	B	8	17.3	46968	90.4	7.2	660	0.2	7.93	0.03
6	7/10/2024	October	946	Reference	KB-Bay 2	S	1	17.7	46024	99.8	1.86	1417	404	8.05	28.51
6	7/10/2024	October		Reference	KB-Bay 2	M	1.5	17.5	46004	99.9	2	1417	300	8.05	21.17
6	7/10/2024	October		Reference	KB-Bay 2	B	2	17.4	45900	100.5	1.77	1417	205	8.05	14.47
6	7/10/2024	October	809	Proximate	KB-Bay 3	S	1	17.5	45041	99	3.4	792	182	7.98	22.98
6	7/10/2024	October		Proximate	KB-Bay 3	M	2	17.2	45867	97.7	3.32	792	96.7	7.98	12.21
6	7/10/2024	October		Proximate	KB-Bay 3	B	3	17.2	45872	97.2	3.26	792	44.1	7.98	5.57
6	7/10/2024	October	909	Further Afield	KB-Bay 4	S	1	17.6	45448	98.4	2.3	1126	369	8.08	32.77
6	7/10/2024	October		Further Afield	KB-Bay 4	M	2	17.4	45482	98.6	2.31	1126	190	8.08	16.87
6	7/10/2024	October		Further Afield	KB-Bay 4	B	3	17.3	45521	98.9	2.26	1126	123	8.08	10.92
6	7/10/2024	October	854	Further Afield	KB-Beach	S	1	17.5	45569	100	2.03	1121	353	8.03	31.49
6	7/10/2024	October		Further Afield	KB-Beach	M	2	17.5	45574	99.2	2.26	1121	184	8.03	16.41
6	7/10/2024	October		Further Afield	KB-Beach	B						1121			
6	7/10/2024	October	838	Proximate	KB-SW 1	S	1	17.5	46296	96.5	4	1091	219	7.97	20.07
6	7/10/2024	October		Proximate	KB-SW 1	M						1091			
6	7/10/2024	October		Proximate	KB-SW 1	B	1.2					1091			
6	7/10/2024	October	824	Proximate	KB-SW 2	S	1	17.5	45760	96.7	3.24	927	282	7.96	30.42
6	7/10/2024	October		Proximate	KB-SW 2	M						927			
6	7/10/2024	October		Proximate	KB-SW 2	B	1.3					927			
6	7/10/2024	October	1028	Further Afield	LI-Far	S	0.5	20.1	46772	111	2.85	1579	800	8.01	50.66

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6	7/10/2024	October		Further Afield	LI-Far	M						1579			
6	7/10/2024	October		Further Afield	LI-Far	B	0.7					1579			
6	7/10/2024	October	1043	Further Afield	LI- Mid	S	1	19.1	47241	108.4	2.24	1543	351	8.04	22.75
6	7/10/2024	October		Further Afield	LI- Mid	M						1543			
6	7/10/2024	October		Further Afield	LI- Mid	B	1.2					1543			
6	7/10/2024	October	1107	Further Afield	LI- West	S	1	18.5	46230	98.8	2.64	1546	418	8	27.04
6	7/10/2024	October		Further Afield	LI- West	M	1.5	18.4	47289	100.2	4.16	1546	41.7	7.98	2.70
6	7/10/2024	October		Further Afield	LI- West	B						1546			
7	22/10/2024	October	1009	Further Afield	IH-Mid	S	0.5	19.2	48718	96.2	2.2	1557	642	7.96	41.23
7	22/10/2024	October		Further Afield	IH-Mid	M	5	19	48512	92.1	2.37	1557	55	7.95	3.53
7	22/10/2024	October		Further Afield	IH-Mid	B	10	18.7	48307	88.9	3.85	1557	2.8	7.93	0.18
7	22/10/2024	October	1043	Reference	KB-Bay 1	S	0.5	18.6	48241	97.5	4.66	1455	144	7.97	9.90
7	22/10/2024	October		Reference	KB-Bay 1	M	4.5	18.6	48124	96	4.99	1455	4.8	7.97	0.33
7	22/10/2024	October		Reference	KB-Bay 1	B	9	18.4	48025	94.9	4.58	1455	1.78	7.97	0.12
7	22/10/2024	October	1022	Reference	KB-Bay 2	S	0.5	19	48491	98.7	3.03	1323	165	7.97	12.47
7	22/10/2024	October		Reference	KB-Bay 2	M	1	19	48475	98.3	3.03	1323	117	7.97	8.84
7	22/10/2024	October		Reference	KB-Bay 2	B	2	19	48524	98.4	3.58	1323	63	7.97	4.76
7	22/10/2024	October	1059	Proximate	KB-Bay 3	S	0.5	18.6	48194	96.3	4.43	1839	199	7.96	10.82
7	22/10/2024	October		Proximate	KB-Bay 3	M	2	18.6	48116	94.4	4.51	1839	23.1	7.96	1.26
7	22/10/2024	October		Proximate	KB-Bay 3	B	4	18.5	48084	93.7	4.92	1839	24.5	7.95	1.33
7	22/10/2024	October	927	Further Afield	KB-Bay 4	S	0.5	18.5	48009	93.4	10.2	1481	149	7.93	10.06
7	22/10/2024	October		Further Afield	KB-Bay 4	M	1.5	18.5	47989	92.3	10.86	1481	24	7.93	1.62
7	22/10/2024	October		Further Afield	KB-Bay 4	B	3	18.5	47895	91.5	8.99	1481	3.4	7.93	0.23
7	22/10/2024	October	948	Further Afield	KB-Beach	S	0.5	18.6	48086	96.7	4.84	1383	427	7.95	30.87
7	22/10/2024	October		Further Afield	KB-Beach	M	1	18.6	48105	95.9	4.83	1383	362	7.95	26.17
7	22/10/2024	October		Further Afield	KB-Beach	B	2	18.6	48050	95.5	5.22	1383	113	7.95	8.17
7	22/10/2024	October	902	Proximate	KB-SW 1	S	0.5	18.4	47827	92.8	4.94	1282	360	7.91	28.08

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
7	22/10/2024	October		Proximate	KB-SW 1	M									
7	22/10/2024	October		Proximate	KB-SW 1	B	0.9								
7	22/10/2024	October	913	Proximate	KB-SW 2	S	0.5	18.6	47707	97.6	4.99	1400	350	7.92	25.00
7	22/10/2024	October		Proximate	KB-SW 2	M									
7	22/10/2024	October		Proximate	KB-SW 2	B	0.9								
7	22/10/2024	October	804	Further Afield	LI-Far	S	0.5	19.2	46710	90.6	7.5	1040	118	7.6	11.35
7	22/10/2024	October		Further Afield	LI-Far	M									
7	22/10/2024	October		Further Afield	LI-Far	B	0.6								
7	22/10/2024	October	827	Further Afield	LI- Mid	S	0.2	19.2	47160	89.1	7.5	1028	275	7.8	26.75
7	22/10/2024	October		Further Afield	LI- Mid	M									
7	22/10/2024	October		Further Afield	LI- Mid	B	0.5								
7	22/10/2024	October	842	Further Afield	LI- West	S	0.5	18.7	47086	93.9	3.1	1233	398	7.9	32.28
7	22/10/2024	October		Further Afield	LI- West	M	1	18.7	47005	93.2	2.99	1233	194	7.88	15.73
7	22/10/2024	October		Further Afield	LI- West	B	1.5								
8	7/11/2024	November	1020	Further Afield	IH-Mid	S	1	19.7	50124	95.5	1.4	699	118	8.1	16.88
8	7/11/2024	November		Further Afield	IH-Mid	M	6	19.7	50166	92	2.1	699	8.7	8.1	1.24
8	7/11/2024	November		Further Afield	IH-Mid	B	12	19.7	50189	90.1	3	699	1.12	8.1	0.16
8	7/11/2024	November	945	Reference	KB-Bay 1	S	1	19.7	50290	99.3	2	665	160	8.2	24.06
8	7/11/2024	November		Reference	KB-Bay 1	M	4	19.7	50309	97	2.2	665	61	8.2	9.17
8	7/11/2024	November		Reference	KB-Bay 1	B	9	19.6	50184	95.7	3	665	11	8.2	1.65
8	7/11/2024	November	1005	Reference	KB-Bay 2	S	0.7	19.4	49804	96.5	1.6	600	202	8.1	33.67
8	7/11/2024	November		Reference	KB-Bay 2	M	1.2	19.4	49837	95.7	1.1	600	119	8.1	19.83
8	7/11/2024	November		Reference	KB-Bay 2	B	3	19.4	49833	95	1.2	600	40	8.1	6.67
8	7/11/2024	November	932	Proximate	KB-Bay 3	S	1	19.6	50219	95.1	2.4	920	138	8.2	15.00
8	7/11/2024	November		Proximate	KB-Bay 3	M	2	19.6	50128	95.4	2.5	920	56	8.2	6.09
8	7/11/2024	November		Proximate	KB-Bay 3	B	4	19.5	50048	95.3	2.2	920	28	8.2	3.04
8	7/11/2024	November	909	Further Afield	KB-Bay 4	S	1	19.5	49940	94.3	1.8	699	125	8.14	17.88

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
8	7/11/2024	November		Further Afield	KB-Bay 4	M	2	19.5	49974	93.9	1.9	699	47	8.14	6.72
8	7/11/2024	November		Further Afield	KB-Bay 4	B	4.2	19.4	49903	93.9	2.5	699	31	8.15	4.43
8	7/11/2024	November	920	Further Afield	KB-Beach	S	0.7	19.6	50060	95.6	1.5	950	270	8.14	28.42
8	7/11/2024	November		Further Afield	KB-Beach	M	2	19.6	50046	95.3	1.9	950	120	8.14	12.63
8	7/11/2024	November		Further Afield	KB-Beach	B	3.3	19.4	49878	94.4	1.4	950	68	8.14	7.16
8	7/11/2024	November	845	Proximate	KB-SW 1	S	0.5	19	49275	92.3	3.1	660	157	8.07	23.79
8	7/11/2024	November		Proximate	KB-SW 1	M									
8	7/11/2024	November		Proximate	KB-SW 1	B	1								
8	7/11/2024	November	856	Proximate	KB-SW 2	S	0.7	19.1	49963	93.6	2.6	720	130	8.4	18.06
8	7/11/2024	November		Proximate	KB-SW 2	M	1.2	19.2	49734	93.7	3.2	720	70	8.5	9.72
8	7/11/2024	November		Proximate	KB-SW 2	B	1.7								
8	7/11/2024	November	800	Further Afield	LI-Far	S	0.5	20.1	49912	90.3	6.6	300	50	7.79	16.67
8	7/11/2024	November		Further Afield	LI-Far	M									
8	7/11/2024	November		Further Afield	LI-Far	B	0.7								
8	7/11/2024	November	815	Further Afield	LI- Mid	S	0.7	19.7	49813	89.5	4.5	330	54	7.95	16.36
8	7/11/2024	November		Further Afield	LI- Mid	M	1.2	19.9	50172	86.4	6	330	29	7.9	8.79
8	7/11/2024	November		Further Afield	LI- Mid	B	1.5								
8	7/11/2024	November	832	Further Afield	LI- West	S	0.7	19.5	49666	93.1	3.2	470	127	8	27.02
8	7/11/2024	November		Further Afield	LI- West	M									
8	7/11/2024	November		Further Afield	LI- West	B	1.2								
9	18/11/2024	November		Further Afield	IH-Mid	S	1	19.6	50170	99.2	1.06	1253	408	8.15	32.56
9	18/11/2024	November		Further Afield	IH-Mid	M	3	19.6	50150	98.1	1.06	1253	149	8.15	11.89
9	18/11/2024	November		Further Afield	IH-Mid	B	6	19.6	50111	97.5	1.2	1253	67	8.15	5.35
9	18/11/2024	November		Reference	KB-Bay 1	S	1	19.4	49999	99.4	3	1010	314	8.1	31.09
9	18/11/2024	November		Reference	KB-Bay 1	M	4	19.4	49996	98	3.1	1010	63	8.1	6.24
9	18/11/2024	November		Reference	KB-Bay 1	B	8	19.4	49966	97	4.4	1010	5.8	8.1	0.57
9	18/11/2024	November		Reference	KB-Bay 2	S	1	19.1	49680	96.7	1.35	1182	448	8.14	37.90

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
9	18/11/2024	November		Reference	KB-Bay 2	M									
9	18/11/2024	November		Reference	KB-Bay 2	B	1.2								
9	18/11/2024	November		Proximate	KB-Bay 3	S	1	19.4	49980	99.6	1.85	1126	218	7.96	19.36
9	18/11/2024	November		Proximate	KB-Bay 3	M	2	19.4	49964	99.2	1.94	1126	114	8	10.12
9	18/11/2024	November		Proximate	KB-Bay 3	B	4	19.4	49920	98.9	2.85	1126	76	8.01	6.75
9	18/11/2024	November		Further Afield	KB-Bay 4	S	1	19.5	50043	100.3	1.54	1335	521	8.18	39.03
9	18/11/2024	November		Further Afield	KB-Bay 4	M	2	19.5	50082	99.2	1.25	1335	335	8.18	25.09
9	18/11/2024	November		Further Afield	KB-Bay 4	B	4	19.5	50085	99.7	1.2	1335	199	8.18	14.91
9	18/11/2024	November		Further Afield	KB-Beach	S	1	19.5	49920	99.2	1.96	1265	347	8.16	27.43
9	18/11/2024	November		Further Afield	KB-Beach	M									
9	18/11/2024	November		Further Afield	KB-Beach	B	2	19.5	50019	96.3	1.76	1265	200.7	8.15	15.87
9	18/11/2024	November		Proximate	KB-SW 1	S	0.9	19.2	47814	100.4	1.92	1561	679	8.19	43.50
9	18/11/2024	November		Proximate	KB-SW 1	M									
9	18/11/2024	November		Proximate	KB-SW 1	B	1.1								
9	18/11/2024	November		Proximate	KB-SW 2	S	1	19.4	50011	99.5	1.81	1541	532	8.19	34.52
9	18/11/2024	November		Proximate	KB-SW 2	M									
9	18/11/2024	November		Proximate	KB-SW 2	B	3	19.4	49981	99	2.06	1541	206	8.18	13.37
9	18/11/2024	November		Further Afield	LI-Far	S	0.7	20.5	51160	101.7	7.11	1717	546	8.12	31.80
9	18/11/2024	November		Further Afield	LI-Far	M									
9	18/11/2024	November		Further Afield	LI-Far	B	0.9								
9	18/11/2024	November		Further Afield	LI- Mid	S	0.5	20	50601	98.9	7.3	1498	427	8.13	28.50
9	18/11/2024	November		Further Afield	LI- Mid	M									
9	18/11/2024	November		Further Afield	LI- Mid	B	0.7								
9	18/11/2024	November		Further Afield	LI- West	S	1	20.1	50298	99.6	6.5	1515	275	8.12	18.15
9	18/11/2024	November		Further Afield	LI- West	M									
9	18/11/2024	November		Further Afield	LI- West	B	1.2								
10	4/12/2024	December	842	Further Afield	IH-Mid	S	1	20.8	51365	99.1	0.95	586	159	8.16	27.13

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
10	4/12/2024	December		Further Afield	IH-Mid	M	5	20.7	57293	96	0.92	586	33	8.15	5.63
10	4/12/2024	December		Further Afield	IH-Mid	B	9	20.7	51288	92.8	1.06	586	11.8	8.15	2.01
10	4/12/2024	December	743	Reference	KB-Bay 1	S	1	20.5	51196	95.4	2.9	1210	177	8.16	14.63
10	4/12/2024	December		Reference	KB-Bay 1	M	4	20.5	51180	94.9	3.09	1210	14	8.16	1.16
10	4/12/2024	December		Reference	KB-Bay 1	B	7	20.5	51184	94.8	3.2	1210	6	8.15	0.50
10	4/12/2024	December	824	Reference	KB-Bay 2	S	1	20.6	51252	99.3	1.77	631	257	8.15	40.73
10	4/12/2024	December		Reference	KB-Bay 2	M	2	20.6	51229	96.4	2.04	631	142	8.15	22.50
10	4/12/2024	December		Reference	KB-Bay 2	B	3	20.6	51229	95.9	2.6	631	79	8.14	12.52
10	4/12/2024	December	808	Proximate	KB-Bay 3	S	1	20.5	51201	98	4.02	693	183	8.16	26.41
10	4/12/2024	December		Proximate	KB-Bay 3	M									
10	4/12/2024	December		Proximate	KB-Bay 3	B	3.5	20.5	51223	95.7	4.5	693	40.9	8.16	5.90
10	4/12/2024	December	918	Further Afield	KB-Bay 4	S	1	20.6	51214	95.7	3.5	609	220	8.16	36.12
10	4/12/2024	December		Further Afield	KB-Bay 4	M									
10	4/12/2024	December		Further Afield	KB-Bay 4	B	3.5	20.5	51133	93.7	4.5	609	48	8.16	7.88
10	4/12/2024	December	903	Further Afield	KB-Beach	S	1	20.4	51060	96.2	3.2	704	109	8.16	15.48
10	4/12/2024	December		Further Afield	KB-Beach	M									
10	4/12/2024	December		Further Afield	KB-Beach	B	3	20.4	51055	95.1	3.95	704	46	8.12	6.53
10	4/12/2024	December	952	Proximate	KB-SW 1	S	1	20.7	51342	96.4	3.2	1080	330	8.12	30.56
10	4/12/2024	December		Proximate	KB-SW 1	M									
10	4/12/2024	December		Proximate	KB-SW 1	B	1.1								
10	4/12/2024	December	936	Proximate	KB-SW 2	S	1	20.6	51253	97.5	3.14	784	206	8.14	26.28
10	4/12/2024	December		Proximate	KB-SW 2	M									
10	4/12/2024	December		Proximate	KB-SW 2	B	1.5								
10	4/12/2024	December	1021	Further Afield	LI-Far	S	0.5	21.8	52222	98.6	6.8	1587	538	8	33.90
10	4/12/2024	December		Further Afield	LI-Far	M									
10	4/12/2024	December		Further Afield	LI-Far	B	0.7								
10	4/12/2024	December	1038	Further Afield	LI- Mid	S	1	21.7	52237	98	6.93	1770	338	8	19.10

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
10	4/12/2024	December		Further Afield	LI- Mid	M									
10	4/12/2024	December		Further Afield	LI- Mid	B	1.2								
10	4/12/2024	December	1104	Further Afield	LI- West	S	1	21.7	52223	98.8	7.01	1868	512	8.05	27.41
10	4/12/2024	December		Further Afield	LI- West	M									
10	4/12/2024	December		Further Afield	LI- West	B	1.9	21.6	51950	96.7	7.06	1868	197	8.06	10.55
11	17/12/2024	December	824	Further Afield	IH-Mid	S	1	22	52904	98.1	0.87	1062	515	8.17	48.49
11	17/12/2024	December		Further Afield	IH-Mid	M	5	22	52933	94.7	1	1062	96	8.18	9.04
11	17/12/2024	December		Further Afield	IH-Mid	B	10	22	52934	94.2	1.29	1062	15.8	8.17	1.49
11	17/12/2024	December	753	Reference	KB-Bay 1	S	1	21.8	52857	97	4.5	949	259	8.18	27.29
11	17/12/2024	December		Reference	KB-Bay 1	M	4	21.8	52835	96.1	4.4	949	26.9	8.18	2.83
11	17/12/2024	December		Reference	KB-Bay 1	B	8	21.6	52668	94.4	3.8	949	1.9	8.14	0.20
11	17/12/2024	December	809	Reference	KB-Bay 2	S	1	21.7	52533	98.7	1.8	1091	388	8.18	35.56
11	17/12/2024	December		Reference	KB-Bay 2	M									
11	17/12/2024	December		Reference	KB-Bay 2	B	2	21.6	52512	96.2	1.22	1091	234	8.17	21.45
11	17/12/2024	December	736	Proximate	KB-Bay 3	S	1	21.4	52404	92.9	20	855	20.4	8.02	2.39
11	17/12/2024	December		Proximate	KB-Bay 3	M	2	21.4	52418	91.4	14.6	855	16	8.03	1.87
11	17/12/2024	December		Proximate	KB-Bay 3	B	4	21.4	52414	91.7	12.8	855	0.45	8.04	0.05
11	17/12/2024	December	846	Further Afield	KB-Bay 4	S	1	21.8	52740	97.3	1.16	1450	521	8.18	35.93
11	17/12/2024	December		Further Afield	KB-Bay 4	M	2	21.8	52753	96.7	1.19	1450	314	8.18	21.66
11	17/12/2024	December		Further Afield	KB-Bay 4	B	4.4	21.8	52707	96.3	1.6	1450	134	8.18	9.24
11	17/12/2024	December	836	Further Afield	KB-Beach	S	1	21.8	52793	99.4	2.31	1440	424	8.18	29.44
11	17/12/2024	December		Further Afield	KB-Beach	M	2	21.8	52822	96.6	1.9	1440	227	8.18	15.76
11	17/12/2024	December		Further Afield	KB-Beach	B	3.2	21.8	52809	96.6	2.01	1440	163	8.18	11.32
11	17/12/2024	December	909	Proximate	KB-SW 1	S	1	21.5	52275	99.6	3.5	1499	303	8.16	20.21
11	17/12/2024	December		Proximate	KB-SW 1	M									
11	17/12/2024	December		Proximate	KB-SW 1	B	1.2								
11	17/12/2024	December	857	Proximate	KB-SW 2	S	1	21.5	52428	97.7	2.3	1345	444	8.17	33.01

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
11	17/12/2024	December		Proximate	KB-SW 2	M									
11	17/12/2024	December		Proximate	KB-SW 2	B	2.2	21.5	52400	96.6	2.72	1345	317	8.17	23.57
11	17/12/2024	December	928	Further Afield	LI-Far	S	0.7	23.2	54789	96.9	7.2	1554	392	8.02	25.23
11	17/12/2024	December		Further Afield	LI-Far	M									
11	17/12/2024	December		Further Afield	LI-Far	B	1								
11	17/12/2024	December	940	Further Afield	LI- Mid	S	1	22.6	54220	94.5	9.16	1605	178	8	11.09
11	17/12/2024	December		Further Afield	LI- Mid	M									
11	17/12/2024	December		Further Afield	LI- Mid	B	1.2								
11	17/12/2024	December	956	Further Afield	LI- West	S	1	22.2	53315	95.6	4.77	1644	304	8.07	18.49
11	17/12/2024	December		Further Afield	LI- West	M									
11	17/12/2024	December		Further Afield	LI- West	B	1.7								
12	8/01/2025	January	812	Further Afield	IH-Mid	S	1	22.9	54469	101	0.49	1490	401	8.19	26.91
12	8/01/2025	January		Further Afield	IH-Mid	M	5	22.9	54518	95.8	0.53	1490	80	8.18	5.37
12	8/01/2025	January		Further Afield	IH-Mid	B	9	22.9	54456	88.1	1.4	1490	12.9	8.14	0.87
12	8/01/2025	January	739	Reference	KB-Bay 1	S	1	23	54468	102.2	0.26	357	131	8.11	36.69
12	8/01/2025	January		Reference	KB-Bay 1	M	4	23	54504	101.6	0.21	357	54	8.13	15.13
12	8/01/2025	January		Reference	KB-Bay 1	B	8	23	54740	97.1	0.99	357	16.6	8.11	4.65
12	8/01/2025	January	758	Reference	KB-Bay 2	S	1	22.7	54219	100.6	0.44	1313	337	8.18	25.67
12	8/01/2025	January		Reference	KB-Bay 2	M	2	22.8	54339	97.9	0.45	1313	121	8.18	9.22
12	8/01/2025	January		Reference	KB-Bay 2	B	3	22.8	54305	96.4	0.7	1313	99	8.18	7.54
12	8/01/2025	January	1012	Proximate	KB-Bay 3	S	1	23.2	54860	98.5	0.3	1516	829	8.23	54.68
12	8/01/2025	January		Proximate	KB-Bay 3	M	2	23.1	54663	97.6	0.41	1516	563	8.23	37.14
12	8/01/2025	January		Proximate	KB-Bay 3	B	4	22.9	54463	96.5	0.66	1516	257	8.23	16.95
12	8/01/2025	January	835	Further Afield	KB-Bay 4	S	1	22.8	54272	100.4	0.44	1284	510	8.23	39.72
12	8/01/2025	January		Further Afield	KB-Bay 4	M	2	22.8	54323	98.1	0.37	1284	314	8.22	24.45
12	8/01/2025	January		Further Afield	KB-Bay 4	B	4	22.8	54331	97.3	0.37	1284	150	8.22	11.68
12	8/01/2025	January	826	Further Afield	KB-Beach	S	1	22.8	54306	99.6	0.59	1275	328	8.22	25.73

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
12	8/01/2025	January		Further Afield	KB-Beach	M	2	22.8	54312	98.2	0.61	1275	131	8.22	10.27
12	8/01/2025	January		Further Afield	KB-Beach	B	3	22.8	54308	97.7	0.42	1275	104	8.22	8.16
12	8/01/2025	January	858	Proximate	KB-SW 1	S	1	23	54802	97.9	2.2	887	377	8.16	42.50
12	8/01/2025	January		Proximate	KB-SW 1	M									
12	8/01/2025	January		Proximate	KB-SW 1	B	1.4								
12	8/01/2025	January	846	Proximate	KB-SW 2	S	1	22.7	54271	97.8	0.73	1402	432	8.21	30.81
12	8/01/2025	January		Proximate	KB-SW 2	M									
12	8/01/2025	January		Proximate	KB-SW 2	B	1.7								
12	8/01/2025	January	922	Further Afield	LI-Far	S	0.5	25.2	58475	94.3	9.2	1620	202	8.06	12.47
12	8/01/2025	January		Further Afield	LI-Far	M									
12	8/01/2025	January		Further Afield	LI-Far	B	0.7								
12	8/01/2025	January	938	Further Afield	LI- Mid	S	1	24.5	57352	89.6	7.29	1707	135	8.04	7.91
12	8/01/2025	January		Further Afield	LI- Mid	M									
12	8/01/2025	January		Further Afield	LI- Mid	B	1.2								
12	8/01/2025	January	958	Further Afield	LI- West	S	1	23.8	55933	97.3	4	1825	314	8.14	17.21
12	8/01/2025	January		Further Afield	LI- West	M									
12	8/01/2025	January		Further Afield	LI- West	B	1.5	23.8	56083	95.8	4.99	1825	167	8.14	9.15
13	23/01/2025	January	818	Further Afield	IH-Mid	S	1	23.4	55146	87.8	0.84	1233	416	8.17	33.74
13	23/01/2025	January		Further Afield	IH-Mid	M	4	23.4	55127	86.3	0.92	1233	76	8.17	6.16
13	23/01/2025	January		Further Afield	IH-Mid	B	9	23.4	55113	85	1.02	1233	23	8.16	1.87
13	23/01/2025	January	744	Reference	KB-Bay 1	S	1	23.4	54931	95.8	0.92	338	83	8.19	24.56
13	23/01/2025	January		Reference	KB-Bay 1	M	4	23.4	54975	93.8	1	338	43	8.19	12.72
13	23/01/2025	January		Reference	KB-Bay 1	B	7	23.4	55002	93	0.93	338	19	8.18	5.62
13	23/01/2025	January	805	Reference	KB-Bay 2	S	1	23.4	54996	93	0.45	887	315	8.16	35.51
13	23/01/2025	January		Reference	KB-Bay 2	M	2	23.3	54981	88.1	0.68	887	196	8.15	22.10
13	23/01/2025	January		Reference	KB-Bay 2	B	3	23.3	54943	85.9	0.95	887	162	8.14	18.26
13	23/01/2025	January	729	Proximate	KB-Bay 3	S	1	23.5	55146	97.4	1.17	248	82	7.96	33.06

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
13	23/01/2025	January		Proximate	KB-Bay 3	M	3	23.5	55206	91.8	1.29	248	33.7	7.97	13.59
13	23/01/2025	January		Proximate	KB-Bay 3	B	4	23.5	55291	89.8	1.51	248	23	7.98	9.27
13	23/01/2025	January	847	Further Afield	KB-Bay 4	S	1	23.5	55122	92	0.35	580	262	8.19	45.17
13	23/01/2025	January		Further Afield	KB-Bay 4	M	2	23.5	55147	89.3	0.58	580	171	8.19	29.48
13	23/01/2025	January		Further Afield	KB-Bay 4	B	3	23.5	55150	88.9	0.6	580	119	8.19	20.52
13	23/01/2025	January	834	Further Afield	KB-Beach	S	1	23.4	55081	90.1	0.86	749	242	8.18	32.31
13	23/01/2025	January		Further Afield	KB-Beach	M	2	23.4	55058	88.4	0.8	749	43	8.18	5.74
13	23/01/2025	January		Further Afield	KB-Beach	B	3	23.4	85051	87.9	0.6	749	27	8.18	3.60
13	23/01/2025	January	859	Proximate	KB-SW 1	S	1	23.5	55238	94.8	1.18	1495	406	8.18	27.16
13	23/01/2025	January		Proximate	KB-SW 1	M									
13	23/01/2025	January		Proximate	KB-SW 1	B	2	23.5	55272	92.5	1.4	1495	255	8.18	17.06
13	23/01/2025	January	910	Proximate	KB-SW 2	S	1	23.5	55147	92.6	0.82	1614	702	8.2	43.49
13	23/01/2025	January		Proximate	KB-SW 2	M									
13	23/01/2025	January		Proximate	KB-SW 2	B	2	23.5	55201	91.2	1.72	1614	303	8.19	18.77
13	23/01/2025	January	1038	Further Afield	LI-Far	S	1	26.3	59350	87.4	7.3	887	139	7.97	15.67
13	23/01/2025	January		Further Afield	LI-Far	M									
13	23/01/2025	January		Further Afield	LI-Far	B									
13	23/01/2025	January	1016	Further Afield	LI- Mid	S	1	24.6	56790	94	3.2	891	119	8.1	13.36
13	23/01/2025	January		Further Afield	LI- Mid	M									
13	23/01/2025	January		Further Afield	LI- Mid	B									
13	23/01/2025	January	951	Further Afield	LI- West	S	1	24.9	57216	94.9	4.9	2016	150	8.09	7.44
13	23/01/2025	January		Further Afield	LI- West	M									
13	23/01/2025	January		Further Afield	LI- West	B									
14	5/02/2025	February	923	Further Afield	IH-Mid	S	1	24.1	55898	93.6	1.5	1865	317	8.15	17.00
14	5/02/2025	February		Further Afield	IH-Mid	M	4	24	55813	91.7	1.6	1865	64.2	8.14	3.44
14	5/02/2025	February		Further Afield	IH-Mid	B	9	24	55792	91.9	3.6	1865	8.2	8.14	0.44
14	5/02/2025	February	1008	Reference	KB-Bay 1	S	1	24.2	56025	102.7	0.4	1658	736	8.2	44.39

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
14	5/02/2025	February		Reference	KB-Bay 1	M	4	23.9	55640	98.9	0.87	1658	156	8.18	9.41
14	5/02/2025	February		Reference	KB-Bay 1	B	8	23.6	55271	94.7	1.89	1658	41	8.17	2.47
14	5/02/2025	February	935	Reference	KB-Bay 2	S	1	24	55650	96.1	1.13	1342	380	8.16	28.32
14	5/02/2025	February		Reference	KB-Bay 2	M	2	23.8	55569	94.5	1.3	1342	255	8.16	19.00
14	5/02/2025	February		Reference	KB-Bay 2	B	3	23.7	55482	93.9	1.5	1342	116	8.15	8.64
14	5/02/2025	February	1013	Proximate	KB-Bay 3	S	1	23.9	55660	99.6	1.13	1352	590	8.18	43.64
14	5/02/2025	February		Proximate	KB-Bay 3	M	2	23.8	55572	97.4	1.14	1352	343	8.18	25.37
14	5/02/2025	February		Proximate	KB-Bay 3	B	5	23.7	55411	96.4	1.2	1352	155	8.17	11.46
14	5/02/2025	February	855	Further Afield	KB-Bay 4	S	1	23.7	55428	100.3	1	1412	335	8.19	23.73
14	5/02/2025	February		Further Afield	KB-Bay 4	M	2	23.7	55372	97.4	1.2	1412	265	8.18	18.77
14	5/02/2025	February		Further Afield	KB-Bay 4	B	4	23.6	55345	96.4	0.8	1412	146	8.17	10.34
14	5/02/2025	February	905	Further Afield	KB-Beach	S	1	23.7	55462	97.6	1.2	1287	555	8.17	43.12
14	5/02/2025	February		Further Afield	KB-Beach	M	2	23.7	55410	97	1.3	1287	265	8.17	20.59
14	5/02/2025	February		Further Afield	KB-Beach	B	3	23.7	55400	96.7	1.4	1287	194	8.17	15.07
14	5/02/2025	February	958	Proximate	KB-SW 1	S	1	23.6	55317	99.7	1.18	1666	935	8.16	56.12
14	5/02/2025	February		Proximate	KB-SW 1	M									
14	5/02/2025	February		Proximate	KB-SW 1	B									
14	5/02/2025	February	1002	Proximate	KB-SW 2	S	1	23.7	55460	97.9	0.99	1430	450	8.17	31.47
14	5/02/2025	February		Proximate	KB-SW 2	M									
14	5/02/2025	February		Proximate	KB-SW 2	B									
14	5/02/2025	February	818	Further Afield	LI-Far	S	0.5	24	57420	93.2	6	1268	205	8	16.17
14	5/02/2025	February		Further Afield	LI-Far	M									
14	5/02/2025	February		Further Afield	LI-Far	B									
14	5/02/2025	February	759	Further Afield	LI- Mid	S	1	23.8	56775	95.1	6.8	890	17	8	1.91
14	5/02/2025	February		Further Afield	LI- Mid	M									
14	5/02/2025	February		Further Afield	LI- Mid	B									
14	5/02/2025	February	745	Further Afield	LI- West	S	1	23.3	55980	94.6	3.5	453	62	7.97	13.69

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
14	5/02/2025	February		Further Afield	LI- West	M									
14	5/02/2025	February		Further Afield	LI- West	B	2	23.1	55878	85.6	3.8	453	36	7.97	7.95
15	20/02/2025	February	830	Further Afield	IH-Mid	S	1	23.8	55796	103.7	1.1	1279	282	8.12	22.05
15	20/02/2025	February		Further Afield	IH-Mid	M	5	23.5	55491	96	0.94	1279	23.4	8.09	1.83
15	20/02/2025	February		Further Afield	IH-Mid	B	10	23.4	55292	83.8	1.48	1279	6.5	8.06	0.51
15	20/02/2025	February	745	Reference	KB-Bay 1	S	1	23.8	55740	103.4	0.5	435	126	8.07	28.97
15	20/02/2025	February		Reference	KB-Bay 1	M	4	23.8	55775	102.6	0.28	435	42	8.1	9.66
15	20/02/2025	February		Reference	KB-Bay 1	B	8	23.8	55893	92.8	2.29	435	14.7	8.06	3.38
15	20/02/2025	February	816	Reference	KB-Bay 2	S	1	23.9	55965	100.6	0.67	1053	373	8.13	35.42
15	20/02/2025	February		Reference	KB-Bay 2	M									
15	20/02/2025	February		Reference	KB-Bay 2	B	2	23.8	55915	100.9	0.65	1053	265	8.14	25.17
15	20/02/2025	February	802	Proximate	KB-Bay 3	S	1	23.9	55876	104.5	0.41	994	142	8.16	14.29
15	20/02/2025	February		Proximate	KB-Bay 3	M	2	23.9	55864	104.1	0.5	994	55.7	8.16	5.60
15	20/02/2025	February		Proximate	KB-Bay 3	B	4	23.8	55859	103.4	0.7	994	31.2	8.15	3.14
15	20/02/2025	February	902	Further Afield	KB-Bay 4	S	1	23.9	55894	103.3	0.63	1521	456	8.2	29.98
15	20/02/2025	February		Further Afield	KB-Bay 4	M	2	23.7	55816	101.9	0.7	1521	238	8.19	15.65
15	20/02/2025	February		Further Afield	KB-Bay 4	B	4	23.7	55750	101.7	0.69	1521	92	8.18	6.05
15	20/02/2025	February	845	Further Afield	KB-Beach	S	1	23.9	55975	104.2	0.81	1303	716	8.17	54.95
15	20/02/2025	February		Further Afield	KB-Beach	M									
15	20/02/2025	February		Further Afield	KB-Beach	B	3	23.8	55885	103.8	0.65	1303	234	8.18	17.96
15	20/02/2025	February	922	Proximate	KB-SW 1	S	1	23.9	56210	95.6	1.51	1572	834	8.13	53.05
15	20/02/2025	February		Proximate	KB-SW 1	M									
15	20/02/2025	February		Proximate	KB-SW 1	B									
15	20/02/2025	February	916	Proximate	KB-SW 2	S	1	24	56061	104	0.55	1173	931	8.21	79.37
15	20/02/2025	February		Proximate	KB-SW 2	M									
15	20/02/2025	February		Proximate	KB-SW 2	B	2	23.9	55916	103.5	0.69	1173	599	8.3	51.07
15	20/02/2025	February	953	Further Afield	LI-Far	S	1	24.6	57882	104.6	5.79	1696	508	8.1	29.95

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
15	20/02/2025	February		Further Afield	LI-Far	M									
15	20/02/2025	February		Further Afield	LI-Far	B									
15	20/02/2025	February	1009	Further Afield	LI- Mid	S	1	24.2	56998	107.5	2	1743	348	8.14	19.97
15	20/02/2025	February		Further Afield	LI- Mid	M									
15	20/02/2025	February		Further Afield	LI- Mid	B	2	24.2	57321	105.9	3.1	1743	213	8.12	12.22
15	20/02/2025	February	1026	Further Afield	LI- West	S	1	23.9	56316	100.9	3	1899	373	8.13	19.64
15	20/02/2025	February		Further Afield	LI- West	M									
15	20/02/2025	February		Further Afield	LI- West	B	2	23.9	56315	99.3	3.77	1899	279	8.13	14.69
16	6/03/2025	March	822	Further Afield	IH-Mid	S	1	22.5	54424	94.7	1.14	1113	277	8.1	24.89
16	6/03/2025	March		Further Afield	IH-Mid	M	5	22.5	54443	90.9	1.82	1113	30	8.1	2.70
16	6/03/2025	March		Further Afield	IH-Mid	B	11	22.5	54418	89.3	1.83	1113	4.5	8.1	0.40
16	6/03/2025	March	748	Reference	KB-Bay 1	S	1	22.6	54423	101.9	0.93	697	187	8.14	26.83
16	6/03/2025	March		Reference	KB-Bay 1	M	4	22.6	54431	100.7	0.82	697	55.6	8.14	7.98
16	6/03/2025	March		Reference	KB-Bay 1	B	8	22.6	54390	100.2	0.86	697	17.8	8.14	2.55
16	6/03/2025	March	805	Reference	KB-Bay 2	S	1	22.1	53863	98.2	0.31	1130	264	8.14	23.36
16	6/03/2025	March		Reference	KB-Bay 2	M									
16	6/03/2025	March		Reference	KB-Bay 2	B	1.5	22.1	53895	96.2	0.27	1130	89	8.14	7.88
16	6/03/2025	March	732	Proximate	KB-Bay 3	S	1	22.4	53952	102.5	0.42	669	106	8.06	15.84
16	6/03/2025	March		Proximate	KB-Bay 3	M	3	22.4	54008	100.7	0.43	669	87	8.06	13.00
16	6/03/2025	March		Proximate	KB-Bay 3	B	5.2	22.4	54136	99.7	0.59	669	53	8.06	7.92
16	6/03/2025	March	846	Further Afield	KB-Bay 4	S	1	22.6	54372	98.7	1.36	1260	265	8.15	21.03
16	6/03/2025	March		Further Afield	KB-Bay 4	M	3	22.6	54380	97	1.58	1260	190	8.15	15.08
16	6/03/2025	March		Further Afield	KB-Bay 4	B	5	22.5	54350	96	0.98	1260	111	8.16	8.81
16	6/03/2025	March	835	Further Afield	KB-Beach	S	1	22.6	54400	99	2.3	1011	184	8.14	18.20
16	6/03/2025	March		Further Afield	KB-Beach	M	2	22.6	54434	95.7	2.37	1011	105	8.14	10.39
16	6/03/2025	March		Further Afield	KB-Beach	B	4	22.6	54423	94.8	2.32	1011	59	8.14	5.84
16	6/03/2025	March	956	Proximate	KB-SW 1	S	1	22.5	54431	101.7	1.24	1798	539	8.17	29.98

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
16	6/03/2025	March		Proximate	KB-SW 1	M									
16	6/03/2025	March		Proximate	KB-SW 1	B									
16	6/03/2025	March	1010	Proximate	KB-SW 2	S	1	22.7	54495	100.4	0.67	1863	638	8.2	34.25
16	6/03/2025	March		Proximate	KB-SW 2	M	2	22.6	54450	99.5	0.79	1863	313	8.2	
16	6/03/2025	March		Proximate	KB-SW 2	B	3	22.6	54451	99.5	0.77	1863	269	8.2	14.44
16	6/03/2025	March	911	Further Afield	LI-Far	S	1	21.5	54614	96.2	4.95	1485	323	8.07	21.75
16	6/03/2025	March		Further Afield	LI-Far	M									
16	6/03/2025	March		Further Afield	LI-Far	B									
16	6/03/2025	March	925	Further Afield	LI- Mid	S	1	21.2	54430	98.7	3.5	1570	325	8.1	20.70
16	6/03/2025	March		Further Afield	LI- Mid	M									
16	6/03/2025	March		Further Afield	LI- Mid	B	2	21.2	54277	93.8	4.5	1570	72	8.1	4.59
16	6/03/2025	March	940	Further Afield	LI- West	S	1	21.8	53953	97.7	2.24	1613	589	8.12	36.52
16	6/03/2025	March		Further Afield	LI- West	M									
16	6/03/2025	March		Further Afield	LI- West	B	2.5	21.3	53711	93.3	3.5	1613	106	8.08	6.57
17	18/03/2025	March	828	Further Afield	IH-Mid	S	1	22.7	53978	82.4	2.2	882	286	8.04	32.43
17	18/03/2025	March		Further Afield	IH-Mid	M	6	22.6	53961	79.4	1.8	882	13.5	8.04	1.53
17	18/03/2025	March		Further Afield	IH-Mid	B	12	22.6	53949	78.4	1.89	882	0.74	8.03	0.08
17	18/03/2025	March	755	Reference	KB-Bay 1	S	1	22.1	53070	97.5	0.93	776	200	8.05	25.77
17	18/03/2025	March		Reference	KB-Bay 1	M	5	22.1	53199	94	0.99	776	25	8.05	3.22
17	18/03/2025	March		Reference	KB-Bay 1	B	10	22.1	53199	93.5	1.4	776	4.7	8.06	0.61
17	18/03/2025	March	815	Reference	KB-Bay 2	S	1	22	53003	97.4	0.82	836	314	8.08	37.56
17	18/03/2025	March		Reference	KB-Bay 2	M	2	22	53051	92.3	0.79	836	190	8.08	22.73
17	18/03/2025	March		Reference	KB-Bay 2	B	3.3	22	53250	84.6	1.05	836	71	8.08	8.49
17	18/03/2025	March	740	Proximate	KB-Bay 3	S	1	22	52980	95.4	1.3	577	176	7.88	30.50
17	18/03/2025	March		Proximate	KB-Bay 3	M	2	22	52991	93.9	1.27	577	73	7.91	12.65
17	18/03/2025	March		Proximate	KB-Bay 3	B	4.8	22	52986	93.3	1.11	577	31.3	7.92	5.42
17	18/03/2025	March	857	Further Afield	KB-Bay 4	S	1	22	52998	94.5	0.6	1140	466	8.12	40.88

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
17	18/03/2025	March		Further Afield	KB-Bay 4	M	2	22	53009	91	0.67	1140	327	8.11	28.68
17	18/03/2025	March		Further Afield	KB-Bay 4	B	4	22	53149	88	0.83	1140	138	8.1	12.11
17	18/03/2025	March	844	Further Afield	KB-Beach	S	1	22	52995	95.8	0.53	1090	361	8.12	33.12
17	18/03/2025	March		Further Afield	KB-Beach	M	2	22.1	53149	87.8	0.49	1090	300	8.11	27.52
17	18/03/2025	March		Further Afield	KB-Beach	B	3.5	22.1	53254	87.6	0.9	1090	128	8.09	11.74
17	18/03/2025	March	922	Proximate	KB-SW 1	S	1	21.9	53070	95.5	1.23	1390	363	8.12	26.12
17	18/03/2025	March		Proximate	KB-SW 1	M									
17	18/03/2025	March		Proximate	KB-SW 1	B									
17	18/03/2025	March	912	Proximate	KB-SW 2	S	1	22	53040	93.8	0.48	1230	459	8.13	37.32
17	18/03/2025	March		Proximate	KB-SW 2	M									
17	18/03/2025	March		Proximate	KB-SW 2	B	2.9	22	53070	92.8	0.47	1230	249	8.12	20.24
17	18/03/2025	March	951	Further Afield	LI-Far	S	1	22.4	54315	97.5	7.4	1750	312	8.08	17.83
17	18/03/2025	March		Further Afield	LI-Far	M									
17	18/03/2025	March		Further Afield	LI-Far	B									
17	18/03/2025	March	1005	Further Afield	LI- Mid	S	1	22	53380	107.1	3.2	1554	346	8.12	22.27
17	18/03/2025	March		Further Afield	LI- Mid	M									
17	18/03/2025	March		Further Afield	LI- Mid	B	1.5	21.9	53442	106.6	3.6	1554	206	8.13	13.26
17	18/03/2025	March	1019	Further Afield	LI- West	S	1	21.8	52952	98.5	1.7	1667	456	8.12	27.35
17	18/03/2025	March		Further Afield	LI- West	M									
17	18/03/2025	March		Further Afield	LI- West	B	2	21.5	52709	95.2	3.3	1667	295	8.09	17.70
18	1/04/2025	April	820	Further Afield	IH-Mid	S	1	22.9	55835	88.9	1.7	737	155	7.86	21.03
18	1/04/2025	April		Further Afield	IH-Mid	M	6	22.9	55826	87.6	2.9	737	5.6	7.86	0.76
18	1/04/2025	April		Further Afield	IH-Mid	B	12.9	22.9	55814	89.2	2.4	737	0.07	7.86	0.01
18	1/04/2025	April	750	Reference	KB-Bay 1	S	1	23	55755	97.5	0.24	274	139	7.88	50.73
18	1/04/2025	April		Reference	KB-Bay 1	M	5	23	55746	97.3	0.21	274	54	7.87	19.71
18	1/04/2025	April		Reference	KB-Bay 1	B	9.1	23	55808	92.8	0.59	274	13.66	7.84	4.99
18	1/04/2025	April	805	Reference	KB-Bay 2	S	1	22.9	55740	96.5	0.13	661	114	7.9	17.25

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
18	1/04/2025	April		Reference	KB-Bay 2	M	2	22.9	55746	95.9	0.12	661	94	7.9	14.22
18	1/04/2025	April		Reference	KB-Bay 2	B	4	22.8	55700	95.2	0.17	661	84	7.88	12.71
18	1/04/2025	April	735	Proximate	KB-Bay 3	S	1	22.9	55754	97.9	0.4	383	92	7.79	24.02
18	1/04/2025	April		Proximate	KB-Bay 3	M	2	22.9	55747	97.6	0.46	383	56	7.77	14.62
18	1/04/2025	April		Proximate	KB-Bay 3	B	5.1	22.9	55739	97.2	0.7	383	26	7.75	6.79
18	1/04/2025	April	853	Further Afield	KB-Bay 4	S	1	22.8	55784	95.9	0.22	961	309	7.94	32.15
18	1/04/2025	April		Further Afield	KB-Bay 4	M	2	22.8	55778	95.3	0.2	961	209	7.93	21.75
18	1/04/2025	April		Further Afield	KB-Bay 4	B	5	22.8	55796	94.6	0.2	961	140	7.92	14.57
18	1/04/2025	April	844	Further Afield	KB-Beach	S	1	22.8	55808	93.8	0.34	656	259	7.9	39.48
18	1/04/2025	April		Further Afield	KB-Beach	M	2	22.8	55805	93.6	0.51	656	162	7.9	24.70
18	1/04/2025	April		Further Afield	KB-Beach	B	3.6	22.7	55793	93.8	0.41	656	111	7.9	16.92
18	1/04/2025	April	919	Proximate	KB-SW 1	S	1	22.6	55922	94.3	1.2	1196	212	7.91	17.73
18	1/04/2025	April		Proximate	KB-SW 1	M									
18	1/04/2025	April		Proximate	KB-SW 1	B	1.5								
18	1/04/2025	April	906	Proximate	KB-SW 2	S	1	22.7	55802	94.8	0.42	855	422	7.93	49.36
18	1/04/2025	April		Proximate	KB-SW 2	M	2	22.7	55802	94.3	0.5	855	382	7.93	44.68
18	1/04/2025	April		Proximate	KB-SW 2	B	2.9	22.7	55805	95.3	0.4	855	187	7.94	21.87
18	1/04/2025	April	944	Further Afield	LI-Far	S	1	22.3	56854	91.7	8	755	55	7.83	7.28
18	1/04/2025	April		Further Afield	LI-Far	M									
18	1/04/2025	April		Further Afield	LI-Far	B	1.2								
18	1/04/2025	April	956	Further Afield	LI- Mid	S	1	22.9	56335	95.7	2.2	1043	185	7.89	17.74
18	1/04/2025	April		Further Afield	LI- Mid	M									
18	1/04/2025	April		Further Afield	LI- Mid	B	2.5	22.9	56414	89.8	2.5	1043	116	7.85	11.12
18	1/04/2025	April	1012	Further Afield	LI- West	S	1	22.6	55895	91.7	1.4	1374	236	7.9	17.18
18	1/04/2025	April		Further Afield	LI- West	M									
18	1/04/2025	April		Further Afield	LI- West	B	2.7	22.6	56017	93.1	1.4	1374	147	7.9	10.70
19	16/04/2025	April	802	Further Afield	IH-Mid	S	1	21.5	55685	92.1	1.65	203	47	7.87	23.15

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
19	16/04/2025	April		Further Afield	IH-Mid	M	4	21.5	55685	89	1.59	203	7.2	7.87	3.55
19	16/04/2025	April		Further Afield	IH-Mid	B	9.7	21.5	55703	87.8	1.47	203	1.1	7.87	0.54
19	16/04/2025	April	1005	Reference	KB-Bay 1	S	1	21.7	55773	97.3	0.49	1091	478	7.94	43.81
19	16/04/2025	April		Reference	KB-Bay 1	M	4	21.7	55781	95.1	0.43	1091	167	7.94	15.31
19	16/04/2025	April		Reference	KB-Bay 1	B	8.7	21.4	55785	94.3	0.6	1091	55.7	7.94	5.11
19	16/04/2025	April	742	Reference	KB-Bay 2	S	1	21.2	55750	92.8	0.69	389	122	7.8	31.36
19	16/04/2025	April		Reference	KB-Bay 2	M									
19	16/04/2025	April		Reference	KB-Bay 2	B	2.8	21.2	55773	90.7	0.73	389	59	7.82	15.17
19	16/04/2025	April	1017	Proximate	KB-Bay 3	S	1	21.6	55718	99.9	0.44	1180	542	7.95	45.93
19	16/04/2025	April		Proximate	KB-Bay 3	M	2.5	21.6	55790	96.2	0.47	1180	329	7.96	27.88
19	16/04/2025	April		Proximate	KB-Bay 3	B	5.4	21.3	55787	95	0.84	1180	132	7.94	11.19
19	16/04/2025	April	835	Further Afield	KB-Bay 4	S	1	21.2	55687	94.3	1.65	723	196	7.91	27.11
19	16/04/2025	April		Further Afield	KB-Bay 4	M	2	21.2	55725	92	1.48	723	118	7.91	16.32
19	16/04/2025	April		Further Afield	KB-Bay 4	B	4.7	21.2	55735	91.5	1.02	723	36	7.91	4.98
19	16/04/2025	April	820	Further Afield	KB-Beach	S	1	21.3	55663	97.2	1.53	379	96	7.91	25.33
19	16/04/2025	April		Further Afield	KB-Beach	M	2	21.3	55695	92.1	1.43	379	54	7.91	14.25
19	16/04/2025	April		Further Afield	KB-Beach	B	3.2	21.3	55700	90.8	1.41	379	25	7.9	6.60
19	16/04/2025	April	845	Proximate	KB-SW 1	S	1	20.9	55757	93.6	1.48	865	259	7.91	29.94
19	16/04/2025	April		Proximate	KB-SW 1	M									
19	16/04/2025	April		Proximate	KB-SW 1	B	1.9	20.9	55788	90.6	1.47	865	180	7.91	20.81
19	16/04/2025	April	853	Proximate	KB-SW 2	S	1	21.2	55769	93.2	1.13	910	310	7.91	34.07
19	16/04/2025	April		Proximate	KB-SW 2	M									
19	16/04/2025	April		Proximate	KB-SW 2	B	2.2	21.2	55771	90.5	0.93	910	199	7.91	21.87
19	16/04/2025	April	919	Further Afield	LI-Far	S	0.5	21.3	56144	91.2	7.82	974	165	7.85	16.94
19	16/04/2025	April		Further Afield	LI-Far	M									
19	16/04/2025	April		Further Afield	LI-Far	B	0.7								
19	16/04/2025	April	930	Further Afield	LI- Mid	S	1	21.2	56017	90.1	6.2	1031	142	7.86	13.77

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
19	16/04/2025	April		Further Afield	LI- Mid	M									
19	16/04/2025	April		Further Afield	LI- Mid	B	1.4	21.1	55992	87.8	4.91	1031	72	7.86	6.98
19	16/04/2025	April	943	Further Afield	LI- West	S	1	20.7	55790	92.6	3.23	1104	281	7.9	25.45
19	16/04/2025	April		Further Afield	LI- West	M									
19	16/04/2025	April		Further Afield	LI- West	B	2.2	20.6	55789	87.4	5.1	1104	71	7.88	6.43
20	30/04/2025	April	815	Further Afield	IH-Mid	S	1	19.3	49566	83.2	4.5	380	63	7.81	16.58
20	30/04/2025	April		Further Afield	IH-Mid	M	6	19.3	49601	82.6	4.8	380	0.7	7.81	0.18
20	30/04/2025	April		Further Afield	IH-Mid	B	12.5	19.3	49595	81.9	4.2	380	0	7.81	0.00
20	30/04/2025	April	745	Reference	KB-Bay 1	S	1	19.3	49621	98	1.1	327	80	7.85	24.46
20	30/04/2025	April		Reference	KB-Bay 1	M	5	19.4	49651	94.7	1.3	327	12	7.85	3.67
20	30/04/2025	April		Reference	KB-Bay 1	B	10	19.4	49641	94	0.7	327	3.4	7.86	1.04
20	30/04/2025	April	802	Reference	KB-Bay 2	S	1	19.2	49472	98.1	0.8	452	92	7.88	20.35
20	30/04/2025	April		Reference	KB-Bay 2	M	2	19.2	49529	95	0.7	452	51	7.8	11.28
20	30/04/2025	April		Reference	KB-Bay 2	B	4.5	19.2	49522	92.8	0.6	452	28	7.85	6.19
20	30/04/2025	April	730	Proximate	KB-Bay 3	S	1	19.2	49378	97.2	1.3	207	53	7.79	25.60
20	30/04/2025	April		Proximate	KB-Bay 3	M	2.5	19.2	49435	95.4	1.1	207	21	7.8	10.14
20	30/04/2025	April		Proximate	KB-Bay 3	B	5	19.2	49436	94.9	1.2	207	11	7.8	5.31
20	30/04/2025	April	846	Further Afield	KB-Bay 4	S	1	19.2	49509	89.1	1.3	650	189	7.85	29.08
20	30/04/2025	April		Further Afield	KB-Bay 4	M	2.5	19.2	49560	86.4	1.2	650	63	7.84	9.69
20	30/04/2025	April		Further Afield	KB-Bay 4	B	5.3	19.2	49554	86.1	1.2	650	34	7.84	5.23
20	30/04/2025	April	834	Further Afield	KB-Beach	S	1	19.2	49418	95	1.2	720	172	7.85	23.89
20	30/04/2025	April		Further Afield	KB-Beach	M	1.5	19.2	49512	90	1.2	720	107	7.8	14.86
20	30/04/2025	April		Further Afield	KB-Beach	B	3.8	19.2	49501	88.5	1.1	720	56	7.85	7.78
20	30/04/2025	April	915	Proximate	KB-SW 1	S	1	18.8	49080	94.8	0.7	721	203	7.84	28.16
20	30/04/2025	April		Proximate	KB-SW 1	M									
20	30/04/2025	April		Proximate	KB-SW 1	B	1.7								
20	30/04/2025	April	859	Proximate	KB-SW 2	S	1	19.1	49467	94.6	0.9	703	180	7.89	25.60

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
20	30/04/2025	April		Proximate	KB-SW 2	M	1.4	19.1	49468	93.7	1	703	150	7.89	21.34
20	30/04/2025	April		Proximate	KB-SW 2	B	1.9	19.1	49463	93.1	1.1	703	124	7.88	17.64
20	30/04/2025	April	937	Further Afield	LI-Far	S	1	17.6	47855	94.4	4.8	988	158	7.91	15.99
20	30/04/2025	April		Further Afield	LI-Far	M									
20	30/04/2025	April		Further Afield	LI-Far	B	1.3								
20	30/04/2025	April	950	Further Afield	LI- Mid	S	1	18.1	48364	94.4	3.7	822	160	7.89	19.46
20	30/04/2025	April		Further Afield	LI- Mid	M									
20	30/04/2025	April		Further Afield	LI- Mid	B	1.5								
20	30/04/2025	April	1007	Further Afield	LI- West	S	1	18.7	48913	94.4	3	1030	311	7.88	30.19
20	30/04/2025	April		Further Afield	LI- West	M									
20	30/04/2025	April		Further Afield	LI- West	B	2.5	18.6	46810	92.4	2.4	1030	107	7.88	10.39
21	13/05/2025	May	825	Further Afield	IH-Mid	S	1	19.6	55360	91.9	0.62	455	163	7.88	35.82
21	13/05/2025	May		Further Afield	IH-Mid	M	6	19.7	55330	88.9	0.61	455	15.6	7.88	3.43
21	13/05/2025	May		Further Afield	IH-Mid	B	12.3	19.7	55340	88	0.71	455	5.2	7.88	1.14
21	13/05/2025	May	755	Reference	KB-Bay 1	S	1	19.6	55323	91.6	1.02	295	64	7.83	21.69
21	13/05/2025	May		Reference	KB-Bay 1	M	5	19.6	55330	90.2	0.92	295	11.5	7.83	3.90
21	13/05/2025	May		Reference	KB-Bay 1	B	10.2	19.6	55329	89.5	0.75	295	5.8	7.83	1.97
21	13/05/2025	May	811	Reference	KB-Bay 2	S	1	19.5	55300	93.6	0.6	322	96	7.88	29.81
21	13/05/2025	May		Reference	KB-Bay 2	M	2	19.5	55352	90.4	0.51	322	44	7.88	13.66
21	13/05/2025	May		Reference	KB-Bay 2	B	4.5	19.4	55348	89.4	0.52	322	31.2	7.87	9.69
21	13/05/2025	May	742	Proximate	KB-Bay 3	S	1	19.5	55304	95	1.2	222	52	7.72	23.42
21	13/05/2025	May		Proximate	KB-Bay 3	M	2.5	19.5	55329	91.2	1.3	222	22	7.74	9.91
21	13/05/2025	May		Proximate	KB-Bay 3	B	5.4	19.5	55337	90	1.29	222	8.8	7.74	3.96
21	13/05/2025	May	901	Further Afield	KB-Bay 4	S	1	19.5	55323	92.9	0.92	700	140	7.91	20.00
21	13/05/2025	May		Further Afield	KB-Bay 4	M	2.5	19.5	55346	90.9	0.96	700	79	7.91	11.29
21	13/05/2025	May		Further Afield	KB-Bay 4	B	5	19.5	55345	89.9	0.75	700	37	7.91	5.29
21	13/05/2025	May	843	Further Afield	KB-Beach	S	1	19.5	55333	90.6	0.56	628	161	7.89	25.64

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21	13/05/2025	May		Further Afield	KB-Beach	M	2	19.5	55347	88.9	0.5	628	50	7.89	7.96
21	13/05/2025	May		Further Afield	KB-Beach	B	4.1	19.5	55346	88.8	0.5	628	48	7.89	7.64
21	13/05/2025	May	926	Proximate	KB-SW 1	S	1	19.5	55329	96	0.82	722	162	7.92	22.44
21	13/05/2025	May		Proximate	KB-SW 1	M									
21	13/05/2025	May		Proximate	KB-SW 1	B	1.5								
21	13/05/2025	May	912	Proximate	KB-SW 2	S	1	19.4	55344	94.6	1.2	673	168	7.9	24.96
21	13/05/2025	May		Proximate	KB-SW 2	M	2	19.4	55358	90.3	1.27	673	75	7.9	11.14
21	13/05/2025	May		Proximate	KB-SW 2	B	3.5	19.4	55358	89.3	0.97	673	75	7.9	11.14
21	13/05/2025	May	950	Further Afield	LI-Far	S	1	18.2	55306	94.1	4	863	122	7.88	14.14
21	13/05/2025	May		Further Afield	LI-Far	M									
21	13/05/2025	May		Further Afield	LI-Far	B	1.2								
21	13/05/2025	May	1005	Further Afield	LI- Mid	S	1	18.4	55234	95.5	4.5	872	192	7.88	22.02
21	13/05/2025	May		Further Afield	LI- Mid	M									
21	13/05/2025	May		Further Afield	LI- Mid	B	2	18.4	55237	91.1	4.26	872	97.7	7.87	11.20
21	13/05/2025	May	1020	Further Afield	LI- West	S	1	18.7	55216	91.9	2.5	1074	222	7.9	20.67
21	13/05/2025	May		Further Afield	LI- West	M									
21	13/05/2025	May		Further Afield	LI- West	B	2.5	18.7	55270	90.1	2.51	1074	67	7.9	6.24
22	28/05/2025	May	947	Further Afield	IH-Mid	S	1	17	55319	95.9	1.5	455	103	7.93	22.64
22	28/05/2025	May		Further Afield	IH-Mid	M	6	17	55317	93.3	1.84	455	30.4	7.92	6.68
22	28/05/2025	May		Further Afield	IH-Mid	B	12.4	17	55318	91.9	1.39	455	2.6	7.92	0.57
22	28/05/2025	May	1021	Reference	KB-Bay 1	S	1	17.3	55338	98.3	0.8	820	226	7.95	27.56
22	28/05/2025	May		Reference	KB-Bay 1	M	5	16.9	55322	97	0.97	820	90	7.95	10.98
22	28/05/2025	May		Reference	KB-Bay 1	B	9.5	16.9	55337	94	2	820	28	7.94	3.41
22	28/05/2025	May	1005	Reference	KB-Bay 2	S	1	16.6	55365	99.7	1.5	726	215	7.95	29.61
22	28/05/2025	May		Reference	KB-Bay 2	M	2.5	16.6	55365	97	1.67	726	94	7.95	12.95
22	28/05/2025	May		Reference	KB-Bay 2	B	5	16.6	55365	96.3	1.39	726	29	7.95	3.99
22	28/05/2025	May	1034	Proximate	KB-Bay 3	S	1	17	55321	99.4	0.97	1036	289	7.96	27.90

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
22	28/05/2025	May		Proximate	KB-Bay 3	M	2.5	16.9	55342	97.6	0.84	1036	181	7.96	17.47
22	28/05/2025	May		Proximate	KB-Bay 3	B	5	16.9	55351	97.1	1.1	1036	96	7.96	9.27
22	28/05/2025	May	914	Further Afield	KB-Bay 4	S	1	16.7	55327	96.9	1.5	912	145	7.93	15.90
22	28/05/2025	May		Further Afield	KB-Bay 4	M	2.5	16.6	55349	95.5	1.5	912	68	7.92	7.46
22	28/05/2025	May		Further Afield	KB-Bay 4	B	4.8	16.6	55356	95	1.7	912	32	7.92	3.51
22	28/05/2025	May	929	Further Afield	KB-Beach	S	1	16.6	55349	97.6	1.6	835	205	7.94	24.55
22	28/05/2025	May		Further Afield	KB-Beach	M	2.5	16.6	55370	96.4	1.51	835	103	7.94	12.34
22	28/05/2025	May		Further Afield	KB-Beach	B	5.1	16.6	55367	96	1.65	835	38	7.94	4.55
22	28/05/2025	May	859	Proximate	KB-SW 1	S	1	16.5	55374	96.1	2.28	572	74	7.92	12.94
22	28/05/2025	May		Proximate	KB-SW 1	M	2	16.5	55375	94.6	2.12	572	43	7.92	7.52
22	28/05/2025	May		Proximate	KB-SW 1	B	3.1	16.5	55375	94.2	2.23	572	25	7.91	4.37
22	28/05/2025	May	848	Proximate	KB-SW 2	S	1	16.4	55369	97.9	1.49	589	84	7.9	14.26
22	28/05/2025	May		Proximate	KB-SW 2	M									
22	28/05/2025	May		Proximate	KB-SW 2	B	2	16.4	55370	95.1	1.46	589	67	7.9	11.38
22	28/05/2025	May	758	Further Afield	LI-Far	S	1	13.9	55397	97	3.17	146	22.5	7.74	15.41
22	28/05/2025	May		Further Afield	LI-Far	M									
22	28/05/2025	May		Further Afield	LI-Far	B	1.4								
22	28/05/2025	May	810	Further Afield	LI- Mid	S	1	14.9	55257	97.2	2.7	305	49	7.83	16.07
22	28/05/2025	May		Further Afield	LI- Mid	M									
22	28/05/2025	May		Further Afield	LI- Mid	B	2	14.8	55312	93.9	3.4	305	22	7.82	7.21
22	28/05/2025	May	827	Further Afield	LI- West	S	1	15.9	55280	98	3.1	372	73	7.88	19.62
22	28/05/2025	May		Further Afield	LI- West	M									
22	28/05/2025	May		Further Afield	LI- West	B	2.1	15.9	55372	93.9	3.4	372	37	7.87	9.95
23	12/06/2025	June	910	Further Afield	IH-Mid	S	1	17.4	54908	92.3	2.29	222	70.9	8.02	31.94
23	12/06/2025	June		Further Afield	IH-Mid	M	4.5	17.5	54919	89.6	7.1	222	3.6	8.01	1.62
23	12/06/2025	June		Further Afield	IH-Mid	B	9	17.5	54927	89	6.65	222	0.1	8.01	0.05
23	12/06/2025	June	830	Reference	KB-Bay 1	S	1	17.4	54964	95.5	3.2	172	49.28	8	28.65

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
23	12/06/2025	June		Reference	KB-Bay 1	M	3	17.5	54958	92.2	4.41	172	7.7	8	4.48
23	12/06/2025	June		Reference	KB-Bay 1	B	6	17.5	54967	92.3	5.17	172	1.03	8	0.60
23	12/06/2025	June	852	Reference	KB-Bay 2	S	1	17.1	54968	96.2	2.35	173	36.1	8.01	20.87
23	12/06/2025	June		Reference	KB-Bay 2	M	2.5	17.2	54988	93.2	3.07	173	12.55	8.01	7.25
23	12/06/2025	June		Reference	KB-Bay 2	B	4.5	17.2	54993	92.7	2.28	173	8.3	8.01	4.80
23	12/06/2025	June	808	Proximate	KB-Bay 3	S	1	17.3	54893	93.5	5.07	89	25.7	7.92	28.88
23	12/06/2025	June		Proximate	KB-Bay 3	M	2.5	17.3	54960	92.9	4.25	89	9.3	7.97	10.45
23	12/06/2025	June		Proximate	KB-Bay 3	B	4	17.3	54960	92.9	5.4	89	1.05	7.98	1.18
23	12/06/2025	June	946	Further Afield	KB-Bay 4	S	1	17.2	54942	94.3	5.76	216	22.5	8.03	10.42
23	12/06/2025	June		Further Afield	KB-Bay 4	M	2	17.2	54947	93.2	6.15	216	16.7	8.03	7.73
23	12/06/2025	June		Further Afield	KB-Bay 4	B	4	17.2	54951	92.9	6.51	216	5.6	8.02	2.59
23	12/06/2025	June	929	Further Afield	KB-Beach	S	1	17.2	54867	93.2	3.04	261	83.2	8.02	31.88
23	12/06/2025	June		Further Afield	KB-Beach	M	2	17.3	54862	90.7	3.09	261	49.9	8.01	19.12
23	12/06/2025	June		Further Afield	KB-Beach	B	3.5	17.3	54861	90.2	2.68	261	39.6	8.01	15.17
23	12/06/2025	June	1058	Proximate	KB-SW 1	S	1	16.8	54863	93.6	8.5	313	60.9	8.02	19.46
23	12/06/2025	June		Proximate	KB-SW 1	M									
23	12/06/2025	June		Proximate	KB-SW 1	B	2	16.8	54864	92.4	6.9	313	21.8	8.02	6.96
23	12/06/2025	June	1116	Proximate	KB-SW 2	S	1	17.2	54921	95.3	6.8	262	77.5	8.04	29.58
23	12/06/2025	June		Proximate	KB-SW 2	M	2	17.3	54911	93	6.9	262	40.6	8.04	15.50
23	12/06/2025	June		Proximate	KB-SW 2	B	3	17.2	54910	92.7	5.9	262	10.3	8.04	3.93
23	12/06/2025	June	1014	Further Afield	LI-Far	S	1	16.3	53401	85.3	2.3	271	84.3	7.94	31.11
23	12/06/2025	June		Further Afield	LI-Far	M									
23	12/06/2025	June		Further Afield	LI-Far	B									
23	12/06/2025	June	1028	Further Afield	LI- Mid	S	1	15.7	53293	94.8	0.96	392	115.6	7.98	29.49
23	12/06/2025	June		Further Afield	LI- Mid	M									
23	12/06/2025	June		Further Afield	LI- Mid	B	2	15.7	53730	92.1	3.1	392	59.6	7.96	15.20
23	12/06/2025	June	1044	Further Afield	LI- West	S	1	16.3	54201	91.8	1.58	218	65.3	7.99	29.95

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
23	12/06/2025	June		Further Afield	LI- West	M									
23	12/06/2025	June		Further Afield	LI- West	B	2	16.2	54689	88.3	4.51	218	31.9	7.99	14.63
24	25/06/2025	June	829	Further Afield	IH-Mid	S	1	16.3	54194	92.4	4.6	209	26	7.88	12.44
24	25/06/2025	June		Further Afield	IH-Mid	M	4.5	16.4	54194	90.5	4.1	209	2.5	7.88	1.20
24	25/06/2025	June		Further Afield	IH-Mid	B	9.8	16.4	54191	90.3	2.01	209	0.6	7.88	0.29
24	25/06/2025	June	756	Reference	KB-Bay 1	S	1	16	53814	94.5	1.65	82	37	7.9	45.12
24	25/06/2025	June		Reference	KB-Bay 1	M	4.5	16.5	54216	95.6	1.11	82	6.2	7.9	7.56
24	25/06/2025	June		Reference	KB-Bay 1	B	9.7	16.4	54356	93.6	1.34	82	1.9	7.9	2.32
24	25/06/2025	June	816	Reference	KB-Bay 2	S	1	16	53952	94.6	1.56	78	31.7	7.89	40.64
24	25/06/2025	June		Reference	KB-Bay 2	M	2	16	53965	94.3	1.55	78	18.5	7.89	23.72
24	25/06/2025	June		Reference	KB-Bay 2	B	4.5	16.3	54182	92.1	1.8	78	8.1	7.88	10.38
24	25/06/2025	June	744	Proximate	KB-Bay 3	S	1	15.9	53707	96.1	1.72	41	18	7.84	43.90
24	25/06/2025	June		Proximate	KB-Bay 3	M	2.5	15.9	53705	96	1.79	41	7.8	7.84	19.02
24	25/06/2025	June		Proximate	KB-Bay 3	B	5.1	16.2	54096	90	3.3	41	7.8	7.82	19.02
24	25/06/2025	June	852	Further Afield	KB-Bay 4	S	1	15.9	53736	95.2	1.59	206	74	7.93	35.92
24	25/06/2025	June		Further Afield	KB-Bay 4	M	2	15.9	53785	95.6	1.72	206	32	7.92	15.53
24	25/06/2025	June		Further Afield	KB-Bay 4	B	4.5	15.9	53836	95.4	1.73	206	18	7.92	8.74
24	25/06/2025	June	844	Further Afield	KB-Beach	S	1	15.8	53795	96.8	1.88	145	50	7.91	34.48
24	25/06/2025	June		Further Afield	KB-Beach	M	2	15.8	53830	94.5	1.88	145	22	7.91	15.17
24	25/06/2025	June		Further Afield	KB-Beach	B	3.9	15.8	53839	93.9	2	145	13.5	7.91	9.31
24	25/06/2025	June	915	Proximate	KB-SW 1	S	1	15.6	53792	95	3.4	363	110	7.9	30.30
24	25/06/2025	June		Proximate	KB-SW 1	M									
24	25/06/2025	June		Proximate	KB-SW 1	B									
24	25/06/2025	June	907	Proximate	KB-SW 2	S	1	15.8	53820	96.7	1.82	343	94	7.91	27.41
24	25/06/2025	June		Proximate	KB-SW 2	M									
24	25/06/2025	June		Proximate	KB-SW 2	B	2	15.8	53815	95.7	1.82	343	56	7.92	16.33
24	25/06/2025	June	939	Further Afield	LI-Far	S	1	16.5	52747	93	3.35	750	142	7.93	18.93

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
24	25/06/2025	June		Further Afield	LI-Far	M									
24	25/06/2025	June		Further Afield	LI-Far	B									
24	25/06/2025	June	951	Further Afield	LI- Mid	S	1	16.2	52240	97.5	2.95	585	113	7.97	19.32
24	25/06/2025	June		Further Afield	LI- Mid	M									
24	25/06/2025	June		Further Afield	LI- Mid	B	2.3	16	53373	94.5	3.05	582	58	7.98	9.97
24	25/06/2025	June	1005	Further Afield	LI- West	S	1	15.7	52464	97.9	2.6	731	159	7.92	21.75
24	25/06/2025	June		Further Afield	LI- West	M									
24	25/06/2025	June		Further Afield	LI- West	B	2.2	15.9	53205	95.6	3	731	63	7.91	8.62
25	8/07/2025	July	815	Further Afield	IH-Mid	S	1	15.6	53836	94.5	1.95	223	45.4	7.86	20.36
25	8/07/2025	July		Further Afield	IH-Mid	M	6	16	54082	93.7	2.68	223	5.8	7.88	2.60
25	8/07/2025	July		Further Afield	IH-Mid	B	10.5	16	54118	93.3	3.1	223	0.5	7.88	0.22
25	8/07/2025	July	735	Reference	KB-Bay 1	S	1	15.3	53613	95.3	3.34	30.8	5.8	7.74	18.83
25	8/07/2025	July		Reference	KB-Bay 1	M	4.5	15.4	53674	93.4	3.9	30.8	0.7	7.75	2.27
25	8/07/2025	July		Reference	KB-Bay 1	B	8.5	15.7	54050	89.3	6.1	30.8	0.5	7.7	1.62
25	8/07/2025	July	800	Reference	KB-Bay 2	S	1	15.2	53757	95	3.4	103	13.1	7.85	12.72
25	8/07/2025	July		Reference	KB-Bay 2	M	2	15.7	53901	93.7	3.11	103	8.4	7.85	8.16
25	8/07/2025	July		Reference	KB-Bay 2	B	2.5	15.5	53912	93.9	3.7	103	5.8	7.85	5.63
25	8/07/2025	July	1000	Proximate	KB-Bay 3	S	1	15	53489	96.7	2.1	420	63.3	7.93	15.07
25	8/07/2025	July		Proximate	KB-Bay 3	M	2.5	15.4	53754	95	2.2	420	52.3	7.92	12.45
25	8/07/2025	July		Proximate	KB-Bay 3	B	4.5	15.5	53836	93.9	3.1	420	15.6	7.92	3.71
25	8/07/2025	July	850	Further Afield	KB-Bay 4	S	1	15.4	53760	96.5	4	445	76.2	7.9	17.12
25	8/07/2025	July		Further Afield	KB-Bay 4	M	2.5	15.4	53774	93	2.95	445	31.9	7.9	7.17
25	8/07/2025	July		Further Afield	KB-Bay 4	B	3.5	15.4	53733	93	3.3	445	17.5	7.9	3.93
25	8/07/2025	July	840	Further Afield	KB-Beach	S	1	15.4	53719	95.7	4.2	542	65	7.9	11.99
25	8/07/2025	July		Further Afield	KB-Beach	M	2	15.4	53730	94.2	4.19	542	24	7.9	4.43
25	8/07/2025	July		Further Afield	KB-Beach	B	3	15.4	53732	93.5	5.3	542	11.4	7.9	2.10
25	8/07/2025	July	920	Proximate	KB-SW 1	S	1	15.2	53401	94.4	6.52	1181	81.1	7.9	6.87

TRIP	DATE	MONTH	TIME	FUNCTION	SITE	PROFILE	DEPTH (m)	TEMP (oC)	Sp COND (uS/cm)	DO (%)	TURBIDITY (NTU)	AMBIENT PAR (uMol/m2/s)	PAR (uMol/m2/s)	pH	%SI
25	8/07/2025	July		Proximate	KB-SW 1	M									
25	8/07/2025	July		Proximate	KB-SW 1	B	2	15.3	53502	92.8	6.89	1181	33.9	7.89	2.87
25	8/07/2025	July	905	Proximate	KB-SW 2	S	1	14.1	53212	93.7	3	603.5	123.5	7.89	20.46
25	8/07/2025	July		Proximate	KB-SW 2	M									
25	8/07/2025	July		Proximate	KB-SW 2	B	1.5	15.3	53516	93.7	3.1	603.5	97.9	7.9	16.22
25	8/07/2025	July	1040	Further Afield	LI-Far	S	1	15.3	47551	95.7	1.4	1115.7	390.7	7.87	35.02
25	8/07/2025	July		Further Afield	LI-Far	M									
25	8/07/2025	July		Further Afield	LI-Far	B	1.5	15.2	48001	94.6	1.9	1115.7	250.8	7.84	22.48
25	8/07/2025	July	1055	Further Afield	LI- Mid	S	1	14.8	47784	97.1	1.23	790	243	7.85	30.76
25	8/07/2025	July		Further Afield	LI- Mid	M									
25	8/07/2025	July		Further Afield	LI- Mid	B	2	15.3	49105	92.1	1.74	790	106.8	7.83	13.52
25	8/07/2025	July	1115	Further Afield	LI- West	S	1	13.9	47756	91.6	1.34	920	96.7	7.83	10.51
25	8/07/2025	July		Further Afield	LI- West	M									
25	8/07/2025	July		Further Afield	LI- West	B	2	15.2	49196	91.5	2.66	920	90.5	7.84	9.84

9 APPENDIX D – LABORATORY DATA AND QA/QC

Marine and Freshwater
Research Laboratory
Environmental Science
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.
The results of the tests, calibrations and/or measurements included is this document are traceable to Australian/national standards.

Murdoch UNIVERSITY

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 30/08/2024
Date Received: 21/08/2024
Our Reference: MSC24-3
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit		<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date		27/08/2024	27/08/2024	27/08/2024	29/08/2024	29/08/2024	29/08/2024	29/08/2024	22/08/2024
File		24082701	24082701	24082701	24082901	24082901	24082901-02	24082901-02	240822
IH-Mid	21/08/2024	25	6	22	31	240	2.0	1.4	12
KB-Bay 1	21/08/2024	<3	4	19	19	140	3.4	0.9	6
KB-Bay 2	21/08/2024	13	5	37	18	220	2.7	1.2	8
KB-Bay 3	21/08/2024	14	6	40	18	190	1.3	0.5	4
KB-Bay 4	21/08/2024	16	6	48	22	200	2.8	1.0	6
KB-Beach	21/08/2024	17	6	41	22	220	2.1	0.9	7
KB-SW 1	21/08/2024	29	6	55	38	360	1.9	2.5	13
KB SW 2	21/08/2024	30	7	82	25	270	1.6	0.8	6
LI-Far	21/08/2024	39	6	110	25	310	1.5	0.8	4
LI-Mid	21/08/2024	38	7	120	24	300	1.6	0.7	4
LI-West	21/08/2024	33	7	160	21	310	1.6	0.7	4
Duplicate	21/08/2024	35	6	160	22	340	1.4	0.5	4

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 30/08/2024

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Marine and Freshwater
Research Laboratory
Environmental Science
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.
The results of the tests, calibrations and/or measurements included is this document are traceable to Australian/national standards.

Murdoch UNIVERSITY

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 30/08/2024
Date Received: 21/08/2024
Our Reference: MSC24-3
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit		**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date		**27/08/2024**	**27/08/2024**	**27/08/2024**	**27/08/2024**	**27/08/2024**	**29/08/2024**
File		**24082701**	**24082701**	**24082701**	**24082701**	**24082701**	**24082901**
IH-Mid	21/08/2024	<0.3	0.7	2	<0.1	<0.1	<0.0001
KB-Bay 1	21/08/2024	0.3	0.6	3	<0.1	<0.1	<0.0001
KB-Bay 2	21/08/2024	<0.3	0.6	2	<0.1	<0.1	<0.0001
KB-Bay 3	21/08/2024	<0.3	0.4	1	<0.1	<0.1	<0.0001
KB-Bay 4	21/08/2024	<0.3	0.6	2	<0.1	<0.1	<0.0001
KB-Beach	21/08/2024	0.3	0.5	2	<0.1	<0.1	<0.0001
KB-SW 1	21/08/2024	0.3	0.5	2	<0.1	<0.1	<0.0001
KB SW 2	21/08/2024	0.4	0.7	3	<0.1	<0.1	<0.0001
LI-Far	21/08/2024	0.3	1.1	3	<0.1	<0.1	<0.0001
LI-Mid	21/08/2024	0.3	0.9	3	<0.1	<0.1	<0.0001
LI-West	21/08/2024	0.3	0.9	3	<0.1	<0.1	<0.0001
Duplicate	21/08/2024	0.3	1.1	3	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 30/08/2024

This document may not be reproduced except in full.

CERTIFICATE OF ANALYSIS

Work Order	: **EP2412132**	Page	: 1 of 6
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-3	Date Samples Received	: 22-Aug-2024 13:45
Order number	: PO-008006	Date Analysis Commenced	: 28-Aug-2024
C-O-C number	: ----	Issue Date	: 30-Aug-2024 10:28
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD
[redacted]	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP090-Organotin: High surrogate recovery for particular samples deemed acceptable as all associated analyte results are less than LOR.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	IH-Mid	KB-Bay 1	KB-Bay 2	KB-Bay 3	KB-Bay 4
			Sampling date / time	21-Aug-2024 00:00	21-Aug-2024 00:00	21-Aug-2024 00:00	21-Aug-2024 00:00	21-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	EP2412132-001	EP2412132-002	EP2412132-003	EP2412132-004	EP2412132-005
				Result	Result	Result	Result	Result
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP090: Organotin Compounds (Soluble)								
Tributyltin	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**105**	**99.9**	**97.5**	**99.1**	**98.3**
Toluene-D8	2037-26-5	2	%	**94.3**	**95.0**	**98.0**	**97.0**	**98.4**
4-Bromofluorobenzene	460-00-4	2	%	**111**	**106**	**108**	**110**	**105**
EP090S: Organotin Surrogate								
Tripropyltin	----	5	%	**107**	**105**	**114**	**98.9**	**148**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	KB-Beach	KB-SW 1	KB SW 2	LI-Far	LI-Mid
			Sampling date / time	21-Aug-2024 00:00	21-Aug-2024 00:00	21-Aug-2024 00:00	21-Aug-2024 00:00	21-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	EP2412132-006	EP2412132-007	EP2412132-008	EP2412132-009	EP2412132-010
				Result	Result	Result	Result	Result
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP090: Organotin Compounds (Soluble)								
Tributyltin	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**111**	**101**	**99.8**	**101**	**101**
Toluene-D8	2037-26-5	2	%	**99.5**	**100**	**96.1**	**99.1**	**96.7**
4-Bromofluorobenzene	460-00-4	2	%	**112**	**109**	**113**	**113**	**108**
EP090S: Organotin Surrogate								
Tripropyltin	----	5	%	**101**	**107**	**107**	**98.2**	**126**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Li-West	Duplicate	----	----	----
				Sampling date / time	21-Aug-2024 00:00	21-Aug-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2412132-011	EP2412132-012	--------	--------	--------
					Result	Result	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**99.6**	**96.7**	----	----	----
Toluene-D8	2037-26-5	2	%		**108**	**98.6**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**115**	**110**	----	----	----
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**124**	**85.4**	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
4-Bromofluorobenzene	460-00-4	60	125
EP090S: Organotin Surrogate			
Tripropyltin	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP2412132**	Page	: 1 of 3
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-3	Date Samples Received	: 22-Aug-2024
Order number	: PO-008006	Date Analysis Commenced	: 28-Aug-2024
C-O-C number	: ----	Issue Date	: 30-Aug-2024
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD
[redacted]	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 6013384)									
EP2412110-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2412132-006	KB-Beach	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP090: Organotin Compounds (Soluble) (QC Lot: 6017035)									
EP2412132-001	IH-Mid	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 6013384)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	87.6	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	90.8	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	91.4	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	92.4	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	92.5	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	94.8	77.0	118
EP090: Organotin Compounds (Soluble) (QCLot: 6017035)								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	86.6	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 6013384)							
EP2412110-002	Anonymous	EP080: Benzene	71-43-2	20 µg/L	102	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	105	73.5	126
EP090: Organotin Compounds (Soluble) (QCLot: 6017035)							
EP2412132-001	IH-Mid	EP090S: Tributyltin	56573-85-4	147 ngSn/L	86.3	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2412132**	Page	: 1 of 5
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: MSC24-3	Date Samples Received	: 22-Aug-2024
Site	: ----	Issue Date	: 30-Aug-2024
Sampler	: ----	No. of samples received	: 12
Order number	: PO-008006	No. of samples analysed	: 12

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Regular Sample Surrogates

Sub-Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP090S: Organotin Surrogate	EP2412132-005	KB-Bay 4	**Tripropyltin**	----	148 %	24.0-116 %	**Recovery greater than upper data quality objective**
EP090S: Organotin Surrogate	EP2412132-010	LI-Mid	**Tripropyltin**	----	126 %	24.0-116 %	**Recovery greater than upper data quality objective**
EP090S: Organotin Surrogate	EP2412132-011	Li-West	**Tripropyltin**	----	124 %	24.0-116 %	**Recovery greater than upper data quality objective**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)						
Organotin Compounds (Soluble)	EP090S	1	12	8.33	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

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

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

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

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

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

Method / *Container* / Client Sample ID(s)		*Sample Date*	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
IH-Mid,	KB-Bay 1,	**21-Aug-2024**	**28-Aug-2024**	04-Sep-2024	✓	**28-Aug-2024**	04-Sep-2024	✓
KB-Bay 2,	KB-Bay 3,							
KB-Bay 4,	KB-Beach,							
KB-SW 1,	KB SW 2,							
LI-Far,	LI-Mid,							
Li-West,	Duplicate							

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP090: Organotin Compounds (Soluble)								
Amber Glass Bottle - Unpreserved (EP090S)								
IH-Mid,	KB-Bay 1,	**21-Aug-2024**	**28-Aug-2024**	28-Aug-2024	✓	**29-Aug-2024**	07-Oct-2024	✓
KB-Bay 2,	KB-Bay 3,							
KB-Bay 4,	KB-Beach,							
KB-SW 1,	KB SW 2,							
LI-Far,	LI-Mid,							
Li-West,	Duplicate							

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Organotin Compounds (Soluble)	EP090S	1	12	**8.33**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Organotin Compounds (Soluble)	EP090S	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Organotin Compounds (Soluble)	EP090S	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Organotin Compounds (Soluble)	EP090S	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Organotin Compounds (Soluble)	EP090S	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by GC/MS coupled with high volume injection and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Organotin Sample Preparation	ORG34	WATER	In house. A specified volume of sample is spiked with surrogate, acidified and vacuum filtered. Reagents and solvent are added and the mixture tumbled. The butyltin compounds is derivitisated, extracted and the subtitution reaction completed. The extract is transferred to a separatory funnel and further extracted two times with petroleum ether. The resultant extracts are combined and concentrated for analysis.

Marine and Freshwater
Research Laboratory
Environmental Science
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.
The results of the tests, calibrations and/or measurements included is this document are traceable to Australian/national standards.

Murdoch UNIVERSITY

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 6/09/2024
Date Received: 28/08/2024
Our Reference: MSC24-4
Your Reference: MSA343-2

METHOD SAMPLE CODE	Sampling Date	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit		<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date		3/09/2024	3/09/2024	3/09/2024	29/08/2024	29/08/2024	29/08/2024	29/08/2024	30/08/2024
File		24090301	24090301	24090301	24082901	24082901	24082901	24082901	240830
IH-Mid	28/08/2024	14	6	12	18	160	1.2	0.8	5
KB-Bay 1	28/08/2024	10	5	12	13	130	1.2	0.7	10
KB-Bay 2	28/08/2024	13	6	24	18	230	2.0	1.6	12
KB-Bay 3	28/08/2024	34	8	55	23	270	1.3	0.9	10
KB-Bay 4	28/08/2024	12	6	22	21	180	1.3	0.8	6
KB-Beach	28/08/2024	17	6	24	28	200	1.4	1.0	8
KB-SW 1	28/08/2024	22	6	51	19	280	1.6	1.1	5
KB SW 2	28/08/2024	14	6	27	20	200	1.3	0.9	13
LI-Far	28/08/2024	12	4	180	30	480	3.8	1.0	5
LI-Mid	28/08/2024	35	5	100	24	380	3.1	0.8	7
LI-West	28/08/2024	28	6	68	23	370	2.2	0.9	5
Duplicate	28/08/2024	36	5	100	25	380	3.7	0.9	4

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 6/09/2024

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Marine and Freshwater
Research Laboratory
Environmental Science
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

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Murdoch UNIVERSITY

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 6/09/2024
Date Received: 28/08/2024
Our Reference: MSC24-4
Your Reference: MSA343-2

METHOD SAMPLE CODE	Sampling Date	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit		**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date		**4/09/2024**	**4/09/2024**	**4/09/2024**	**4/09/2024**	**4/09/2024**	**29/08/2024**
File		**24090401**	**24090401**	**24090401**	**24090401**	**24090401**	**24082901**
IH-Mid	28/08/2024	0.3	0.5	2	<0.1	<0.1	<0.0001
KB-Bay 1	28/08/2024	0.3	0.2	2	<0.1	<0.1	<0.0001
KB-Bay 2	28/08/2024	<0.3	0.4	1	<0.1	<0.1	<0.0001
KB-Bay 3	28/08/2024	0.3	0.4	2	<0.1	<0.1	<0.0001
KB-Bay 4	28/08/2024	0.3	0.5	2	<0.1	<0.1	<0.0001
KB-Beach	28/08/2024	0.3	0.5	3	<0.1	<0.1	<0.0001
KB-SW 1	28/08/2024	0.3	0.7	3	<0.1	<0.1	<0.0001
KB SW 2	28/08/2024	<0.3	0.5	2	<0.1	<0.1	<0.0001
LI-Far	28/08/2024	0.4	1.4	4	<0.1	<0.1	<0.0001
LI-Mid	28/08/2024	0.4	1.1	3	<0.1	<0.1	<0.0001
LI-West	28/08/2024	0.3	0.9	3	<0.1	<0.1	<0.0001
Duplicate	28/08/2024	0.3	1.1	3	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 6/09/2024

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CERTIFICATE OF ANALYSIS

Work Order	: **EP2412341**	Page	: 1 of 6
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: +61 93602907	Telephone	: [redacted]
Project	: MSC24-4	Date Samples Received	: 28-Aug-2024 14:30
Order number	: 008006	Date Analysis Commenced	: 30-Aug-2024
C-O-C number	: ----	Issue Date	: 05-Sep-2024 11:46
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Organic Chemist	Brisbane Organics, Stafford, QLD
[redacted]	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD
[redacted]	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: MARINE WATER (Matrix: WATER)				Sample ID	IH-Mid	KB-Bay 1	KB-Bay 2	KB-Bay 3	KB-Bay 4
				Sampling date / time	28-Aug-2024 00:00	28-Aug-2024 00:00	28-Aug-2024 00:00	28-Aug-2024 00:00	28-Aug-2024 00:00
Compound	CAS Number	LOR	Unit		EP2412341-001	EP2412341-002	EP2412341-003	EP2412341-004	EP2412341-005
					Result	Result	Result	Result	Result
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L		<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**94.9**	**95.0**	**107**	**101**	**105**
Toluene-D8	2037-26-5	2	%		**91.0**	**95.4**	**89.3**	**93.8**	**88.2**
4-Bromofluorobenzene	460-00-4	2	%		**95.6**	**97.6**	**93.5**	**96.0**	**90.3**
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**86.6**	**94.0**	**74.2**	**79.0**	**79.3**

Analytical Results

Sub-Matrix: MARINE WATER (Matrix: WATER)			Sample ID	KB-Beach	KB-SW 1	KB-SW 2	Li-Far	Li-Mid
			Sampling date / time	28-Aug-2024 00:00	28-Aug-2024 00:00	28-Aug-2024 00:00	28-Aug-2024 00:00	28-Aug-2024 00:00
Compound	CAS Number	LOR	Unit	EP2412341-006	EP2412341-007	EP2412341-008	EP2412341-009	EP2412341-010
				Result	Result	Result	Result	Result
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP090: Organotin Compounds (Soluble)								
Tributyltin	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**106**	**106**	**112**	**104**	**111**
Toluene-D8	2037-26-5	2	%	**95.7**	**91.2**	**91.3**	**91.8**	**92.9**
4-Bromofluorobenzene	460-00-4	2	%	**96.1**	**94.8**	**95.6**	**96.0**	**94.3**
EP090S: Organotin Surrogate								
Tripropyltin	----	5	%	**84.8**	**84.5**	**89.2**	**87.6**	**63.4**

Analytical Results

Sub-Matrix: MARINE WATER (Matrix: WATER)				Sample ID	Li-West	Duplicate	----	----	----
				Sampling date / time	28-Aug-2024 00:00	28-Aug-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2412341-011	EP2412341-012	--------	--------	--------
					Result	Result	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**107**	**105**	----	----	----
Toluene-D8	2037-26-5	2	%		**92.2**	**92.3**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**94.5**	**95.5**	----	----	----
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**81.7**	**83.1**	----	----	----

Surrogate Control Limits

Sub-Matrix: **MARINE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
4-Bromofluorobenzene	460-00-4	60	125
EP090S: Organotin Surrogate			
Tripropyltin	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP2412341**	Page	: 1 of 3
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: +61 93602907	Telephone	: [redacted]
Project	: MSC24-4	Date Samples Received	: 28-Aug-2024
Order number	: 008006	Date Analysis Commenced	: 30-Aug-2024
C-O-C number	: ----	Issue Date	: 05-Sep-2024
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Organic Chemist	Brisbane Organics, Stafford, QLD
[redacted]	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD
[redacted]	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 6023333)									
EP2412341-001	IH-Mid	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2412341-011	Li-West	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP090: Organotin Compounds (Soluble) (QC Lot: 6033465)									
EP2412341-001	IH-Mid	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit
EP2412504-006	Anonymous	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 6023333)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	89.7	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	96.1	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	98.8	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	104	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	102	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	98.4	77.0	118
EP090: Organotin Compounds (Soluble) (QCLot: 6033465)								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	79.8	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 6023333)							
EP2412341-002	KB-Bay 1	EP080: Benzene	71-43-2	20 µg/L	84.9	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	93.6	73.5	126
EP090: Organotin Compounds (Soluble) (QCLot: 6033465)							
EP2412341-001	IH-Mid	EP090S: Tributyltin	56573-85-4	147 ngSn/L	81.6	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2412341**	Page	: 1 of 4
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: MSC24-4	Date Samples Received	: 28-Aug-2024
Site	: ----	Issue Date	: 05-Sep-2024
Sampler	: ----	No. of samples received	: 12
Order number	: 008006	No. of samples analysed	: 12

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
IH-Mid, KB-Bay 1, KB-Bay 2, KB-Bay 3, KB-Bay 4, KB-Beach, KB-SW 1, KB-SW 2, Li-Far, Li-Mid, Li-West, Duplicate	**28-Aug-2024**	**30-Aug-2024**	11-Sep-2024	✓	**30-Aug-2024**	11-Sep-2024	✓
EP090: Organotin Compounds (Soluble)							
Amber Glass Bottle - Unpreserved (EP090S)							
IH-Mid, KB-Bay 1, KB-Bay 2, KB-Bay 3, KB-Bay 4, KB-Beach, KB-SW 1, KB-SW 2, Li-Far, Li-Mid, Li-West	**28-Aug-2024**	**04-Sep-2024**	04-Sep-2024	✓	**04-Sep-2024**	14-Oct-2024	✓
Amber Glass Bottle - Unpreserved (EP090S)							
Duplicate	**28-Aug-2024**	**04-Sep-2024**	04-Sep-2024	✓	**05-Sep-2024**	14-Oct-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Organotin Compounds (Soluble)	EP090S	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Organotin Compounds (Soluble)	EP090S	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Organotin Compounds (Soluble)	EP090S	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Organotin Compounds (Soluble)	EP090S	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Organotin Compounds (Soluble)	EP090S	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by GC/MS coupled with high volume injection and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Organotin Sample Preparation	ORG34	WATER	In house. A specified volume of sample is spiked with surrogate, acidified and vacuum filtered. Reagents and solvent are added and the mixture tumbled. The butyltin compounds is derivitisated, extracted and the subtitution reaction completed. The extract is transferred to a separatory funnel and further extracted two times with petroleum ether. The resultant extracts are combined and concentrated for analysis.

Marine and Freshwater
Research Laboratory
Environmental Science
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.
The results of the tests, calibrations and/or measurements included is this document are traceable to Australian/national standards.

Murdoch UNIVERSITY

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 19/09/2024
Date Received: 5/09/2024
Our Reference: MSC24-5
Your Reference: MSA343-3

METHOD SAMPLE CODE	Sampling Date	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit		**<3**	**<2**	**<2**	**<5**	**<50**	**<0.1**	**<0.2**	**<1**
Analysis Date		**12/09/2024**	**12/09/2024**	**12/09/2024**	**13/09/2024**	**12/09/2024**	**10/09/2024**	**10/09/2024**	**6/09/2024**
File		**24091201**	**24091201**	**24091201**	**24091301-1801**	**24091202**	**24091001**	**24091001**	**24090601**
IH-Mid	5/09/2024	12	5	30	20	220	2.1	0.8	6
KB-Bay 1	5/09/2024	9	5	21	47	390	5.0	2.9	24
KB-Bay 2	5/09/2024	4	5	30	25	250	3.2	1.7	13
KB-Bay 3	5/09/2024	9	5	15	59	400	4.5	3.2	35
KB-Bay 4	5/09/2024	13	5	14	62	420	4.0	2.4	30
KB-Beach	5/09/2024	20	5	20	42	310	3.6	2.0	24
KB-SW 1	5/09/2024	21	6	21	52	370	5.3	3.1	41
KB SW 2	5/09/2024	20	6	21	80	510	4.8	2.9	41
LI-Far	5/09/2024	8	3	39	16	290	1.6	0.6	3
LI-Mid	5/09/2024	<3	3	18	18	270	2.6	0.7	4
LI-West	5/09/2024	3	3	8	17	220	2.5	1.0	4
Duplicate	5/09/2024	6	2	25	17	280	1.5	0.3	3

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 19/09/2024

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Marine and Freshwater
Research Laboratory
Environmental Science
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
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The results of the tests, calibrations and/or measurements included is this document are traceable to Australian/national standards.

Murdoch UNIVERSITY

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 19/09/2024
Date Received: 5/09/2024
Our Reference: MSC24-5
Your Reference: MSA343-3

METHOD SAMPLE CODE	Sampling Date	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit		**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date		**16/09/2023**	**16/09/2023**	**16/09/2023**	**16/09/2023**	**16/09/2023**	**13/09/2024**
File		**23091601**	**23091601**	**23091601**	**23091601**	**23091601**	**24091301B**
IH-Mid	5/09/2024	0.3	0.7	2	<0.1	<0.1	<0.0001
KB-Bay 1	5/09/2024	0.3	0.4	2	<0.1	<0.1	<0.0001
KB-Bay 2	5/09/2024	0.3	0.7	<1	<0.1	<0.1	<0.0001
KB-Bay 3	5/09/2024	0.3	0.3	2	<0.1	<0.1	<0.0001
KB-Bay 4	5/09/2024	0.3	0.4	2	<0.1	<0.1	<0.0001
KB-Beach	5/09/2024	0.4	0.4	3	<0.1	<0.1	<0.0001
KB-SW 1	5/09/2024	0.3	0.4	2	<0.1	<0.1	<0.0001
KB SW 2	5/09/2024	0.4	0.4	2	<0.1	<0.1	<0.0001
LI-Far	5/09/2024	0.4	1.1	1	<0.1	<0.1	<0.0001
LI-Mid	5/09/2024	0.4	1.3	1	<0.1	<0.1	<0.0001
LI-West	5/09/2024	0.4	1.1	2	<0.1	<0.1	<0.0001
Duplicate	5/09/2024	0.4	1.2	1	<0.1	<0.1	<0.0001

The results only apply to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 19/09/2024

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CERTIFICATE OF ANALYSIS

Work Order	: **EP2412873**	Page	: 1 of 6
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-5	Date Samples Received	: 06-Sep-2024 08:00
Order number	: PO-008006	Date Analysis Commenced	: 10-Sep-2024
C-O-C number	: ----	Issue Date	: 16-Sep-2024 14:17
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	SENIOR LAB TECH	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	IH-Mid	KB-Bay 1	KB-Bay 2	KB-Bay 3	KB-Bay 4
			Sampling date / time	05-Sep-2024 00:00	05-Sep-2024 00:00	05-Sep-2024 00:00	05-Sep-2024 00:00	05-Sep-2024 00:00
Compound	CAS Number	LOR	Unit	EP2412873-001	EP2412873-002	EP2412873-003	EP2412873-004	EP2412873-005
				Result	Result	Result	Result	Result
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	=1	=1	=1	=1	=1
Toluene	108-88-3	2	µg/L	=2	=2	=2	=2	=2
Ethylbenzene	100-41-4	2	µg/L	=2	=2	=2	=2	=2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	=2	=2	=2	=2	=2
ortho-Xylene	95-47-6	2	µg/L	=2	=2	=2	=2	=2
^ Total Xylenes	----	2	µg/L	=2	=2	=2	=2	=2
^ Sum of BTEX	----	1	µg/L	=1	=1	=1	=1	=1
Naphthalene	91-20-3	5	µg/L	=5	=5	=5	=5	=5
EP090: Organotin Compounds (Soluble)								
Tributyltin	56573-85-4	2	ngSn/L	=2	=2	=2	=2	=2
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**110**	**110**	**103**	**101**	**111**
Toluene-D8	2037-26-5	2	%	**117**	**99.0**	**95.2**	**93.7**	**97.3**
4-Bromofluorobenzene	460-00-4	2	%	**118**	**111**	**101**	**104**	**108**
EP090S: Organotin Surrogate								
Tripropyltin	----	5	%	**79.4**	**85.8**	**76.4**	**85.6**	**78.5**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	KB-Beach	KB-SW 1	KB-SW 2	LI-Far	LI-Mid
			Sampling date / time	05-Sep-2024 00:00	05-Sep-2024 00:00	05-Sep-2024 00:00	05-Sep-2024 00:00	05-Sep-2024 00:00
Compound	CAS Number	LOR	Unit	EP2412873-006	EP2412873-007	EP2412873-008	EP2412873-009	EP2412873-010
				Result	Result	Result	Result	Result
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	=1	=1	=1	=1	=1
Toluene	108-88-3	2	µg/L	=2	=2	=2	=2	=2
Ethylbenzene	100-41-4	2	µg/L	=2	=2	=2	=2	=2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	=2	=2	=2	=2	=2
ortho-Xylene	95-47-6	2	µg/L	=2	=2	=2	=2	=2
^ Total Xylenes	----	2	µg/L	=2	=2	=2	=2	=2
^ Sum of BTEX	----	1	µg/L	=1	=1	=1	=1	=1
Naphthalene	91-20-3	5	µg/L	=5	=5	=5	=5	=5
EP090: Organotin Compounds (Soluble)								
Tributyltin	56573-85-4	2	ngSn/L	=2	=2	=2	=2	=2
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**104**	**110**	**107**	**102**	**113**
Toluene-D8	2037-26-5	2	%	**95.8**	**98.4**	**98.2**	**99.2**	**98.6**
4-Bromofluorobenzene	460-00-4	2	%	**106**	**107**	**108**	**107**	**107**
EP090S: Organotin Surrogate								
Tripropyltin	----	5	%	**78.4**	**82.2**	**81.0**	**78.4**	**70.9**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	LI-West	Duplicate	----	----	----
				Sampling date / time	05-Sep-2024 00:00	05-Sep-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2412873-011	EP2412873-012	--------	--------	--------
					Result	Result	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		=1	=1	----	----	----
Toluene	108-88-3	2	µg/L		=2	=2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		=2	=2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		=2	=2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		=2	=2	----	----	----
^ **Total Xylenes**	----	2	µg/L		=2	=2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		=1	=1	----	----	----
Naphthalene	91-20-3	5	µg/L		=5	=5	----	----	----
EP090: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		=2	=2	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**107**	**108**	----	----	----
Toluene-D8	2037-26-5	2	%		**95.3**	**94.8**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		**107**	**105**	----	----	----
EP090S: Organotin Surrogate									
Tripropyltin	----	5	%		**58.3**	**72.1**	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
4-Bromofluorobenzene	460-00-4	60	125
EP090S: Organotin Surrogate			
Tripropyltin	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2412873**	Page	: 1 of 4
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Project	: MSC24-d	Date Samples Receive5	: 06-Sep-2024
Site	: ----	Issue Date	: 16-Sep-2024
Sampler	: ----	No. of samples receive5	: 12
Or5er number	: PO-008006	No. of samples analyse5	: 12

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

Brief metho5 summaries an5 references are also provi5e5 to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagge5 in the Quality Control (QC) Report.

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

If samples are i5entifie5 below as having been analyse5 or extracte5 outsi5e of recommen5e5 hol5ing times, this shoul5 be taken into consi5eration when interpreting results.

This report summarizes extraction / preparation an5 analysis times an5 compares each with ALS recommen5e5 hol5ing times (referencing USEPA SW 846, APYA, AS an5 NEPM) base5 on the sample container provi5e5. Dates reporte5 represent first 5ate of extraction or analysis an5 preclu5e subsequent 5ilutions an5 reruns. A listing of breaches (if any) is provi5e5 herein.

Yol5ing time for leachate metho5s (e.g. TCLP) vary accor5ing to the analytes reporte5. Assessment compares the leach 5ate with the shortest analyte hol5ing time for the equivalent soil metho5. These are: organics 14 5ays, mercury 28 5ays & other metals 180 5ays. A recor5e5 breach 5oes not guarantee a breach for all non-volatile parameters.

Yol5ing times for ***VOC in soils*** vary accor5ing to analytes of interest. 7inyl Chlori5e an5 Styrene hol5ing time is F 5ays; others 14 5ays. A recor5e5 breach 5oes not guarantee a breach for all 7OC analytes an5 shoul5 be verifie5 in case the reporte5 breach is a false positive or 7inyl Chlori5e an5 Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Yol5ing time breach ; ✓ = Within hol5ing time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
IY-Mi5,	KB-Bay 1,	**05-Sep-2024**	**10-Sep-2024**	19-Sep-2024	✓	**10-Sep-2024**	19-Sep-2024	✓
KB-Bay 2,	KB-Bay 3,							
KB-Bay 4,	KB-Beach,							
KB-SW 1,	KB-SW 2,							
LI-Har,	LI-Mi5,							
LI-West,	Duplicate							
EP090: Organotin Compounds (Soluble)								
Amber Glass Bottle - Unpreserved (EP090S)								
IY-Mi5,	KB-Bay 1,	**05-Sep-2024**	**12-Sep-2024**	12-Sep-2024	✓	**13-Sep-2024**	22-Oct-2024	✓
KB-Bay 2,	KB-Bay 3,							
KB-Bay 4,	KB-Beach,							
KB-SW 1,	KB-SW 2,							
LI-Har,	LI-Mi5,							
LI-West,	Duplicate							

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analyse5 within the analytical lot(s) in which the submitte5 sample(s) was(were) processe5. Actual rate shoul5 be greater than or equal to the expecte5 rate. A listing of breaches is provi5e5 in the Summary of Outliers.

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Organotin Compoun5s (Soluble)	EP090S	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Stan5ar5
TRY 7olatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Stan5ar5
Laboratory Control Samples (LCS)							
Organotin Compoun5s (Soluble)	EP090S	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Stan5ar5
TRY 7olatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Stan5ar5
Metho5 Blanks (MB)							
Organotin Compoun5s (Soluble)	EP090S	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Stan5ar5
TRY 7olatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Stan5ar5
Matrix Spikes (MS)							
Organotin Compoun5s (Soluble)	EP090S	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Stan5ar5
TRY 7olatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Stan5ar5

Brief Method Summaries

The analytical proce5ures use5 by the Environmental Division have been 5evelope5 from establishe5 internationally recognize5 proce5ures such as those publishe5 by the US EPA, APYA, AS an5 NEPM. In house 5evelope5 proce5ures are employe5 in the absence of 5ocumente5 stan5ar5s or by client request. The following report provi5es brief 5escriptions of the analytical proce5ures employe5 for results reporte5 in the Certificate of Analysis. Sources from which ALS metho5s have been 5evelope5 are provi5e5 within the Metho5 Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
TRY 7olatiles/BTEX	EP080	WATER	In house: Reference5 to USEPA SW 846 - 8260 Water samples are 5irectly purge5 prior to analysis by Capillary GC/MS an5 quantification is by comparison against an establishe5 d point calibration curve. Alternatively, a sample is equilibrate5 in a hea5space vial an5 a portion of the hea5space 5etermine5 by GCMS analysis. This metho5 is compliant with the QC requirements of NEPM Sche5ule B(3)
Organotin Compoun5s (Soluble)	EP090S	WATER	In house: Reference5 to USEPA SW 846 - 82F0 Sample extracts are analyse5 by GC/MS couple5 with high volume injection an5 quantification is by comparison against an establishe5 d point calibration curve. This metho5 is compliant with NEPM Sche5ule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
7olatiles Water Preparation	ORG16-W	WATER	A d mL aliquot or d mL of a 5ilute5 sample is a55e5 to a 40 mL 7OC vial for purging.
Organotin Sample Preparation	ORG34	WATER	In house. A specifie5 volume of sample is spike5 with surrogate, aci5ifie5 an5 vacuum filtere5. Reagents an5 solvent are a55e5 an5 the mixture tumble5. The butyltin compoun5s is 5erivitisate5, extracte5 an5 the subtitution reaction complete5. The extract is transferre5 to a separatory funnel an5 further extracte5 two times with petroleum ether. The resultant extracts are combine5 an5 concentrate5 for analysis.

Chain of Custody

Marine and Freshwater Research Laboratory Environmental Science

Murdoch University

From:	[redacted]
Address:	Marine and Freshwater Research Laboratory, 90 South St, Murdoch WA 6150
Phone:	93602907
Email:	[redacted]
Job Number:	MSC24-5
PO/Account#:	PO-008006

To: ALS
Address: 26 Rigalii Way Wangara WA 6065
Quote Number: EP24MARFRE0003_V3

Sample Preservation: Cool/On ice

Sample Type: Estuarine/Marine

No	Sample Code	Sampling Date	Analysis Requested						
			Benzene	Napthalen	TBT	LAB QA			
1	IH-Mid	5/09/2024	x	x	x	x			
2	KB-Bay 1	5/09/2024	x	x	x				
3	KB-Bay 2	5/09/2024	x	x	x				
4	KB-Bay 3	5/09/2024	x	x	x				
5	KB-Bay 4	5/09/2024	x	x	x				
6	KB-Beach	5/09/2024	x	x	x				
7	KB-SW 1	5/09/2024	x	x	x				
8	KB SW 2	5/09/2024	x	x	x				
9	LI-Far	5/09/2024	x	x	x				
10	LI-Mid	5/09/2024	x	x	x				
11	LI-West	5/09/2024	x	x	x				
12	Duplicate	5/09/2024	x	x	x				
	Results requested on or before 13/09/2024								

Environmental Division
Perth
Work Order Reference
EP2412873

Telephone : +61-8-9406 1301

Relinquished by: _____ Date/Time: _____ Received by: PH Date/Time: 6/9 800

Sample Condition: _____

Marine and Freshwater
Research Laboratory
Environmental Science
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.
The results of the tests, calibrations and/or measurements included is this document are traceable to Australian/national standards.

Murdoch UNIVERSITY

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 25/09/2024
Date Received: 12/09/2024
Our Reference: MSC24-6
Your Reference: MSA343-4

METHOD SAMPLE CODE	Sampling Date	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit		<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date		19/09/2024	19/09/2024	24/09/2024	18/09/2024	18/09/2024	20/09/2024	20/09/2024	13/09/2024
File		24091901	24091901	24092402	24091801	24091801	24092001	24092001	24091301
IH-Mid	12/09/2024	29	6	14	14	180	1.1	0.6	6
KB-Bay 1	12/09/2024	13	6	12	16	160	1.6	0.6	5
KB-Bay 2	12/09/2024	9	6	11	15	140	1.7	0.6	4
KB-Bay 3	12/09/2024	5	5	15	17	220	1.8	0.5	5
KB-Bay 4	12/09/2024	11	5	13	16	150	1.6	0.6	5
KB-Beach	12/09/2024	14	5	10	19	180	2.6	0.9	11
KB-SW 1	12/09/2024	10	4	13	15	220	1.8	0.6	4
KB SW 2	12/09/2024	9	4	13	16	200	1.9	0.9	8
LI-Far	12/09/2024	<3	4	6	44	370	9.9	2.9	15
LI-Mid	12/09/2024	<3	4	3	18	290	5.7	3.7	50
LI-West	12/09/2024	<3	3	8	20	260	3.1	0.9	4
Duplicate	12/09/2024	<3	4	5	17	210	3.3	0.8	4

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 25/09/2024

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Marine and Freshwater
Research Laboratory
Environmental Science
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.
The results of the tests, calibrations and/or measurements included is this document are traceable to Australian/national standards.

Murdoch UNIVERSITY

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 25/09/2024
Date Received: 12/09/2024
Our Reference: MSC24-6
Your Reference: MSA343-4

METHOD SAMPLE CODE	Sampling Date	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit		**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date		**16/09/2024**	**16/09/2024**	**16/09/2024**	**16/09/2024**	**16/09/2024**	**17/09/2024**
File		**24091601**	**24091601**	**24091601**	**24091601**	**24091601**	**24091701**
IH-Mid	12/09/2024	<0.3	0.7	2	<0.1	<0.1	<0.0001
KB-Bay 1	12/09/2024	0.3	0.5	2	<0.1	<0.1	<0.0001
KB-Bay 2	12/09/2024	0.3	0.4	2	<0.1	<0.1	<0.0001
KB-Bay 3	12/09/2024	0.3	0.7	2	<0.1	<0.1	<0.0001
KB-Bay 4	12/09/2024	<0.3	0.5	4	<0.1	<0.1	<0.0001
KB-Beach	12/09/2024	<0.3	0.5	2	<0.1	<0.1	<0.0001
KB-SW 1	12/09/2024	<0.3	0.5	2	<0.1	<0.1	<0.0001
KB SW 2	12/09/2024	0.3	0.6	3	<0.1	<0.1	<0.0001
LI-Far	12/09/2024	0.4	1.2	6	<0.1	<0.1	<0.0001
LI-Mid	12/09/2024	0.4	1.4	6	<0.1	<0.1	<0.0001
LI-West	12/09/2024	0.4	1.2	3	<0.1	<0.1	<0.0001
Duplicate	12/09/2024	0.4	1.2	4	<0.1	<0.1	<0.0001

The results only apply to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 25/09/2024

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CERTIFICATE OF ANALYSIS

Work Order	: EP24131MM	Page	: 1 of 6
ADeHdDeHB	: 1		
Client	: i ARINE ANt FRESnWATER RESEARCn LAaORATORY	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-6	Date Samples Received	: 12-Sep-2024 15:10
Order number	: 008006	Date Analysis Commenced	: 13-Sep-2024
C-O-C number	: ----	Issue Date	: 19-Sep-2024 15:41
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

AddlBoHfm lHporDfBoH herBHeHB Bo Bslw rehorB blmmue pogHd lH Bse pomobIHc wehfrfBe fBBfQsDeHBv. ygfrfB, CoHBom RehorB yAy C CoDhrffHQe AwwewwDeHB Bo fwwlwB blBs ygfrfB, Re. leb fHd SfDhra ReQelhBNoBpdQfBoH^

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD
[redacted]	Senior Organic Chemist	Brisbane Organics, Stafford, QLD
[redacted]	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD
[redacted]	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- Amendment (19/09/2024): This report has been amended following a change to the 'EP090 - Tributylin' result reported for sample 'IH-Mid' (EP2413155-001) due to a analyst error. All details are recorded in client query '24PECC185' and a full investigation will be detailed in corrective action request '24BNC142'.

Analytical Results

Sub-Matrix: WATER)Matrix: WATER0			Sample ID	In(i ld	- a(af, 1	- a(af, 2	- a(af, 3	- a(af, 4
			Sampling date / time	12-Sep-2024 00:00	12-Sep-2024 00:00	12-Sep-2024 00:00	12-Sep-2024 00:00	12-Sep-2024 00:00
Compound	CAS Number	LOR	Unit	EP24131MM(551	EP24131MM(552	EP24131MM(553	EP24131MM(554	EP24131MM(55M
				Result	Result	Result	Result	Result
EP585: a TEXN								
aeHzeHe	71-43-2	1	µg/L	<1	<1	<1	<1	<1
TorgeHe	108-88-3	2	µg/L	<2	<2	<2	<2	<2
EBs, meHzeHe	100-41-4	2	µg/L	<2	<2	<2	<2	<2
DeB(& hf rf(X, reHe	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
orBso(X, reHe	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ ToB mX, reHew	----	2	µg/L	<2	<2	<2	<2	<2
^ SgD opa TEX	----	1	µg/L	<1	<1	<1	<1	<1
Nf hsBs f reHe	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP595: Orcf HoBH CoD hogHdw)Sorgure0								
TrIugB, rBH	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP585S: TPn)V0a TEX Sgrrocf Bew								
1'2(t lQs rorroeBs f He(t 4	17060-07-0	2	%	117	11M	116	115	114
TorgeHe(t 8	2037-26-5	2	%	99'M	98'9	96'6	96'1	9M'2
4(a roD opgorroueHzeHe	460-00-4	2	%	158	153	151	151	153
EP595S: Orcf HoBH Sgrrocf Be								
TrIhroh, rBH	----	5	%	76'5	74'3	65'M	67'2	72'8

Analytical Results

Sub-Matrix: WATER)Matrix: WATER0			Sample ID	- a (a ef Qs	- a (SW 1	- a (SW 2	LI(Ff r	LI(i ld
			Sampling date / time	12-Sep-2024 00:00	12-Sep-2024 00:00	12-Sep-2024 00:00	12-Sep-2024 00:00	12-Sep-2024 00:00
Compound	CAS Number	LOR	Unit	EP24131MM(557	EP24131MM(556	EP24131MM(558	EP24131MM(559	EP24131MM(515
				Result	Result	Result	Result	Result
EP585: a TEXN								
aeHzeHe	71-43-2	1	µg/L	<1	<1	<1	<1	<1
TorgeHe	108-88-3	2	µg/L	<2	<2	<2	<2	<2
EBs, meHzeHe	100-41-4	2	µg/L	<2	<2	<2	<2	<2
DeB(& hf rf (X, reHe	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
orBso(X, reHe	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ ToB mX, reHew	----	2	µg/L	<2	<2	<2	<2	<2
^ SgD opa TEX	----	1	µg/L	<1	<1	<1	<1	<1
Nf hsBs f reHe	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP595: Orcf HoBH CoD hogHdw)Sorgure0								
TrIugB, rBH	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP585S: TPn)V0a TEX Sgrrocf Bew								
1'2(t lQs rorroeBs f He(t 4	17060-07-0	2	%	113	112	115	11M	113
TorgeHe(t 8	2037-26-5	2	%	99'3	99'2	98'M	96'4	97'9
4(a roD opgorroueHzeHe	460-00-4	2	%	112	154	153	152	15M
EP595S: Orcf HoBH Sgrrocf Be								
TrIhroh, rBH	----	5	%	77'8	62'7	73'7	M9'8	79'M

Analytical Results

Sub-Matrix: WATER)Matrix: WATER0			Sample ID	LI(WewB	t ghrIQf Be	((((	((((	((((
			Sampling date / time	12-Sep-2024 00:00	12-Sep-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP24131MM(511	EP24131MM(512	((((((((	((((((((	((((((((
				Result	Result	----	----	----
EP585: a TEXN								
aeHzeHe	71-43-2	1	µg/L	<1	<1	((((	((((	((((
TorgeHe	108-88-3	2	µg/L	<2	<2	((((	((((	((((
EBs, meHzeHe	100-41-4	2	µg/L	<2	<2	((((	((((	((((
DeB(& hf rf (X, reHe	108-38-3 106-42-3	2	µg/L	<2	<2	((((	((((	((((
orBso(X, reHe	95-47-6	2	µg/L	<2	<2	((((	((((	((((
^ ToB mX, reHew	----	2	µg/L	<2	<2	((((	((((	((((
^ SgD opa TEX	----	1	µg/L	<1	<1	((((	((((	((((
Nf hsBs f reHe	91-20-3	5	µg/L	<5	<5	((((	((((	((((
EP595: Orcf HoBH CoD hogHdw)Sorgure0								
TrIugB, rBH	56573-85-4	2	ngSn/L	<2	<2	((((	((((	((((
EP585S: TPn)V0a TEX Sgrrocf Bew								
1'2(t lQsroroeBs f He(t 4	17060-07-0	2	%	111	11M	((((	((((	((((
TorgeHe(t 8	2037-26-5	2	%	9M2	9M'M	((((	((((	((((
4(a roD opgoroueHzeHe	460-00-4	2	%	154	151	((((	((((	((((
EP595S: Orcf HoBH Sgrrocf Be								
TrIhroh, rBH	----	5	%	74'3	61'7	((((	((((	((((

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP585S: TPn)V0a TEX Sgrrocf Bew			
1'2(t IQsroroeBsf He(t 4	17060-07-0	61	141
TorgeHe(t 8	2037-26-5	73	126
4(aroD opgoroueHzeHe	460-00-4	60	125
EP595S: Orcf HoBH Sgrrocf Be			
TrIhroh, rBH	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP2413155**	Page	: 1 of 3
Amendment	: **1**		
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6140	Address	: 26 Rigali Way Wangara WA Australia 6064
Tele5hone	: [redacted]	Tele5hone	: [redacted]
Project	: MSC28-6	Date Sam5les Received	: 12-Se5-2028
Order number	: 007006	Date Analysis Commenced	: 13-Se5-2028
C-O-C number	: ----	Issue Date	: 1+-Se5-2028
Sam5ler	: ----		
Site	: ----		
Quote number	: EP28MARFRE0003_V2		
No. of sam5les received	: 12		
No. of sam5les analysed	: 12		

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

This re5ort su5ersedes any 5revious re5ort(s) with this reference. Results a55ly to the sam5le(s) as submitted, unless the sam5ling was conducted by ALS. This document shall not be re5roduced, exce5t in full.

This Quality Control Re5ort contains the following information:

- Laboratory Du5licate (DUP) Re5ort; Relative Percentage Difference (RPD) and Acce5tance Limits
- Method Blank (MB) and Laboratory Control S5ike (LCS) Re5ort; Recovery and Acce5tance Limits
- Matrix S5ike (MS) Re5ort; Recovery and Acce5tance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in com5liance with 5rocedures s5ecified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD
[redacted]	Senior Organic Chemist	Brisbane Organics, Stafford, QLD
[redacted]	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD
[redacted]	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical 5rocedures used by ALS have been develo5ed from established internationally recognised 5rocedures such as those 5ublished by the USEPA, APHA, AS and NEPM. In house develo5ed 5rocedures are fully validated and are often at the client re<uest.

Where moisture determination has been 5erformed, results are re5orted on a dry weight basis.

Where a re5orted less than (=) result is higher than the LOR, this may be due to 5rimary sam5le extract/digestate dilution and/or insufficient sam5le for analysis. Where the LOR of a re5orted result differs from standard LOR, this may be due to high moisture content, insufficient sam5le (reduced weight em5loyed) or matrix interference.

q ey : Anonymous # Refers to sam5les which are not s5ecifically 5art of this work order but formed 5art of the QC 5rocess lot
CAS Number # CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR # Limit of re5orting
RPD # Relative Percentage Difference
K # Indicates failed QC

Laboratory Duplicate (DUP) Report

The <uality control term Laboratory Du5licate refers to a randomly selected intralaboratory s5lit. Laboratory du5licates 5rovide information regarding method 5recision and sam5le heterogeneity. The 5ermitted ranges for the Relative Percent Deviation (RPD) of Laboratory Du5licates are s5ecified in ALS Method QWI-EN/37 and are de5endent on the magnitude of results in com5arison to the level of re5orting: Result = 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 40%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 6054998)									
EP2813101-006	Anonymous	EP070: Benzene	91-83-2	1	µg/L	=1	=1	0.0	No Limit
		EP070: Toluene	107-77-3	2	µg/L	=2	=2	0.0	No Limit
		EP070: Ethylbenzene	100-81-8	2	µg/L	=2	=2	0.0	No Limit
		EP070: meta- & 5ara-Xylene	107-37-3 106-82-3	2	µg/L	=2	=2	0.0	No Limit
		EP070: ortho-Xylene	+4-89-6	2	µg/L	=2	=2	0.0	No Limit
		EP070: Na5hthalene	+1-20-3	4	µg/L	=4	=4	0.0	No Limit
EP2813144-00+	LI-Far	EP070: Benzene	91-83-2	1	µg/L	=1	=1	0.0	No Limit
		EP070: Toluene	107-77-3	2	µg/L	=2	=2	0.0	No Limit
		EP070: Ethylbenzene	100-81-8	2	µg/L	=2	=2	0.0	No Limit
		EP070: meta- & 5ara-Xylene	107-37-3 106-82-3	2	µg/L	=2	=2	0.0	No Limit
		EP070: ortho-Xylene	+4-89-6	2	µg/L	=2	=2	0.0	No Limit
		EP070: Na5hthalene	+1-20-3	4	µg/L	=4	=4	0.0	No Limit
EP090: Organotin Compounds (Soluble) (QC Lot: 6056788)									
EP2813079-006	Anonymous	EP0+0S: Tributyltin	46493-74-8	2	ngSn/L	=2	=2	0.0	No Limit
EP2813144-001	IH-Mid	EP0+0S: Tributyltin	46493-74-8	2	ngSn/L	=2	=2	0.0	No Limit

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

The <uality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or 5ro5ortions as used in standard sam5le 5re5aration. The 5ur5ose of this QC 5arameter is to monitor 5otential laboratory contamination. The <uality control term Laboratory Control Sam5le (LCS) refers to a certified reference material, or a known interference free matrix s5iked with target analytes. The 5ur5ose of this QC 5arameter is to monitor method 5recision and accuracy inde5endent of sam5le matrix. Dynamic Recovery Limits are based on statistical evaluation of 5rocessed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 6054998)								
EP070: Benzene	91-83-2	1	µg/L	=1	20 µg/L	107	78.1	118
EP070: Toluene	107-77-3	2	µg/L	=2	20 µg/L	104	71.0	114
EP070: Ethylbenzene	100-81-8	2	µg/L	=2	20 µg/L	109	78.8	113
EP070: meta- & 5ara-Xylene	107-37-3 106-82-3	2	µg/L	=2	80 µg/L	106	78.3	118
EP070: ortho-Xylene	+4-89-6	2	µg/L	=2	20 µg/L	104	76.4	111
EP070: Na5hthalene	+1-20-3	4	µg/L	=4	4 µg/L	109	99.0	117
EP090: Organotin Compounds (Soluble) (QCLot: 6056788)								
EP0+0S: Tributyltin	46493-74-8	2	ngSn/L	=2	189 ngSn/L	106	30.9	138

Matrix Spike (MS) Report

The <uality control term Matrix S5ike (MS) refers to an intralaboratory s5lit sam5le s5iked with a re5resentative set of target analytes. The 5ur5ose of this QC 5arameter is to monitor 5otential matrix effects on analyte recoveries. Static Recovery Limits as 5er laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sam5le matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 6054998)							
EP2813101-009	Anonymous	EP070: Benzene	91-83-2	80 µg/L	106	99.0	122
		EP070: Toluene	107-77-3	80 µg/L	103	93.4	126
EP090: Organotin Compounds (Soluble) (QCLot: 6056788)							
EP2813079-006	Anonymous	EP0+0S: Tributyltin	46493-74-8	189 ngSn/L	109	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2413155**	Page	: 1 of 4
Amendment	: **1**		
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Project	: MSC24-6	Date Samples Received	: 12-Sep-2024
Site	: ----	Issue Date	: 19-Sep-2024
Sampler	: ----	5 oNof samples received	: 12
Order number	: 008006	5 oNof samples analysed	: 12

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

. rief method summaries and references are also provided to assist in traceabilityN

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Buality Control CBC(ReportN

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be ta) en into consideration when interpreting resultsN

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and 5EPM(based on the sample container providedN Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and rerunsNA listing of breaches (if any(is provided hereinN

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

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

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
IH-Mid, K. -. ay 1, K. -. ay 2, K. -. ay 3, K. -. ay 4, K. -. each, K. -SW 1, K. -SW 2, LI-Far, LI-Mid, LI-West, Duplicate	**12-Sep-2024**	**13-Sep-2024**	26-Sep-2024	✓	**14-Sep-2024**	26-Sep-2024	✓
EP090: Organotin Compounds (Soluble)							
Amber Glass Bottle - Unpreserved (EP090S)							
IH-Mid, K. -. ay 1, K. -. ay 2, K. -. ay 3, K. -. ay 4, K. -. each, K. -SW 1, K. -SW 2, LI-Far, LI-Mid, LI-West, Duplicate	**12-Sep-2024**	**16-Sep-2024**	19-Sep-2024	✓	**16-Sep-2024**	26-Oct-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory B C samples analysed within the analytical lot3(in which the submitted sample3(was0were(processedNActual rate should be greater than or equal to the expected rateNA listing of breaches is provided in the Summary of OutliersN

Matrix: **WATER**

Evaluation: × = B uality Control frequency not within specification ; ✓ = B uality Control frequency within specification N

B uality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates 0D UP(							
Organotin Compounds 3Soluble(	EP090S	2	20	**10.00**	**10.00**	✓	5 EPM 2013 . 3 & ALS B C Standard
TRH Volatiles/. TEX	EP080	2	17	**11.76**	**10.00**	✓	5 EPM 2013 . 3 & ALS B C Standard
Laboratory Control Samples 0L CS(							
Organotin Compounds 3Soluble(	EP090S	1	20	**5.00**	**5.00**	✓	5 EPM 2013 . 3 & ALS B C Standard
TRH Volatiles/. TEX	EP080	1	17	**5.88**	**5.00**	✓	5 EPM 2013 . 3 & ALS B C Standard
Method . lan) s 0M. (							
Organotin Compounds 3Soluble(	EP090S	1	20	**5.00**	**5.00**	✓	5 EPM 2013 . 3 & ALS B C Standard
TRH Volatiles/. TEX	EP080	1	17	**5.88**	**5.00**	✓	5 EPM 2013 . 3 & ALS B C Standard
Matrix Spi) es 0M S(							
Organotin Compounds 3Soluble(	EP090S	1	20	**5.00**	**5.00**	✓	5 EPM 2013 . 3 & ALS B C Standard
TRH Volatiles/. TEX	EP080	1	17	**5.88**	**5.00**	✓	5 EPM 2013 . 3 & ALS B C Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and 5 EPMNIn house developed procedures are employed in the absence of documented standards or by client requestNThe following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of AnalysisNSources from which ALS methods have been developed are provided within the Method DescriptionsN

Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles/. TEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established k point calibration curveNAlternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysisN This method is compliant with the BC requirements of 5 EPM Schedule . C3(
Organotin Compounds CSoluble(	EP090S	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by GC/MS coupled with high volume injection and quantification is by comparison against an established k point calibration curveNThis method is compliant with 5 EPM Schedule . C3(

Preparation Methods	Method	Matrix	Method Descriptions
Volatiles Water Preparation	ORG16-W	WATER	A k mL aliquot or k mL of a diluted sample is added to a 40 mL VOC vial for purgingN
Organotin Sample Preparation	ORG34	WATER	In houseN A specified volume of sample is spi) ed with surrogate, acidified and vacuum filteredN Reagents and solvent are added and the mixture tumbledN The butyltin compounds is derivitisated, extracted and the subtitution reaction completedN The extract is transferred to a separatory funnel and further extracted two times with petroleum etherN The resultant extracts are combined and concentrated for analysisN

Marine and Freshwater
Research Laboratory
Environmental Science
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.
The results of the tests, calibrations and/or measurements included is this document are traceable to Australian/national standards.

Murdoch UNIVERSITY

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 4/10/2024
Date Received:19/09/2024
Our Reference: MSC24-7
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit		<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date		19/09/2024	19/09/2024	24/09/2024	27/09/2024	25/09/2024	2/10/2024	2/10/2024	19/09/2024
File		24091901	24091901	24092402	24092701	24092501	24100201	24100201	240919
IH-Mid	19/09/2024	22	5	7	25	190	2.1	1.4	11
KB-Bay 1	19/09/2024	9	4	4	17	140	1.0	0.6	3
KB-Bay 2	19/09/2024	12	4	6	17	160	1.2	0.7	3
KB-Bay 3	19/09/2024	7	4	4	17	150	1.0	0.8	3
KB-Bay 4	19/09/2024	9	5	6	24	180	2.1	1.0	7
KB-Beach	19/09/2024	12	6	7	18	150	1.3	0.7	3
KB-SW 1	19/09/2024	6	5	4	22	170	1.7	1.1	6
KB SW 2	19/09/2024	8	3	5	22	170	1.5	1.2	6
LI-Far	19/09/2024	4	4	4	35	280	5.9	1.7	8
LI-Mid	19/09/2024	4	4	5	20	200	1.5	0.7	3
LI-West	19/09/2024	7	4	7	21	190	1.4	0.7	3
Duplicate	19/09/2024	7	4	7	20	200	1.3	0.7	3

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 4/10/2024

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Marine and Freshwater
Research Laboratory
Environmental Science
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
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The results of the tests, calibrations and/or measurements included is this document are traceable to Australian/national standards.

Murdoch UNIVERSITY

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 4/10/2024
Date Received:19/09/2024
Our Reference: MSC24-7
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit		**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date		**25/09/2024**	**25/09/2024**	**25/09/2024**	**25/09/2024**	**25/09/2024**	**26/09/2024**
File		**24092501**	**24092501**	**24092501**	**24092501**	**24092501**	**24092601**
IH-Mid	19/09/2024	<0.3	0.5	<1	<0.1	<0.1	<0.0001
KB-Bay 1	19/09/2024	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 2	19/09/2024	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-Bay 3	19/09/2024	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 4	19/09/2024	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Beach	19/09/2024	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-SW 1	19/09/2024	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB SW 2	19/09/2024	<0.3	0.3	<1	<0.1	<0.1	<0.0001
LI-Far	19/09/2024	<0.3	0.7	1	<0.1	<0.1	<0.0001
LI-Mid	19/09/2024	<0.3	0.8	<1	<0.1	<0.1	<0.0001
LI-West	19/09/2024	<0.3	0.7	1	<0.1	<0.1	<0.0001
Duplicate	19/09/2024	<0.3	0.8	1	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 4/10/2024

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CERTIFICATE OF ANALYSIS

Work Order	: **EP241873M**	Page	: 1 of 6
Client	: **DARINE ANH FRESBWATER RESEARCB LAi ORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-7	Date Samples Received	: 19-Sep-2024 14:00
Order number	: PO-008006	Date Analysis Commenced	: 20-Sep-2024
C-O-C number	: ----	Issue Date	: 27-Sep-2024 11:58
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Addtrtoal f tarrorp l rtoa herrtaean ro rstw rehorn b tff ue rogad ta rse roffob tac wehl rl re l rrl Qsp eanw: y gl ftn Coarrof Rehorn/ y Aw C Cop hftl aQe Awwewwp ean ro l wwtwn b trs y gl ftn Re. teb l ad Sl p hfe ReQethnNortrtQ rtoa^

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD
[redacted]	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: WATER)Matrix: WATER0			Sample ID	IB(Dtd	- i (i l , 1	- i (i l , 2	- i (i l , 8	- i (i l , 4
			Sampling date / time	19-Sep-2024 00:00	19-Sep-2024 00:00	19-Sep-2024 00:00	19-Sep-2024 00:00	19-Sep-2024 00:00
Compound	CAS Number	LOR	Unit	EP241873M(MM1	EP241873M(MM2	EP241873M(MM3	EP241873M(MM4	EP241873M(MM7
				Result	Result	Result	Result	Result
EPM5M: i TEXN								
i eazeae	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Tofgeae	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ens, fueazeae	100-41-4	2	µg/L	<2	<2	<2	<2	<2
p erl (& hl rl (X, feae	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ornso(X, feae	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Torl f X, feaew	----	2	µg/L	<2	<2	<2	<2	<2
^ Sgp orri TEX	----	1	µg/L	<1	<1	<1	<1	<1
Nl hsrnsl feae	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EPM9M: Orcl aorta Cop hogadw)Sofgufe0								
Trtugn frta	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EPM5MS: TPB)V0i TEX Sgrrocl rew								
1'2(HtQsforoensl ae(H4	17060-07-0	2	%	1M9	11M	1M5	1M5	112
Tofgeae(H5	2037-26-5	2	%	53'M	55'9	53'3	9M'1	53'3
4(i rop orfgoroueazeae	460-00-4	2	%	59'4	55'2	57'9	9M'2	53'7
EPM9MS: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	34'5	33'5	37'M	33'M	32'2

Analytical Results

Sub-Matrix: WATER)Matrix: WATER0			Sample ID	- i (i el Qs	- i (SW 1	- i (SW 2	LI(FI r	LI(D td
			Sampling date / time	19-Sep-2024 00:00	19-Sep-2024 00:00	19-Sep-2024 00:00	19-Sep-2024 00:00	19-Sep-2024 00:00
Compound	CAS Number	LOR	Unit	EP241873M(MM6	EP241873M(MM8	EP241873M(MM5	EP241873M(MM9	EP241873M(MIM
				Result	Result	Result	Result	Result
EPM5M: i TEXN								
i eazeae	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Tofgeae	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ens, fueazeae	100-41-4	2	µg/L	<2	<2	<2	<2	<2
p erl (& hl rl (X, feae	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
orrso(X, feae	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Torl f X, feaew	----	2	µg/L	<2	<2	<2	<2	<2
^ Sgp orri TEX	----	1	µg/L	<1	<1	<1	<1	<1
NI hsrrsl feae	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EPM9M: Orcl aorta Cop hogadw)Sofgufe0								
Trtugn frta	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EPM5M8: TPB)V0i TEX Sgrrocl rew								
1'2(HtQsforoersl ae(H4	17060-07-0	2	%	1M8	1M6	111	1M5	116
Tofgeae(H5	2037-26-5	2	%	94'8	59'5	92'6	53'2	59'M
4(i rop orfgoroueazeae	460-00-4	2	%	9M7	9M2	9M7	59'4	91'6
EPM9M8: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	3M1	32'5	37'8	35'4	31'9

Analytical Results

Sub-Matrix: WATER)Matrix: WATER0			Sample ID	LI(Wewn	HghftQl re	((((	((((	((((
			Sampling date / time	19-Sep-2024 00:00	19-Sep-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP241873M(MI1	EP241873M(MI2	((((((((	((((((((	((((((((
				Result	Result	----	----	----
EPM5M: i TEXN								
i eazeae	71-43-2	1	µg/L	<1	<1	((((	((((	((((
Tofgeae	108-88-3	2	µg/L	<2	<2	((((	((((	((((
Ens, fueazeae	100-41-4	2	µg/L	<2	<2	((((	((((	((((
p erl (& hl rl (X, feae	108-38-3 106-42-3	2	µg/L	<2	<2	((((	((((	((((
orrso(X, feae	95-47-6	2	µg/L	<2	<2	((((	((((	((((
^ Torl f X, feaew	----	2	µg/L	<2	<2	((((	((((	((((
^ Sgp orri TEX	----	1	µg/L	<1	<1	((((	((((	((((
Nl hsrrsl feae	91-20-3	5	µg/L	<5	<5	((((	((((	((((
EPM9M: Orcl aorta Cop hogadw)Sofgufe0								
Trtugn frta	56573-85-4	2	ngSn/L	<2	<2	((((	((((	((((
EPM5MS: TPB)V0i TEX Sgrrocl rew								
1'2(HtQsforoensl ae(H4	17060-07-0	2	%	11M	112	((((	((((	((((
Tofgeae(H5	2037-26-5	2	%	92'1	92'6	((((	((((	((((
4(i rop orfgoroueazeae	460-00-4	2	%	55'5	59'M	((((	((((	((((
EPM9MS: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	34'2	68'2	((((	((((	((((

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP090S: TPB)V0i TEX Sgrrocl rew			
1'2(HtQsforoensl ae(H4	17060-07-0	61	141
Tofgeae(H5	2037-26-5	73	126
4(i rop onfgoroueazeae	460-00-4	60	125
EP090S: Orcl aorta Sgrrocl re			
Trthroh, frta	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP24135mm**	Page	: 1 of 3
Client	: **t ARINE ANM DREFSWATER REFEARCS LAHORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-7	Date Samples Received	: 19-Sep-2024
Order number	: PO-008006	Date Analysis Commenced	: 20-Sep-2024
C-O-C number	: ----	Issue Date	: 27-Sep-2024
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD
[redacted]	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EPnBn: HTE0N 8QC LoX (n(B5n(6									
EP2413557-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2413570-010	LI-Mid	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EPn9n: Or) gaoXa Cop uosadl 8Fobs7le6 8QC LoX (nm99B26									
EP2413570-001	IH-Mid	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit
EP2413659-006	Anonymous	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EPnBn: HTE0N 8QCLoX (n(B5n(6								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	90.2	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	88.2	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	89.1	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	90.4	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	92.8	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	102	77.0	118
EPn9n: Or) gaoXa Cop uosadl 8Fots7le6 8QCLoX (nn99B26								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	109	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EPnBn: HTE0N 8QCLoX (n(B5n(6							
EP2413570-001	IH-Mid	EP080: Benzene	71-43-2	20 µg/L	88.7	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	88.9	73.5	126
EPn9n: Or) gaoXa Cop uosadl 8Fots7le6 8QCLoX (nn99B26							
EP2413570-001	IH-Mid	EP090S: Tributyltin	56573-85-4	147 ngSn/L	96.3	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2413570**	Page	: 1 of 4
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	[redacted]	Telephone	: [redacted]
Project	: MSC24-d	Date Samples Receive5	: 19-Sep-2024
Site	: ----	Issue Date	: 2d-Sep-2024
Sampler	: ----	No. of samples receive5	: 12
Or5er number	: PO-008006	No. of samples analyse5	: 12

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

Brief metho5 summaries an5 references are also provi5e5 to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagge5 in the Quality Control (QC) Report.

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

If samples are i5entifie5 below as having been analyse5 or extracte5 outsi5e of recommen5e5 hol5ing times, this shoul5 be taken into consi5eration when interpreting results.

This report summarizes extraction / preparation an5 analysis times an5 compares each with ALS recommen5e5 hol5ing times (referencing USEPA SW 846, APYA, AS an5 NEPM) base5 on the sample container provi5e5. Dates reporte5 represent first 5ate of extraction or analysis an5 preclu5e subsequent 5ilutions an5 reruns. A listing of breaches (if any) is provi5e5 herein.

Yol5ing time for leachate metho5s (e.g. TCLP) vary accor5ing to the analytes reporte5. Assessment compares the leach 5ate with the shortest analyte hol5ing time for the equivalent soil metho5. These are: organics 14 5ays, mercury 28 5ays & other metals 180 5ays. A recor5e5 breach 5oes not guarantee a breach for all non-volatile parameters.

Yol5ing times for ***VOC in soils*** vary accor5ing to analytes of interest. 7inyl Chlori5e an5 Styrene hol5ing time is d 5ays; others 14 5ays. A recor5e5 breach 5oes not guarantee a breach for all 7OC analytes an5 shoul5 be verifie5 in case the reporte5 breach is a false positive or 7inyl Chlori5e an5 Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Yol5ing time breach ; ✓ = Within hol5ing time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
IY-Mi5,	KB-Bay 1,	**19-Sep-2024**	**20-Sep-2024**	03-Oct-2024	✓	**20-Sep-2024**	03-Oct-2024	✓
KB-Bay 2,	KB-Bay 3,							
KB-Bay 4,	KB-Beach,							
KB-SW 1,	KB-SW 2,							
LI-Har,	LI-Mi5,							
LI-West,	Duplicate							
EP090: Organotin Compounds (Soluble)								
Amber Glass Bottle - Unpreserved (EP090S)								
IY-Mi5,	KB-Bay 1,	**19-Sep-2024**	**26-Sep-2024**	26-Sep-2024	✓	**26-Sep-2024**	0F-Nov-2024	✓
KB-Bay 2,	KB-Bay 3,							
KB-Bay 4,	KB-Beach,							
KB-SW 1,	KB-SW 2,							
LI-Har,	LI-Mi5,							
LI-West,	Duplicate							

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analyse5 within the analytical lot(s) in which the submitte5 sample(s) was(were) processe5. Actual rate shoul5 be greater than or equal to the expecte5 rate. A listing of breaches is provi5e5 in the Summary of Outliers.

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Organotin Compoun5s (Soluble)	EP090S	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Stan5ar5
TRY 7olatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Stan5ar5
Laboratory Control Samples (LCS)							
Organotin Compoun5s (Soluble)	EP090S	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Stan5ar5
TRY 7olatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Stan5ar5
Metho5 Blanks (MB)							
Organotin Compoun5s (Soluble)	EP090S	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Stan5ar5
TRY 7olatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Stan5ar5
Matrix Spikes (MS)							
Organotin Compoun5s (Soluble)	EP090S	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Stan5ar5
TRY 7olatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Stan5ar5

Brief Method Summaries

The analytical proce5ures use5 by the Environmental Division have been 5evelope5 from establishe5 internationally recognize5 proce5ures such as those publishe5 by the US EPA, APYA, AS an5 NEPM. In house 5evelope5 proce5ures are employe5 in the absence of 5ocumente5 stan5ar5s or by client request. The following report provi5es brief 5escriptions of the analytical proce5ures employe5 for results reporte5 in the Certificate of Analysis. Sources from which ALS metho5s have been 5evelope5 are provi5e5 within the Metho5 Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
TRY 7olatiles/BTEX	EP080	WATER	In house: Reference5 to USEPA SW 846 - 8260 Water samples are 5irectly purge5 prior to analysis by Capillary GC/MS an5 quantification is by comparison against an establishe5 F point calibration curve. Alternatively, a sample is equilibrate5 in a hea5space vial an5 a portion of the hea5space 5etermine5 by GCMS analysis. This metho5 is compliant with the QC requirements of NEPM Sche5ule B(3)
Organotin Compoun5s (Soluble)	EP090S	WATER	In house: Reference5 to USEPA SW 846 - 82d0 Sample extracts are analyse5 by GC/MS couple5 with high volume injection an5 quantification is by comparison against an establishe5 F point calibration curve. This metho5 is compliant with NEPM Sche5ule B(3)

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
7olatiles Water Preparation	ORG16-W	WATER	A F mL aliquot or F mL of a 5ilute5 sample is a55e5 to a 40 mL 7OC vial for purging.
Organotin Sample Preparation	ORG34	WATER	In house. A specifie5 volume of sample is spike5 with surrogate, aci5ifie5 an5 vacuum filtere5. Reagents an5 solvent are a55e5 an5 the mixture tumble5. The butyltin compoun5s is 5erivitisate5, extracte5 an5 the subtitution reaction complete5. The extract is transferre5 to a separatory funnel an5 further extracte5 two times with petroleum ether. The resultant extracts are combine5 an5 concentrate5 for analysis.

Marine and Freshwater
Research Laboratory
Environmental Science
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.
The results of the tests, calibrations and/or measurements included is this document are traceable to Australian/national standards.

Murdoch UNIVERSITY

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 18/10/2024
Date Received: 7/10/2024
Our Reference: MSC24-8
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit		<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date		11/10/2024	11/10/2024	11/10/2024	9/10/2024	9/10/2024	15/10/2024	15/10/2024	7/10/2024
File		24101101	24101101	24101101	24100902	24100902	24101501	24101501	241007
IH-Mid	7/10/2024	5	4	6	22	210	1.8	0.6	6
KB-Bay 1	7/10/2024	5	3	5	21	200	1.2	0.9	6
KB-Bay 2	7/10/2024	<3	3	<2	14	150	0.7	0.5	2
KB-Bay 3	7/10/2024	<3	3	3	21	200	1.7	0.7	7
KB-Bay 4	7/10/2024	<3	3	3	16	180	1.1	0.5	8
KB-Beach	7/10/2024	<3	3	3	15	160	0.9	0.5	3
KB-SW 1	7/10/2024	<3	3	3	22	210	2.9	1.0	7
KB SW 2	7/10/2024	<3	4	3	16	170	1.3	0.7	5
LI-Far	7/10/2024	<3	4	17	24	240	2.5	0.6	5
LI-Mid	7/10/2024	<3	3	7	22	250	2.1	0.9	7
LI-West	7/10/2024	<3	3	<2	20	230	2.7	0.6	3
Duplicate	7/10/2024	<3	4	7	20	250	2.5	0.6	5

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 18/10/2024

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Marine and Freshwater
Research Laboratory
Environmental Science
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.
The results of the tests, calibrations and/or measurements included is this document are traceable to Australian/national standards.

Murdoch UNIVERSITY

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 18/10/2024
Date Received: 7/10/2024
Our Reference: MSC24-8
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit		**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date		**15/10/2024**	**15/10/2024**	**15/10/2024**	**15/10/2024**	**15/10/2024**	**11/10/2024**
File		**24101501**	**24101501**	**24101501**	**24101501**	**24101501**	**24101102**
IH-Mid	7/10/2024	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 1	7/10/2024	<0.3	0.2	<1	<0.1	<0.1	<0.0001
KB-Bay 2	7/10/2024	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 3	7/10/2024	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 4	7/10/2024	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Beach	7/10/2024	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-SW 1	7/10/2024	<0.3	0.6	<1	<0.1	<0.1	<0.0001
KB SW 2	7/10/2024	<0.3	0.4	<1	<0.1	<0.1	<0.0001
LI-Far	7/10/2024	0.4	0.9	1	<0.1	<0.1	<0.0001
LI-Mid	7/10/2024	<0.3	1.4	1	<0.1	<0.1	<0.0001
LI-West	7/10/2024	0.3	1.3	2	<0.1	<0.1	<0.0001
Duplicate	7/10/2024	0.3	1.0	1	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 18/10/2024

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CERTIFICATE OF ANALYSIS

Work Order	: **EP241433M**	Page	: 1 of 6
Client	: **DARINE ANH FRESBWATER RESEARCB LAi ORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-8	Date Samples Received	: 07-Oct-2024 14:15
Order number	: 008006	Date Analysis Commenced	: 08-Oct-2024
C-O-C number	: ----	Issue Date	: 14-Oct-2024 08:26
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Addtrtoal f tarrorp I rtoa herrtaean ro rstw rehorn btff ue rogad ta rse roffobtac wehl rl re I rrl Qsp eanw: y gl ftn Coarrof Rehorn/ y Aw C Cop hftl aQe Awwewwp ean ro I wwtwn b trs y gl ftn Re. teb I ad Sl p hfe ReQethnNortrtQ rtoa^

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD
[redacted]	Senior Organic Chemist	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP090-Organotin: The LOR for Tributyltin has been raised in sample ‘LI-Far’ (EP2414553-009) due to insufficient sample provided for standard extraction.

Analytical Results

Sub-Matrix: WATER)Matrix: WATER0			Sample ID	IB(Dtd	- i (i l , 1	- i (i l , 2	- i (i l , M	- i (i l , 4
			Sampling date / time	07-Oct-2024 00:00	07-Oct-2024 00:00	07-Oct-2024 00:00	07-Oct-2024 00:00	07-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP241433M(551	EP241433M(552	EP241433M(55M	EP241433M(554	EP241433M(553
				Result	Result	Result	Result	Result
EP585: i TEXN								
i eazeae	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Tofgeae	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ens, fueazeae	100-41-4	2	µg/L	<2	<2	<2	<2	<2
p erl (& hl rl (X, feae	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ornso(X, feae	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Torl f X, feaew	----	2	µg/L	<2	<2	<2	<2	<2
^ Sgp orri TEX	----	1	µg/L	<1	<1	<1	<1	<1
Nl hsrsl feae	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP595: Orcl aorta Cop hogadw)Sofgufe0								
Trtugn frta	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP585S: TPB)V0i TEX Sgrrocl rew								
1'2(HtQsforoersl ae(H4	17060-07-0	2	%	117	125	11M	121	111
Tofgeae(H8	2037-26-5	2	%	91'9	93'5	9M'M	92'4	95'M
4(i rop orfgoroueazeae	460-00-4	2	%	157	158	153	151	151
EP595S: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	78'5	79'9	78'7	65'1	64'5

Analytical Results

Sub-Matrix: WATER)Matrix: WATER0			Sample ID	- i (i el Qs	- i (SW 1	- i SW 2	LI(Fl r	LI(D td
			Sampling date / time	07-Oct-2024 00:00	07-Oct-2024 00:00	07-Oct-2024 00:00	07-Oct-2024 00:00	07-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EP241433M(557	EP241433M(556	EP241433M(558	EP241433M(559	EP241433M(515
				Result	Result	Result	Result	Result
EP585: i TEXN								
i eazeae	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Tofgeae	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ens, fueazeae	100-41-4	2	µg/L	<2	<2	<2	<2	<2
p erl (& hl rl (X, feae	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ornso(X, feae	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Torl f X, feaew	----	2	µg/L	<2	<2	<2	<2	<2
^ Sgp orri TEX	----	1	µg/L	<1	<1	<1	<1	<1
Nl hsrsl feae	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP595: Orcl aorta Cop hogadw)Sofgufe0								
Trtugn frta	56573-85-4	2	ngSn/L	<2	<2	<2	<3	<2
EP585S: TPB)V0i TEX Sgrrocl rew								
1'2(HtQsforoersl ae(H4	17060-07-0	2	%	158	118	112	158	113
Tofgeae(H8	2037-26-5	2	%	91'2	95'1	92'7	92'7	91'5
4(i rop orfgoroueazeae	460-00-4	2	%	15M	15M	151	154	152
EP595S: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	63'M	61'9	63'5	86'2	84'2

Analytical Results

Sub-Matrix: WATER)Matrix: WATER0			Sample ID	LI(Wewn	HghftQl re	((((	((((	((((
			Sampling date / time	07-Oct-2024 00:00	07-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP241433M(511	EP241433M(512	((((((((	((((((((	((((((((
				Result	Result	----	----	----
EP585: i TEXN								
i eazeae	71-43-2	1	µg/L	<1	<1	((((	((((	((((
Tofgeae	108-88-3	2	µg/L	<2	<2	((((	((((	((((
Ens, fueazeae	100-41-4	2	µg/L	<2	<2	((((	((((	((((
p erl (& hl rl (X, feae	108-38-3 106-42-3	2	µg/L	<2	<2	((((	((((	((((
ornso(X, feae	95-47-6	2	µg/L	<2	<2	((((	((((	((((
^ Torl f X, feaew	----	2	µg/L	<2	<2	((((	((((	((((
^ Sgp orri TEX	----	1	µg/L	<1	<1	((((	((((	((((
Nl hsrnsl feae	91-20-3	5	µg/L	<5	<5	((((	((((	((((
EP595: Orcl aorta Cop hogadw)Sofgufe0								
Trtugn frta	56573-85-4	2	ngSn/L	<2	<2	((((	((((	((((
EP585S: TPB)V0i TEX Sgrrocl rew								
1'2(HtQsforoensl ae(H4	17060-07-0	2	%	111	115	((((	((((	((((
Tofgeae(H8	2037-26-5	2	%	95'9	9M'1	((((	((((	((((
4(i rop orfgoroueazeae	460-00-4	2	%	156	155	((((	((((	((((
EP595S: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	87'2	63'8	((((	((((	((((

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP585S: TPB)V0i TEX Sgrrocl rew			
1'2(HtQsforoensl ae(H4	17060-07-0	61	141
Tofgeae(H8	2037-26-5	73	126
4(i rop onfgoroueazeae	460-00-4	60	125
EP595S: Orcl aorta Sgrrocl re			
Trthroh, frta	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP241433M**	Page	: 1 of 3
Client	: **DARINE ANF SREHBWATER REHEARCB LA0 ORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-8	Date Samples Received	: 07-Oct-2024
Order number	: 008006	Date Analysis Commenced	: 08-Oct-2024
C-O-C number	: ----	Issue Date	: 14-Oct-2024
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD
[redacted]	Senior Organic Chemist	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

qey : Anonymous # Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number # CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR # Limit of reporting
RPD # Relative Percentage Difference
K # Indicates failed QC

Laboratory Duplicate (DUP) Report

The <uality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result = 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP8X8: 0 TE(N tQC Lo6) 1848M49									
EP2414549-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	=1	=1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	=2	=2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	=2	=2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	=2	=2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	=2	=2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	=5	=5	0.0	No Limit
EP2414553-005	qB-Bay 4	EP080: Benzene	71-43-2	1	µg/L	=1	=1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	=2	=2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	=2	=2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	=2	=2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	=2	=2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	=5	=5	0.0	No Limit
EP8g8: Orani o6in Cop uosi dI tHobs5le9 tQC Lo6) 18gX839									
EP2414549-006	Anonymous	EP090S: Tributyltin	56573-85-4	2	ngSn/L	=2	=2	0.0	No Limit
EP2414553-001	IH-Mid	EP090S: Tributyltin	56573-85-4	2	ngSn/L	=2	=2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP8X8: 0TE(N tQCLo6) 1848M49								
EP080: Benzene	71-43-2	1	µg/L	=1	20 µg/L	101	84.1	114
EP080: Toluene	108-88-3	2	µg/L	=2	20 µg/L	102	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	=2	20 µg/L	97.3	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	=2	40 µg/L	101	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	=2	20 µg/L	98.6	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	=5	5 µg/L	98.9	77.0	118
EP8g8: Orani o6in Cop uosi dl tHots5le9 tQCLo6) 18gX839								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	=2	147 ngSn/L	77.3	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP8X8: 0TE(N tQCLo6) 1848M49							
EP2414549-002	Anonymous	EP080: Benzene	71-43-2	20 µg/L	122	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	121	73.5	126
EP8g8: Orani o6in Cop uosi dl tHots5le9 tQCLo6) 18gX839							
EP2414549-006	Anonymous	EP090S: Tributyltin	56573-85-4	147 ngSn/L	80.9	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2414335**	Page	: 1 of 4
Client	: 7 AR0ME AMI NREDF WASER REDEARCF HATORASORL	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Project	: MSC24-8	Date Samples Received	: 05-Oct-2024
Site	: ----	Issue Date	: 14-Oct-2024
Sampler	: ----	No. of samples received	: 12
Order number	: 008006	No. of samples analysed	: 12

Shis report is automatically Benerated Yy the AHD H07 D throuBh interpretation ogthe AHD Quality Control Report and several Quality Assurance parameters measured Yy AHDbShis automated reportinB hiBhliBhts any nonfcongprmances. gacilitates gaster and more accurate data validation and is desiBned to assist internal e- pert and e- ternal Auditor reviewb7 any components ogthis report contriYute to the overall l QO assessment and reportinB gpr Buideline complianceb

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **MO 7 ethod Tlank value outliers occurb**
- **MO l uplicate outliers occurb**
- **MO HaYoratory Control outliers occurb**
- **MO 7 atri- Dpike outliers occurb**
- **Nor all reBular sample matrices. where applicaYle to the methodoloBy. MO surroBate recovery outliers occurb**

Outliers : Analysis Holding Time Compliance

- **MO Analysis FoldinB Sime Outliers e- istb**

Outliers : Frequency of Quality Control Samples

- **MO Quality Control Dample Nre, uency Outliers e- istb**

Analysis Holding Time Compliance

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

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

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

Yolding times for ***VOC in soils*** vary according to analytes of interest. 7inyl Chloride and Styrene holding time is 5 days; others 14 days. A recorded breach does not guarantee a breach for all 7OC analytes and should be verified in case the reported breach is a false positive or 7inyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WASER**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EPxqx: TSE8M								
AmYer XOC Xial f Dulguric Acid \EPxqx(								
IY-Mid,	KB-Bay 1,	**x9fOctf2x24**	**xqfOctf2x24**	21-Oct-2024	✓	**x) fOctf2x24**	21-Oct-2024	✓
KB-Bay 2,	KB-Bay 3,							
KB-Bay 4,	KB-Beach,							
KB-SW 1,	KB SW 2,							
LI-Har,	LI-Mid,							
LI-West,	Duplicate							
EPx) x: OrBanotin Compounds \DoluYle(								
AmYer Glass Tottle f Unpreserved \EPx) xD(								
IY-Mid,	KB-Bay 1,	**x9fOctf2x24**	**1xfOctf2x24**	14-Oct-2024	✓	**11fOctf2x24**	19-Nov-2024	✓
KB-Bay 2,	KB-Bay 3,							
KB-Bay 4,	KB-Beach,							
KB-SW 1,	KB SW 2,							
LI-Har,	LI-Mid,							
LI-West,	Duplicate							

Quality Control Parameter Frequency Compliance

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

Matrix: **WASER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Organotin Compounds (Soluble)	EP090S	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRY 7olatiles/BTEX	EP080	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Organotin Compounds (Soluble)	EP090S	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRY 7olatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Organotin Compounds (Soluble)	EP090S	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRY 7olatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Organotin Compounds (Soluble)	EP090S	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRY 7olatiles/BTEX	EP080	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
TRY 7olatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established F point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Organotin Compounds (Soluble)	EP090S	WATER	In house: Referenced to USEPA SW 846 - 8250 Sample extracts are analysed by GC/MS coupled with high volume injection and quantification is by comparison against an established F point calibration curve. This method is compliant with NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
7olatiles Water Preparation	ORG16-W	WATER	A F mL aliquot or F mL of a diluted sample is added to a 40 mL 7OC vial for purging.
Organotin Sample Preparation	ORG34	WATER	In house. A specified volume of sample is spiked with surrogate, acidified and vacuum filtered. Reagents and solvent are added and the mixture tumbled. The butyltin compounds is derivitisated, extracted and the subtitution reaction completed. The extract is transferred to a separatory funnel and further extracted two times with petroleum ether. The resultant extracts are combined and concentrated for analysis.

Marine and Freshwater
Research Laboratory
Environmental Science
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.
The results of the tests, calibrations and/or measurements included is this document are traceable to Australian/national standards.

Murdoch UNIVERSITY

WATER QUALITY DATA

Contact: [redacted]
Customer: Mscience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 7/11/2024
Date Received: 22/10/2024
Our Reference: MSC24-9
Your Reference: MSA343

METHOD	Sampling	2000	4100	2100	4700	2700	3000	3000	2540D
SAMPLE CODE	Date	AMMONIA	ORTHO-P	NO3+NO2	TOTAL-P	TOTAL-N	CHLOROPHYLL'a'	PHAEOPHYTIN'a'	TSS
		µg.N/L	µg.P/L	µg.N/L	µg.P/L	µg.N/L	µg/L	µg/L	mg/L
Reporting Limit		<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date		28/10/2024	28/10/2024	28/10/2024	30/10/2024	30/10/2024	25/10/2024	25/10/2024	22/10/2024
File		24102801,02	24102801	24102801	24103001	24103001	24102502	24102502	241022
IH-Mid	22/10/2024	<3	5	3	20	160	2.9	0.8	3
KB-Bay 1	22/10/2024	<3	3	2	17	140	1.1	1.3	6
KB-Bay 2	22/10/2024	<3	3	2	20	150	2.2	0.5	4
KB-Bay 3	22/10/2024	4	4	3	20	150	1.9	0.7	6
KB-Bay 4	22/10/2024	<3	3	3	28	220	2.9	0.9	8
KB-Beach	22/10/2024	<3	3	<2	24	190	2.8	1.0	8
KB-SW 1	22/10/2024	<3	4	4	22	180	2.9	0.9	7
KB SW 2	22/10/2024	<3	3	4	25	200	3.4	1.0	7
LI-Far	22/10/2024	9	3	7	28	250	2.5	1.4	7
LI-Mid	22/10/2024	<3	3	2	39	300	5.4	1.7	10
LI-West	22/10/2024	<3	2	<2	24	210	3.5	1.1	5
Duplicate	22/10/2024	5	3	2	21	200	1.9	0.8	6

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 7/11/2024

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Marine and Freshwater
Research Laboratory
Environmental Science
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.
The results of the tests, calibrations and/or measurements included is this document are traceable to Australian/national standards.

Murdoch UNIVERSITY

WATER QUALITY DATA

Contact: [redacted]
Customer: Mscience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 7/11/2024
Date Received: 22/10/2024
Our Reference: MSC24-9
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit		**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date		**29/10/2024**	**29/10/2024**	**29/10/2024**	**29/10/2024**	**29/10/2024**	**29/10/2024**
File		**24102901**	**24102901**	**24102901**	**24102901**	**24102901**	**24102902A**
IH-Mid	22/10/2024	<0.3	0.5	<1	<0.1	<0.1	<0.0001
KB-Bay 1	22/10/2024	<0.3	0.4	1	<0.1	<0.1	<0.0001
KB-Bay 2	22/10/2024	<0.3	0.5	1	<0.1	<0.1	<0.0001
KB-Bay 3	22/10/2024	0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 4	22/10/2024	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-Beach	22/10/2024	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-SW 1	22/10/2024	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB SW 2	22/10/2024	<0.3	0.7	<1	<0.1	<0.1	<0.0001
LI-Far	22/10/2024	0.4	0.8	<1	<0.1	<0.1	<0.0001
LI-Mid	22/10/2024	0.4	1.1	<1	<0.1	<0.1	<0.0001
LI-West	22/10/2024	<0.3	0.9	1	<0.1	<0.1	<0.0001
Duplicate	22/10/2024	<0.3	0.3	<1	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 7/11/2024

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CERTIFICATE OF ANALYSIS

Work Order	: **EP241333M**	Page	: 1 of 6
Client	: **DARINE ANH FRESBWATER RESEARCB LAi ORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-9	Date Samples Received	: 15-Oct-2024 14:40
Order number	: ----	Date Analysis Commenced	: 24-Oct-2024
C-O-C number	: ----	Issue Date	: 01-Nov-2024 11:37
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Addtrtoal f tarrorp l rtoa herrtaean ro rstw rehorn b tff ue rogad ta rse roffob tac wehl rl re l rrl Qsp earw: y gl ftn Coarrof Rehorn/ y Aw C Cop hftl aQe Awwewwp ean ro l wwtwn b trs y gl ftn Re. teb l ad Sl p hfe ReQethnNortrtQ rtoa^

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Chemist - Organics	krisbane Organics, Stafford, QLD
[redacted]	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: **WATER**
)Matrix: **WATER0**

Compound	CAS Number	LOR	Unit	Sample ID	IB(DIH	- i (i AY 1	- i (i AY 2	- i (i AY M	- i (i AY 4
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
					EP241333M(551	EP241333M(552	EP241333M(55M	EP241333M(554	EP241333M(553
					Result	Result	Result	Result	Result
EP585: i TEXN									
i eazeae	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Tofgeae	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ens, fueazeae	100-41-4	2	µg/L		<2	<2	<2	<2	<2
p erl (& hl rl (X, feae	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ornso(X, feae	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Torl f X, feaew	----	2	µg/L		<2	<2	<2	<2	<2
^ Sgp orri TEX	----	1	µg/L		<1	<1	<1	<1	<1
Nl hsrsl feae	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP595: Orcl aorta Cop hogadw)Sofgufe0									
Trtugn frta	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP585S: TPB)V0i TEX Sgrrocl rew									
1'2(HtQsforoersl ae(H4	17060-07-0	2	%		159	158	159	158	128
Tofgeae(H8	2037-26-5	2	%		97'M	93'6	9M'6	96'2	97'1
4(i rop orfgoroueazeae	460-00-4	2	%		157	111	159	115	158
EP595S: Orcl aorta Sgrrocl re									
Trthroh, frta	----	5	%		69'M	86'5	88'M	88'7	36'2

Analytical Results

Sub-Matrix: **WATER**
)Matrix: **WATER0**

Compound	CAS Number	LOR	Unit	Sample ID	- i (i el Qs	- i (SW 1	- i (SW 2	LI(Fl r	LI(D td
				Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00	22-Oct-2024 00:00
					EP241333M(557	EP241333M(556	EP241333M(558	EP241333M(559	EP241333M(515
					Result	Result	Result	Result	Result
EP585: i TEXN									
i eazeae	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Tofgeae	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ens, fueazeae	100-41-4	2	µg/L		<2	<2	<2	<2	<2
p erl (& hl rl (X, feae	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ornso(X, feae	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ **Torl f X, feaew**	----	2	µg/L		<2	<2	<2	<2	<2
^ **Sgp orri TEX**	----	1	µg/L		<1	<1	<1	<1	<1
Nl hsrnsl feae	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP595: Orcl aorta Cop hogadw)Sofgufe0									
Trtugn frta	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP585S: TPB)V0i TEX Sgrrocl rew									
1^2(HtQsforoensl ae(H4	17060-07-0	2	%		**112**	**112**	**122**	**117**	**118**
Tofgeae(H8	2037-26-5	2	%		**9M6**	**97^2**	**98^2**	**97^1**	**94^9**
4(i rop orfgoroueazeae	460-00-4	2	%		**154**	**158**	**153**	**158**	**158**
EP595S: Orcl aorta Sgrrocl re									
Trthroh, frta	----	5	%		**91^9**	**98^6**	**89^4**	**64^7**	**81^1**

Analytical Results

Sub-Matrix: WATER)Matrix: WATER0			Sample ID	LI(Wewn	HghftQl re	((((	((((	((((
			Sampling date / time	22-Oct-2024 00:00	22-Oct-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP241333M(511	EP241333M(512	((((((((	((((((((	((((((((
				Result	Result	----	----	----
EP585: i TEXN								
i eazeae	71-43-2	1	µg/L	<1	<1	((((	((((	((((
Tofgeae	108-88-3	2	µg/L	<2	<2	((((	((((	((((
Ens, fueazeae	100-41-4	2	µg/L	<2	<2	((((	((((	((((
p erl (& hl rl (X, feae	108-38-3 106-42-3	2	µg/L	<2	<2	((((	((((	((((
ornso(X, feae	95-47-6	2	µg/L	<2	<2	((((	((((	((((
^ Torl f X, feaew	----	2	µg/L	<2	<2	((((	((((	((((
^ Sgp orri TEX	----	1	µg/L	<1	<1	((((	((((	((((
Nl hsnsl feae	91-20-3	5	µg/L	<5	<5	((((	((((	((((
EP595: Orcl aorta Cop hogadw)Sofgufe0								
Trtugn frta	56573-85-4	2	ngSn/L	<2	<2	((((	((((	((((
EP585S: TPB)V0i TEX Sgrrocl rew								
1'2(HtQsforoensl ae(H4	17060-07-0	2	%	159	115	((((	((((	((((
Tofgeae(H8	2037-26-5	2	%	94'8	97'5	((((	((((	((((
4(i rop orfgoroueazeae	460-00-4	2	%	112	156	((((	((((	((((
EP595S: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	88'6	83'9	((((	((((	((((

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP585S: TPB)V0i TEX Sgrrocl rew			
1'2(HtQsforoensl ae(H4	17060-07-0	61	141
Tofgeae(H8	2037-26-5	73	126
4(i rop onfgoroueazeae	460-00-4	60	125
EP595S: Orcl aorta Sgrrocl re			
Trthroh, frta	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS krisbane, NATA accreditation no. 825, site no. 818 (Chemistry / kiology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP2415553**	Page	: 1 of 3
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6130	Address	: 26 Rigali Way Wangara WA Australia 6063
Tele5hone	: [redacted]	Tele5hone	: [redacted]
Project	: MSC24-+	Date Sam5les Received	: 13-Oct-2024
Order number	: ----	Date Analysis Commenced	: 24-Oct-2024
C-O-C number	: ----	Issue Date	: 01-Nov-2024
Sam5ler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0009_V2		
No. of sam5les received	: 12		
No. of sam5les analysed	: 12		

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

This re5ort su5ersedes any 5revious re5ort(s) with this reference. Results a55ly to the sam5le(s) as submitted, unless the sam5ling was conducted by ALS. This document shall not be re5roduced, exce5t in full.

This Quality Control Re5ort contains the following information:

- Laboratory Du5licate (DUP) Re5ort; Relative Percentage Difference (RPD) and Acce5tance Limits
- Method Blank (MB) and Laboratory Control S5ike (LCS) Re5ort; Recovery and Acce5tance Limits
- Matrix S5ike (MS) Re5ort; Recovery and Acce5tance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in com5liance with 5rocedures s5ecified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD
[redacted]	Senior Organic Chemist	Perth Organics, Wangara, WA

General Comments

The analytical 5rocedures used by ALS have been develo5ed from established internationally recognised 5rocedures such as those 5ublished by the USEPA, APHA, AS and NEPM. In house develo5ed 5rocedures are fully validated and are often at the client request.

Where moisture determination has been 5erformed, results are re5orted on a dry weight basis.

Where a re5orted less than (<) result is higher than the LOR, this may be due to 5rimary sam5le extract/digestate dilution and/or insufficient sam5le for analysis. Where the LOR of a re5orted result differs from standard LOR, this may be due to high moisture content, insufficient sam5le (reduced weight em5loyed) or matrix interference.

Key : Anonymous = Refers to sam5les which are not s5ecifically 5art of this work order but formed 5art of the QC 5rocess lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of re5orting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Du5licate refers to a randomly selected intralaboratory s5lit. Laboratory du5licates 5rovide information regarding method 5recision and sam5le heterogeneity. The 5ermitted ranges for the Relative Percent Deviation (RPD) of Laboratory Du5licates are s5ecified in ALS Method QWI-EN/98 and are de5endent on the magnitude of results in com5arison to the level of re5orting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 30%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 6139594)									
EP2413320-001	Anonymous	EP080: Benzene	71-49-2	1	µg/L	<0.001 mg/L	<1	0.0	No Limit
		EP080: Toluene	108-88-9	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: meta- & 5ara-Xylene	108-98-9 106-42-9	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: ortho-Xylene	+3-47-6	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: Na5hthalene	+1-20-9	3	µg/L	<0.003 mg/L	<3	0.0	No Limit
EP2413324-003	Anonymous	EP080: Benzene	71-49-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-9	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & 5ara-Xylene	108-98-9 106-42-9	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	+3-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Na5hthalene	+1-20-9	3	µg/L	<3	<3	0.0	No Limit
EP080: BTEXN (QC Lot: 6141546)									
EP2413347-001	Anonymous	EP080: Benzene	71-49-2	1	µg/L	<0.001 mg/L	<1	0.0	No Limit
		EP080: Toluene	108-88-9	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: meta- & 5ara-Xylene	108-98-9 106-42-9	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: ortho-Xylene	+3-47-6	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: Na5hthalene	+1-20-9	3	µg/L	<0.003 mg/L	<3	0.0	No Limit
EP2413363-016	Anonymous	EP080: Benzene	71-49-2	1	µg/L	<1	<1	0.0	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 6141546) - continued									
EP2413363-016	Anonymous	EP080: Toluene	108-88-9	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & 5ara-Xylene	108-98-9 106-42-9	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	+3-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Na5hthalene	+1-20-9	3	µg/L	<3	<3	0.0	No Limit
EP090: Organotin Compounds (Soluble) (QC Lot: 6147958)									
EP2413339-001	IH-MID	EP0+0S: Tributyltin	36379-83-4	2	ngSn/L	<2	<2	0.0	No Limit

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

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or 5ro5ortions as used in standard sam5le 5re5aration. The 5ur5ose of this QC 5arameter is to monitor 5otential laboratory contamination. The quality control term Laboratory Control Sam5le (LCS) refers to a certified reference material, or a known interference free matrix s5iked with target analytes. The 5ur5ose of this QC 5arameter is to monitor method 5recision and accuracy inde5endent of sam5le matrix. Dynamic Recovery Limits are based on statistical evaluation of 5rocessed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 6139594)								
EP080: Benzene	71-49-2	1	µg/L	<1	20 µg/L	109	84.1	114
EP080: Toluene	108-88-9	2	µg/L	<2	20 µg/L	101	81.0	113
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	109	84.4	119
EP080: meta- & 5ara-Xylene	108-98-9 106-42-9	2	µg/L	<2	40 µg/L	102	84.9	114
EP080: ortho-Xylene	+3-47-6	2	µg/L	<2	20 µg/L	101	86.3	111
EP080: Na5hthalene	+1-20-9	3	µg/L	<3	3 µg/L	+6.3	77.0	118
EP080: BTEXN (QCLot: 6141546)								
EP080: Benzene	71-49-2	1	µg/L	<1	20 µg/L	101	84.1	114
EP080: Toluene	108-88-9	2	µg/L	<2	20 µg/L	+7.2	81.0	113
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	101	84.4	119
EP080: meta- & 5ara-Xylene	108-98-9 106-42-9	2	µg/L	<2	40 µg/L	++.4	84.9	114
EP080: ortho-Xylene	+3-47-6	2	µg/L	<2	20 µg/L	+7.8	86.3	111
EP080: Na5hthalene	+1-20-9	3	µg/L	<3	3 µg/L	103	77.0	118
EP090: Organotin Compounds (Soluble) (QCLot: 6147958)								
EP0+0S: Tributyltin	36379-83-4	2	ngSn/L	<2	147 ngSn/L	88.7	90.7	194

Matrix Spike (MS) Report

The quality control term Matrix S5ike (MS) refers to an intralaboratory s5lit sam5le s5iked with a re5resentative set of target analytes. The 5ur5ose of this QC 5arameter is to monitor 5otential matrix effects on analyte recoveries. Static Recovery Limits as 5er laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sam5le matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 6139594)							
EP2413320-002	Anonymous	EP080: Benzene	71-49-2	20 µg/L	110	77.0	122
		EP080: Toluene	108-88-9	20 µg/L	107	79.3	126
EP080: BTEXN (QCLot: 6141546)							
EP2413347-002	Anonymous	EP080: Benzene	71-49-2	20 µg/L	102	77.0	122
		EP080: Toluene	108-88-9	20 µg/L	+4.6	79.3	126
EP090: Organotin Compounds (Soluble) (QCLot: 6147958)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP090: Organotin Compounds (Soluble) (QCLot: 6147958) - continued							
EP2413339-001	IH-MID	EP0+0S: Tributyltin	36379-83-4	147 ngSn/L	7+.8	20.0	190

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2415553**	Page	: 1 of 5
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Pro3ect	: Mj CS5-9	Date j amples Receive2	: 1d-Oct-S4S5
j ite	: ----	Issue Date	: 41-Nov-S4S5
j ampler	: ----	No. of samples receive2	: 1S
Or2er number	: ----	No. of samples analyse2	: 1S

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

Brief metho2 summaries an2 references are also provi2e2 to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagge2 in the Quality Control (QC) Report.

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control j ample Type		Count		Rate (G)		Quality Control j pecification
Analytical Metho2s	Metho2	QC	Regular	Actual	Expecte2	
Laboratory Duplicates (DKP)						
Organotin Compoun2s (j oluble)	EP494j	1	S4	d.44	14.44	NEPM S410 B0 %ALj QC j tan2ar2

Analysis Holding Time Compliance

If samples are i2entifie2 belo; as having been analyse2 or extracte2 outsi2e of recommen2e2 hol2ing timeswthis shoul2 be taken into consi2eration ; hen interpreting results.

This report summariqes extraction 7 preparation an2 analysis times an2 compares each ; ith ALj recommen2e2 hol2ing times (referencing Kj EPA j W 856w APHAw Aj an2 NEPM) base2 on the sample container provi2e2. Dates reporte2 represent first 2ate of extraction or analysis an2 preclu2e subse/ uent 2ilutions an2 reruns. A listing of breaches (if any) is provi2e2 herein.

Hol2ing time for leachate metho2s (e.g. TCLP) vary accor2ing to the analytes reporte2. Assessment compares the leach 2ate ; ith the shortest analyte hol2ing time for the e/ uivalent soil metho2. These are: organics 15 2aysw mercury S8 2ays %other metals 184 2ays. A recor2e2 breach 2oes not guarantee a breach for all non-volatile parameters.

Hol2ing times for ***VOC in soils*** vary accor2ing to analytes of interest. Uinyl Chlori2e an2 j tyrene hol2ing time is &2aysV others 15 2ays. A recor2e2 breach 2oes not guarantee a breach for all UOC analytes an2 shoul2 be verifie2 in case the reporte2 breach is a false positive or Uinyl Chlori2e an2 j tyrene are not key analytes of interest7concern.

Matrix: **WATER** Evaluation: × , Hol2ing time breach V✓ , Within hol2ing time.

Method / *Container* / Client Sample ID(s)		*Sample Date*	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
IH-MIDw	z B-BAY 1w	**22-Oct-2024**	**24-Oct-2024**	4d-Nov-S4S5	✓	**24-Oct-2024**	4d-Nov-S4S5	✓
z B-BAY Sw	z B-BAY 0w							
z B-BAY 5w	z B-Beachw							
z B-j W 1w	z B-j W Sw							
LI-Farw	LI-Mi2w							
LI-Westw	Duplicate							
EP090: Organotin Compounds (Soluble)								
Amber Glass Bottle - Unpreserved (EP090S)								
IH-MIDw	z B-BAY 1w	**22-Oct-2024**	**29-Oct-2024**	S9-Oct-S4S5	✓	**31-Oct-2024**	48-Dec-S4S5	✓
z B-BAY Sw	z B-BAY 0w							
z B-BAY 5w	z B-Beachw							
z B-j W 1w	z B-j W Sw							
LI-Farw	LI-Mi2w							
LI-Westw	Duplicate							

Quality Control Parameter Frequency Compliance

The follo; ing report summarises the fre/ uency of laboratory QC samples analyse2 ; ithin the analytical lot(s) in ; hich the submitte2 sample(s) ; as(; ere) processe2. Actual rate shoul2 be greater than or e/ ual to the expecte2 rate. A listing of breaches is provi2e2 in the j ummary of Outliers.

Matrix: **WATER**

Evaluation: × , Quality Control fre/ uency not ; ithin specification V✓ , Quality Control fre/ uency ; ithin specification.

Quality Control j ample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DKP)							
Organotin Compoun2s (j oluble)	EP494j	1	S4	**5.00**	**10.00**	✗	NEPM S410 B0 %ALj QC j tan2ar2
TRH Uolatiles7BTE=	EP484	5	54	**10.00**	**10.00**	✓	NEPM S410 B0 %ALj QC j tan2ar2
Laboratory Control j amples (LCj)							
Organotin Compoun2s (j oluble)	EP494j	1	S4	**5.00**	**5.00**	✓	NEPM S410 B0 %ALj QC j tan2ar2
TRH Uolatiles7BTE=	EP484	S	54	**5.00**	**5.00**	✓	NEPM S410 B0 %ALj QC j tan2ar2
Metho2 Blanks (MB)							
Organotin Compoun2s (j oluble)	EP494j	1	S4	**5.00**	**5.00**	✓	NEPM S410 B0 %ALj QC j tan2ar2
TRH Uolatiles7BTE=	EP484	S	54	**5.00**	**5.00**	✓	NEPM S410 B0 %ALj QC j tan2ar2
Matrix j pikes (Mj)							
Organotin Compoun2s (j oluble)	EP494j	1	S4	**5.00**	**5.00**	✓	NEPM S410 B0 %ALj QC j tan2ar2
TRH Uolatiles7BTE=	EP484	S	54	**5.00**	**5.00**	✓	NEPM S410 B0 %ALj QC j tan2ar2

Brief Method Summaries

The analytical proce2ures use2 by the Environmental Division have been 2evelope2 from establishe2 internationally recogniqe2 proce2ures such as those publishe2 by the Kj EPAwAPHAwAj an2 NEPM. In house 2evelope2 proce2ures are employe2 in the absence of 2ocumente2 stan2ar2s or by client re/ uest. The follo; ing report provi2es brief 2escriptions of the analytical proce2ures employe2 for results reporte2 in the Certificate of Analysis. j ources from ; hich ALj metho2s have been 2evelope2 are provi2e2 ; ithin the Metho2 Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
TRH Uolatiles7BTE=	EP484	WATER	In house: Reference2 to Kj EPA j W 856 - 8S64 Water samples are 2irectly purge2 prior to analysis by Capillary XC7Mj an2 / uantification is by comparison against an establishe2 d point calibration curve. Alternativelywa sample is e/ uilibrate2 in a hea2space vial an2 a portion of the hea2space 2etermine2 by XCMj analysis. This metho2 is compliant ; ith the QC re/ uirements of NEPM j che2ule B(0)
Organotin Compoun2s (j oluble)	EP494i	WATER	In house: Reference2 to Kj EPA j W 856 - 8S&4 j ample extracts are analyse2 by XC7Mj couple2 ; ith high volume in3ection an2 / uantification is by comparison against an establishe2 d point calibration curve. This metho2 is compliant ; ith NEPM j che2ule B(0)

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Uolatiles Water Preparation	ORX16-W	WATER	A d mL ali/ uot or d mL of a 2ilute2 sample is a22e2 to a 54 mL UOC vial for purging.
Organotin j ample Preparation	ORX05	WATER	In house. A specifie2 volume of sample is spike2 ; ith surrogatewaci2ifie2 an2 vacuum filtere2. Reagents an2 solvent are a22e2 an2 the mixture tumble2. The butyltin compoun2s is 2erivitisate2wextracte2 an2 the subtitution reaction complete2. The extract is transferre2 to a separatory funnel an2 further extracte2 t; o times ; ith petroleum ether. The resultant extracts are combine2 an2 concentrate2 for analysis.

Marine and Freshwater
Research Laboratory
Environmental Science
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.
The results of the tests, calibrations and/or measurements included is this document are traceable to Australian/national standards.

Murdoch UNIVERSITY

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 21/11/2024
Date Received: 7/11/2024
Our Reference: MSC24-10
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit		<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date		14/11/2024	14/11/2024	14/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024	7/11/2024
File		24111401	24111401	24111401	24111301	24111301	24111302	24111302	241107
IH-Mid	7/11/2024	18	4	6	23	160	2.4	1.1	6
KB-Bay 1	7/11/2024	<3	4	<2	17	130	1.0	0.6	4
KB-Bay 2	7/11/2024	<3	4	<2	18	140	1.3	1.1	3
KB-Bay 3	7/11/2024	<3	4	<2	19	140	1.1	0.6	4
KB-Bay 4	7/11/2024	<3	4	<2	19	140	1.4	0.8	3
KB-Beach	7/11/2024	<3	4	<2	20	150	1.5	1.0	3
KB-SW 1	7/11/2024	<3	3	<2	29	200	2.8	2.4	10
KB SW 2	7/11/2024	<3	4	<2	19	120	1.1	0.5	4
LI-Far	7/11/2024	<3	4	6	38	270	2.4	4.8	15
LI-Mid	7/11/2024	<3	4	<2	32	240	3.5	1.7	8
LI-West	7/11/2024	<3	3	<2	29	240	1.4	1.0	5
Duplicate	7/11/2024	<3	4	<2	41	300	3.0	1.1	7

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 21/11/2024

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Marine and Freshwater
Research Laboratory
Environmental Science
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.
The results of the tests, calibrations and/or measurements included is this document are traceable to Australian/national standards.

Murdoch UNIVERSITY

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 21/11/2024
Date Received: 7/11/2024
Our Reference: MSC24-10
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit		**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date		**20/11/2024**	**20/11/2024**	**20/11/2024**	**20/11/2024**	**20/11/2024**	**12/11/2024**
File		**24112001**	**24112001**	**24112001**	**24112001**	**24112001**	**24111201**
IH-Mid	7/11/2024	<0.3	0.5	<1	<0.1	<0.1	<0.0001
KB-Bay 1	7/11/2024	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 2	7/11/2024	<0.3	1.3	1	<0.1	<0.1	<0.0001
KB-Bay 3	7/11/2024	<0.3	0.6	<1	<0.1	<0.1	<0.0001
KB-Bay 4	7/11/2024	<0.3	0.6	1	<0.1	<0.1	<0.0001
KB-Beach	7/11/2024	<0.3	0.5	<1	<0.1	<0.1	<0.0001
KB-SW 1	7/11/2024	<0.3	0.6	1	<0.1	<0.1	<0.0001
KB SW 2	7/11/2024	<0.3	0.4	<1	<0.1	<0.1	<0.0001
LI-Far	7/11/2024	0.3	1.1	2	<0.1	<0.1	<0.0001
LI-Mid	7/11/2024	<0.3	1.0	1	<0.1	<0.1	<0.0001
LI-West	7/11/2024	<0.3	0.9	1	<0.1	<0.1	<0.0001
Duplicate	7/11/2024	<0.3	0.9	1	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 21/11/2024

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CERTIFICATE OF ANALYSIS

Work Order	: **EP2418722**	Page	: 1 of 6
Client	: **3 ARINE ANM FRESDWATER RESEARCD LAHORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-10	Date Samples Received	: 07-Nov-2024 13:32
Order number	: 008006	Date Analysis Commenced	: 13-Nov-2024
C-O-C number	: ----	Issue Date	: 15-Nov-2024 11:20
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

AddBBot na Bilorf niBot meriBet i io ipBa remori sBa we lobt d Bi ipe loaaos Bu hemmrnie niingpf et ih: c bnaBQ Cot iroa Remoriy c A,c C Cof mBat ge Ahhehhf et i io nhhBi sBp c bnaBQ Re/ Bes nt d Snf mæ RegeBri NoiBBgniBot v

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: 3 ARINE WATER (Matrix: WATER)			Sample ID	IDK3 Bl	^ HK-InQ1	^ HK-InQ2	^ HK-InQ-	^ HK-InQ4
			Sampling date / time	07-Nov-2024 00:00	07-Nov-2024 00:00	07-Nov-2024 00:00	07-Nov-2024 00:00	07-Nov-2024 00:00
Compound	CAS Number	LOR	Unit	EP2418722K001	EP2418722K002	EP2418722K00-	EP2418722K004	EP2418722K007
				Result	Result	Result	Result	Result
EP050: HTEXN								
Het zet e	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toabet e	108-88-3	2	µg/L	<2	<2	<2	<2	<2
EipQawet zet e	100-41-4	2	µg/L	<2	<2	<2	<2	<2
f einK& mrnK Qet e	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
oripoK Qet e	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ ToinaXQet eh	----	2	µg/L	<2	<2	<2	<2	<2
^ Sbf ol HTEX	----	1	µg/L	<1	<1	<1	<1	<1
Nnnpipnæt e	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP090: Orunt oiB Cof mobt dh (Soabwæ)								
TrBnbiQaiB	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP050S: TPD(V),HTEX Sbrrounieh								
1v2KMBpaoroeipnt eKM4	17060-07-0	2	%	107	96v5	109	110	111
Toabet eKM5	2037-26-5	2	%	96v7	97v2	97v5	98v7	97v8
4K-Irof olaborowet zet e	460-00-4	2	%	111	114	116	112	116
EP090S: Orunt oiB Sbrrounie								
TrBmromQaiB	----	5	%	51v2	68v5	51v4	54v5	88v9

Analytical Results

Sub-Matrix: 3 ARINE WATER (Matrix: WATER)			Sample ID	^ HK-Hengp	^ HKSW 1	^ HKSW 2	LIK-Fnr	LIK3 Bl
			Sampling date / time	07-Nov-2024 00:00	07-Nov-2024 00:00	07-Nov-2024 00:00	07-Nov-2024 00:00	07-Nov-2024 00:00
Compound	CAS Number	LOR	Unit	EP2418722K008	EP2418722K006	EP2418722K005	EP2418722K009	EP2418722K010
				Result	Result	Result	Result	Result
EP050: HTEXN								
Het zet e	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toabet e	108-88-3	2	µg/L	<2	<2	<2	<2	<2
EipQawet zet e	100-41-4	2	µg/L	<2	<2	<2	<2	<2
f einK& mrnK Qet e	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
oripoK Qet e	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ ToinaX Qet eh	----	2	µg/L	<2	<2	<2	<2	<2
^ Sbf ol HTEX	----	1	µg/L	<1	<1	<1	<1	<1
Nnnpipnæt e	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP090: Orunt oiB Cof mobt dh (Soabwæ)								
TrBnbiQaiB	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP050S: TPD(V),HTEX Sbrrounieh								
1v2K Bpaoroeipnt eK4	17060-07-0	2	%	107	109	99v6	102	100
Toabet eK5	2037-26-5	2	%	9-v-	96v0	94v-	97v5	96v5
4K-Irof olaborowet zet e	460-00-4	2	%	110	110	111	110	114
EP090S: Orunt oiB Sbrrounie								
TrBmromQaiB	----	5	%	50v9	69v8	67v9	40v7	72v4

Analytical Results

Sub-Matrix: 3 ARINE WATER (Matrix: WATER)			Sample ID	LIKWehi	Mbmaegnie	HKKK	HKKK	HKKK
			Sampling date / time	07-Nov-2024 00:00	07-Nov-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP2418722K011	EP2418722K012	HKKKKKK	HKKKKKK	HKKKKKK
				Result	Result	----	----	----
EP050: HTEXN								
Het zet e	71-43-2	1	µg/L	<1	<1	HKKK	HKKK	HKKK
Toabet e	108-88-3	2	µg/L	<2	<2	HKKK	HKKK	HKKK
EipQawet zet e	100-41-4	2	µg/L	<2	<2	HKKK	HKKK	HKKK
f einK& mrnK Qet e	108-38-3 106-42-3	2	µg/L	<2	<2	HKKK	HKKK	HKKK
oripoK Qet e	95-47-6	2	µg/L	<2	<2	HKKK	HKKK	HKKK
^ ToinaXQet eh	----	2	µg/L	<2	<2	HKKK	HKKK	HKKK
^ Sbf ol HTEX	----	1	µg/L	<1	<1	HKKK	HKKK	HKKK
Nnnpipnæt e	91-20-3	5	µg/L	<5	<5	HKKK	HKKK	HKKK
EP090: Orunt oiB Cof mobt dh (Soabwæ)								
TrBvbiQaiB	56573-85-4	2	ngSn/L	<2	<2	HKKK	HKKK	HKKK
EP050S: TPD(V),HTEX Sbrrounieh								
1v2KMBpaoroeipnt eKM4	17060-07-0	2	%	106	104	HKKK	HKKK	HKKK
Toabet eKM5	2037-26-5	2	%	101	96v6	HKKK	HKKK	HKKK
4K-Irof olaborowet zet e	460-00-4	2	%	114	114	HKKK	HKKK	HKKK
EP090S: Orunt oiB Sbrrounie								
TrBmromQaiB	----	5	%	77v4	75v2	HKKK	HKKK	HKKK

Surrogate Control Limits

Sub-Matrix: 3 ARINE WATER		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP050S: TPD(V),HTEX Sbrrounieh			
1v2KMBjpaoroeipnt eKM4	17060-07-0	61	141
Toabet eKM5	2037-26-5	73	126
4Kirof olaborowet zet e	460-00-4	60	125
EP090S: Orunt oiB Sbrrounie			
TrBarromQaiB	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP2416522**	Page	: 1 of 3
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-10	Date Samples Received	: 07-Nov-2024
Order number	: 008006	Date Analysis Commenced	: 13-Nov-2024
C-O-C number	: ----	Issue Date	: 15-Nov-2024
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 6184214)									
EP2416522-001	IH-Mid	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2416522-011	LI-West	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP090: Organotin Compounds (Soluble) (QC Lot: 6180685)									
EP2416522-001	IH-Mid	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 6184214)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	97.1	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	108	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	109	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	108	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	109	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	117	77.0	118
EP090: Organotin Compounds (Soluble) (QCLot: 6180685)								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	51.4	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 6184214)							
EP2416522-002	KB-Bay 1	EP080: Benzene	71-43-2	20 µg/L	113	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	126	73.5	126
EP090: Organotin Compounds (Soluble) (QCLot: 6180685)							
EP2416522-001	IH-Mid	EP090S: Tributyltin	56573-85-4	147 ngSn/L	71.4	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2413522**	Page	: 1 of 5
Client	: 7 ARMME AMI NREDF WASER REDEARCF HATORASORL	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Pro3ect	: Mj CS5-14	Date j amples Receive2	: 4d-Nov-S4S5
j ite	: ----	Issue Date	: 1. -Nov-S4S5
j ampler	: ----	NoBof samples receive2	: 1S
Or2er number	: 448446	NoBof samples analyse2	: 1S

Shis report is automatically Benerated Yy the AHD H07 D throuBh interpretation ogthe AHD Quality Control Report and several Quality Assurance parameters measured Yy AHDbShis automated reportinB hiBhliBhts any nonfcongprmances. gacilitates gaster and more accurate data validation and is desiBned to assist internal e- pert and e- ternal Auditor reviewb7 any components ogthis report contriYute to the overall l QO assessment and reportinB gpr Buideline complianceb

Qrief metho2 summaries an2 references are also provi2e2 to assist in traceabilityB

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagge2 in the (uality Control)(CkReportB

- **MO 7 ethod Tlank value outliers occurb**
- **MO l uplicate outliers occurb**
- **MO HaYoratory Control outliers occurb**
- **MO 7 atri- Dpike outliers occurb**
- **Nor all reBular sample matrices. where applicaYle to the methodoloBy. MO surroBate recovery outliers occurb**

Outliers : Analysis Holding Time Compliance

- **MO Analysis FoldinB Sime Outliers e- istb**

Outliers : Frequency of Quality Control Samples

- **Quality Control Dample Nre, uency Outliers e- ist f please see gollowinB paBes gpr gull detailsb**

Outliers : Frequency of Quality Control Samples

MatriQ: **WASER**

(uality Control j ample Type		Count		Rate)K k		(uality Control j pecification
Analytical Metho2s	Metho2	(C	Regular	Actual	EQpecte2	
Laboratory Duplicates)D%Pk						
Organotin Compoun2s)j olublek	EP494j	1	1S	8E00	14B44	NEPM S410 Q0 U ALj (C j tan2ar2

Analysis Holding Time Compliance

If samples are i2entifie2 belo; as having been analyse2 or eGracte2 outsi2e of recommen2e2 hol2ing timeswthis shoul2 be taFen into consi2eration ; hen interpreting resultsB

This report summariqes eGraction 7 preparation an2 analysis times an2 compares each ; ith ALj recommen2e2 hol2ing times)referencing %j EPA j W 856w APYAw Aj an2 NEPMk base2 on the sample container provi2e2B Dates reporte2 represent first 2ate of eGraction or analysis an2 preclu2e subse/ uent 2ilutions an2 rerunsBA listing of breaches)if anykis provi2e2 hereinB

Yol2ing time for leachate metho2s)eBgB TCLPk vary accor2ing to the analytes reporte2B Assessment compares the leach 2ate ; ith the shortest analyte hol2ing time for the e/ uivalent soil metho2B These are: organics 15 2aysw mercury S8 2ays U other metals 184 2aysB A recor2e2 breach 2oes not guarantee a breach for all non-volatile parametersB

Yol2ing times for ***VOC in soils*** vary accor2ing to analytes of interestB &inyl Chlori2e an2 j tyrene hol2ing time is d 2aysV others 15 2aysB A recor2e2 breach 2oes not guarantee a breach for all &OC analytes an2 shoul2 be verifie2 in case the reporte2 breach is a false positive or &inyl Chlori2e an2 j tyrene are not Fey analytes of interest7concernB

MatriQ: **WASER**

Evaluation: × , Yol2ing time breach V✓ , Within hol2ing timeE

Method / ***Container*** / Client Sample ID(s)		***Sample Date***	*Extraction / Preparation*			*Analysis*		
			Date extracted	Due for extraction	Evaluation	***Date analysed***	Due for analysis	Evaluation
EPxqx: TSE8M								
AmYer XOC Xial f Dulguric Acid \EPxqx(								
IY-Mi2w	z Q-Qay 1w	**x9fMovf2x24**	**1) fMovf2x24**	S1-Nov-S4S5	✓	**1) fMovf2x24**	S1-Nov-S4S5	✓
z Q-Qay Sw	z Q-Qay 0w							
z Q-Qay 5w	z Q-Qeachw							
z Q-j W 1								
AmYer XOC Xial f Dulguric Acid \EPxqx(								
z Q-j W Sw	LI-Harw	**x9fMovf2x24**	**1) fMovf2x24**	S1-Nov-S4S5	✓	**14fMovf2x24**	S1-Nov-S4S5	✓
LI-Mi2w	LI-Westw							
Duplicate								
EPxGx: OrBanotin Compounds \DoluYle(								
AmYer Ulass T ottle f 6 npreserved \EPxGxD(								
IY-Mi2w	z Q-Qay 1w	**x9fMovf2x24**	**14fMovf2x24**	15-Nov-S4S5	✓	**14fMovf2x24**	S5-Dec-S4S5	✓
z Q-Qay Sw	z Q-Qay 0w							
z Q-Qay 5w	z Q-Qeachw							
z Q-j W 1w	z Q-j W Sw							
LI-Harw	LI-Mi2w							
LI-Westw	Duplicate							

Quality Control Parameter Frequency Compliance

The follo; ing report summarises the fre/ uency of laboratory (C samples analyse2 ; ithin the analytical lot)skin ; hich the submitte2 sample)sk; as); erekprocesse2BActual rate shoul2 be greater than or e/ ual to the eQpecte2 rateBA listing of breaches is provi2e2 in the j ummary of OutliersB

MatriG: **WASER** Evaluation: × , (uality Control fre/ uency not ; ithin specification V✓ , (uality Control fre/ uency ; ithin specification E

(uality Control j ample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates)D%Pk							
Organotin Compoun2s)j olublek	EP494j	1	1S	qb)	1xbxx	✗	NEPM S410 Q0 U ALj (C j tan2ar2
TRY &olatiles7QTE=	EP484	S	S4	1xbxx	1xbxx	✓	NEPM S410 Q0 U ALj (C j tan2ar2
Laboratory Control j amples)LCj k							
Organotin Compoun2s)j olublek	EP494j	1	1S	qb)	5bxx	✓	NEPM S410 Q0 U ALj (C j tan2ar2
TRY &olatiles7QTE=	EP484	1	S4	5bxx	5bxx	✓	NEPM S410 Q0 U ALj (C j tan2ar2
Metho2 QlanFs)MQk							
Organotin Compoun2s)j olublek	EP494j	1	1S	qb)	5bxx	✓	NEPM S410 Q0 U ALj (C j tan2ar2
TRY &olatiles7QTE=	EP484	1	S4	5bxx	5bxx	✓	NEPM S410 Q0 U ALj (C j tan2ar2
MatriGj piFes)Mj k							
Organotin Compoun2s)j olublek	EP494j	1	1S	qb)	5bxx	✓	NEPM S410 Q0 U ALj (C j tan2ar2
TRY &olatiles7QTE=	EP484	1	S4	5bxx	5bxx	✓	NEPM S410 Q0 U ALj (C j tan2ar2

Brief Method Summaries

The analytical proce2ures use2 by the Environmental Division have been 2evelope2 from establishe2 internationally recogniqe2 proce2ures such as those publishe2 by the %j EPAwAPYAwAj an2 NEPMBIn house 2evelope2 proce2ures are employe2 in the absence of 2ocumente2 stan2ar2s or by client re/ uestBThe follo; ing report provi2es brief 2escriptions of the analytical proce2ures employe2 for results reporte2 in the Certificate of AnalysisBj ources from ; hich ALj metho2s have been 2evelope2 are provi2e2 ; ithin the Metho2 DescriptionsB

Analytical Methods	Method	Matrix	Method Descriptions
TRY &olatiles7QTE=	EP484	WATER	In house: Reference2 to %j EPA j W 856 - 8S64 Water samples are 2irectly purge2 prior to analysis by Capillary XC7Mj an2 / uantification is by comparison against an establishe2 . point calibration curveBAlternativelywa sample is e/ uilibrate2 in a hea2space vial an2 a portion of the hea2space 2etermine2 by XCMj analysisB This metho2 is compliant ; ith the (C re/ uirements of NEPM j che2ule Q)0k
Organotin Compoun2s)j olublek	EP494i	WATER	In house: Reference2 to %j EPA j W 856 - 8Sd4 j ample eGracts are analyse2 by XC7Mj couple2 ; ith high volume in3ection an2 / uantification is by comparison against an establishe2 . point calibration curveBThis metho2 is compliant ; ith NEPM j che2ule Q)0k

Preparation Methods	Method	Matrix	Method Descriptions
&olatiles Water Preparation	ORX16-W	WATER	A . mL ali/ uot or . mL of a 2ilute2 sample is a22e2 to a 54 mL &OC vial for purgingB
Organotin j ample Preparation	ORX05	WATER	In houseB A specifie2 volume of sample is spiFe2 ; ith surrogatewaci2ifie2 an2 vacuum filtere2B Reagents an2 solvent are a22e2 an2 the miGture tumble2B The butyltin compoun2s is 2erivitisate2weGtracte2 an2 the subtitution reaction complete2B The eGtract is transferre2 to a separatory funnel an2 further eGtracte2 t; o times ; ith petroleum etherB The resultant eGtracts are combine2 an2 concentrate2 for analysisB

Australian Government
Department of Industry, Science and Resources

National Measurement Institute

REPORT OF ANALYSIS

Report No. RN1447965

Client	: MURDOCH UNIVERSITY	**Job No.**	: MURD03/241113
	MARINE AND FRESHWATER RESEARCH LABORATORY	**Quote No.**	: QT-02294
	SCHOOL OF VETERINARY AND LIFE SCIENCES	**Order No.**	:
	MURDOCH WA 6150	**Date Received**	: 13-NOV-2024
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	:		
Your Client Services Manager	: [redacted]	**Phone**	: 03 9644 4854

Lab Reg No.	Sample Ref	Sample Description
N24/022849	KB-SW2	MARINE WATER 07/11/2024 JOB NO. MSC24-10

Lab Reg No.	Units	N24/022849				Method
Date Sampled		07-NOV-2024				
Sample Reference		KB-SW2				
Organotins						
Monobutyltin as Sn	ng/L	0.57				NR_35
Dibutyltin as Sn	ng/L	<0.4				NR_35
Tributyltin as Sn	ng/L	1.0				NR_35
Surrogate: Tripropyltin	%REC	114				NR_35
Dates						
Date extracted		19-NOV-2024				
Date analysed		21-NOV-2024				

[redacted]

[redacted], Analyst
Organics - NSW
Accreditation No. 198

22-NOV-2024

NATA
WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing.
This report shall not be reproduced except in full.
Results relate only to the sample(s) as received and tested.

* Denotes the analyte or test method is not within our ISO/IEC 17025 scope of accreditation.

Measurement Uncertainty is available upon request.

REPORT OF ANALYSIS

The testing was undertaken at: 105 Delhi Road, North Ryde, NSW, 2113

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: Marine and Freshwater Research Laboratory

NMI QA Report No: MURD03/2411/13 **Sample Matrix:** Liquid

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		ng/L	ng/L	ng/L	ng/L	%	%	%
Organics Section								
Organotin				**N24/022849**				**N24/022849**
Monobutyltin	NR_35	0.4	<0.4	0.57	0.61	6.2	113	109
Dibutyltin	NR_35	0.4	<0.4	<0.4	<0.4	-	88	117
Tributyltin	NR_35	0.4	<0.4	1.0	1.0	0	112	93
Organotin Surrogate								
Tripropyltin (%Rec)	NR_35	-	-	114	108	5	107	96

Results expressed in percentage (%) or ng/L wherever appropriate.
Acceptable Spike recovery is 30-150% (monobutyltin and Tripropyltin); 40-160% (dibutyltin and tributyltin).
Maximum acceptable RPDs on spikes and duplicates is 60%.
'NA ' = Not Applicable.
RPD= Relative Percentage Difference, LCS = Laboratory Control Spike, LOR = Limit of Reporting.
This report shall not be reproduced except in full.

Signed: [redacted]

Organics Manager, NMI-North Ryde

Date: **22/11/2024**

Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 29/11/2024
Date Received: 18/11/2024
Our Reference: MSC24-11
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit			<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date			19/11/2024	19/11/2024	19/11/2024	27/11/2024	27/11/2024	20/11/2024	20/11/2024	19/11/2024
File			24111901	24111901	24111901	24112701	24112701	24112001	24112001	241119
IH-Mid	18/11/2024	Marine	<3	4	<2	21	160	2.2	0.6	3
KB-Bay 1	18/11/2024	Marine	12	4	7	20	170	1.2	0.5	5
KB-Bay 2	18/11/2024	Marine	<3	4	<2	18	140	1.2	0.5	3
KB-Bay 3	18/11/2024	Marine	<3	4	3	22	160	1.4	0.6	6
KB-Bay 4	18/11/2024	Marine	<3	4	3	18	140	0.8	0.4	3
KB-Beach	18/11/2024	Marine	<3	5	2	18	140	1.0	0.4	4
KB-SW 1	18/11/2024	Marine	<3	4	3	19	150	1.4	0.4	4
KB SW 2	18/11/2024	Marine	<3	4	2	19	150	1.2	0.4	4
LI-Far	18/11/2024	Marine	<3	3	2	34	230	2.5	1.6	11
LI-Mid	18/11/2024	Marine	11	2	7	34	230	3.1	1.3	12
LI-West	18/11/2024	Marine	<3	3	<2	34	240	2.7	1.3	9
Duplicate	18/11/2024	Marine	<3	2	<2	36	250	2.7	1.2	10

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 29/11/2024

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Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 29/11/2024
Date Received: 18/11/2024
Our Reference: MSC24-11
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit			**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date			**20/11/2024**	**20/11/2024**	**20/11/2024**	**20/11/2024**	**20/11/2024**	**21/11/2024**
File			**24112001**	**24112001**	**24112001**	**24112001**	**24112001**	**24112102**
IH-Mid	18/11/2024	Marine	<0.3	0.5	<1	<0.1	<0.1	<0.0001
KB-Bay 1	18/11/2024	Marine	<0.3	0.2	<1	<0.1	<0.1	<0.0001
KB-Bay 2	18/11/2024	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 3	18/11/2024	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-Bay 4	18/11/2024	Marine	<0.3	0.2	<1	<0.1	<0.1	<0.0001
KB-Beach	18/11/2024	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-SW 1	18/11/2024	Marine	<0.3	0.6	<1	<0.1	<0.1	<0.0001
KB SW 2	18/11/2024	Marine	<0.3	0.2	<1	<0.1	<0.1	<0.0001
LI-Far	18/11/2024	Marine	<0.3	0.8	<1	<0.1	<0.1	<0.0001
LI-Mid	18/11/2024	Marine	<0.3	0.6	<1	<0.1	<0.1	<0.0001
LI-West	18/11/2024	Marine	<0.3	0.7	<1	<0.1	<0.1	<0.0001
Duplicate	18/11/2024	Marine	<0.3	0.8	<1	<0.1	<0.1	<0.0001

Signator[redacted]
Date: 29

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

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CERTIFICATE OF ANALYSIS

Work Order	: **EP2418187**	Page	: 1 of 6
Client	: **3 ARINE ANM FRESDWATER RESEARCD LAHORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-11	Date Samples Received	: 18-Nov-2024 14:15
Order number	: 008006	Date Analysis Commenced	: 21-Nov-2024
C-O-C number	: ----	Issue Date	: 26-Nov-2024 12:36
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

AddBBot na Bilorf niBot meriBet i io ipBa remori sBa we lobt d Bi ipe loaaosBu hemmrnie niingpf et ih: c bnaBQ Cot iroa Remoriy c A,c C Cof maBat ge Ahhehhf et i io nhhBai sBp c bnaBQ Re/ Bes nt d Snf mæ RegeBri NoiBBgniBot v

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	k risbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: 3 ARINE WATER
-Matrix: WATER(

			Sample ID	IDK3 Bl	^ HK-InQ1	^ HK-InQ2	^ HK-InQ7	^ HK-InQ4
			Sampling date / time	18-Nov-2024 00:00	18-Nov-2024 00:00	18-Nov-2024 00:00	18-Nov-2024 00:00	18-Nov-2024 00:00
Compound	CAS Number	LOR	Unit	EP2418187K) 1	EP2418187K) 2	EP2418187K) 7	EP2418187K) 4	EP2418187K) 0
				Result	Result	Result	Result	Result
EP) 5) : HTEXN								
Het zet e	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toabet e	108-88-3	2	µg/L	<2	<2	<2	<2	<2
EipQawet zet e	100-41-4	2	µg/L	<2	<2	<2	<2	<2
f einK& mrnK KQaet e	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
oripoK KQaet e	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ ToinaXQaet eh	----	2	µg/L	<2	<2	<2	<2	<2
^ Sbf ol HTEX	----	1	µg/L	<1	<1	<1	<1	<1
Nnnpipnæt e	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP) 9) : Orunt oiB Cof mobt dh -Soabwæ(								
TrBvbiQaiB	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP) 5) S: TPD-V(,HTEX Sbrrounieh								
1v2KVBpaoroeipnt eKV4	17060-07-0	2	%	112	1) 6	1) 6	1) 8	112
Toabet eKV5	2037-26-5	2	%	55v8	54v0	56v7	50v1	58v1
4K-Irof olaborowet zet e	460-00-4	2	%	11)	1) 0	1) 5	1) 0	1) 5
EP) 9) S: Orunt oiB Sbrrounie								
TrBmromQaiB	----	5	%	87v)	50v1	64v0	09v4	81v8

Analytical Results

Sub-Matrix: 3 ARINE WATER
-Matrix: WATER(

Compound	CAS Number	LOR	Unit	Sample ID	^ HK Hengp	^ HK SW 1	^ HK SW 2	LIK Fnr	LIK 3 Bl
				Sampling date / time	18-Nov-2024 00:00	18-Nov-2024 00:00	18-Nov-2024 00:00	18-Nov-2024 00:00	18-Nov-2024 00:00
					EP2418187K) 6	EP2418187K) 8	EP2418187K) 5	EP2418187K) 9	EP2418187K) 1)
					Result	Result	Result	Result	Result
EP) 5) : HTEXN									
Het zet e	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toabet e	108-88-3	2	µg/L		<2	<2	<2	<2	<2
EipQawet zet e	100-41-4	2	µg/L		<2	<2	<2	<2	<2
f einK& mrnK Qet e	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
oripoK Qet e	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ ToinaX Qet eh	----	2	µg/L		<2	<2	<2	<2	<2
^ Sbf ol HTEX	----	1	µg/L		<1	<1	<1	<1	<1
Nnnpipnæt e	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP) 9) : Orunt oiB Cof mobt dh -Soabwæ(									
TrBvbiQaiB	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP) 5) S: TPD-V(,HTEX Sbrrounieh									
1v2 KVB pa oroeipnt eKV4	17060-07-0	2	%		1) 7	114	116	1) 8	11)
Toabet eKV5	2037-26-5	2	%		55v6	58v6	55v4	56v8	58v9
4K Irof ola borowet zet e	460-00-4	2	%		11)	1) 9	11)	1) 5	1) 9
EP) 9) S: Orunt oiB Sbrrounie									
TrBmromQaiB	----	5	%		59v6	69v7	51v2	57v7	85v2

Analytical Results

Sub-Matrix: 3 ARINE WATER -Matrix: WATER(			Sample ID	LIK Wehi	MBraBgnie	HKKK	HKKK	HKKK
			Sampling date / time	18-Nov-2024 00:00	18-Nov-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP2418187H 11	EP2418187H 12	HKKKKKK	HKKKKKK	HKKKKKK
				Result	Result	----	----	----
EP) 5) : HTEXN								
Het zet e	71-43-2	1	µg/L	<1	<1	HKKK	HKKK	HKKK
Toabet e	108-88-3	2	µg/L	<2	<2	HKKK	HKKK	HKKK
EipQawet zet e	100-41-4	2	µg/L	<2	<2	HKKK	HKKK	HKKK
f einK& mrnhKQæt e	108-38-3 106-42-3	2	µg/L	<2	<2	HKKK	HKKK	HKKK
oripoKKQæt e	95-47-6	2	µg/L	<2	<2	HKKK	HKKK	HKKK
^ ToinaXQæt eh	----	2	µg/L	<2	<2	HKKK	HKKK	HKKK
^ Sbf ol HTEX	----	1	µg/L	<1	<1	HKKK	HKKK	HKKK
Nnnpipnæt e	91-20-3	5	µg/L	<5	<5	HKKK	HKKK	HKKK
EP) 9) : Orunt oiB Cof mobt dh -Soabwæ(								
TrBvbiQaiB	56573-85-4	2	ngSn/L	<2	<2	HKKK	HKKK	HKKK
EP) 5) S: TPD-V(,HTEX Sbrrounieh								
1v2KMBpaoroeipnt eKM4	17060-07-0	2	%	1) 9	112	HKKK	HKKK	HKKK
Toabet eKM5	2037-26-5	2	%	58v0	56v7	HKKK	HKKK	HKKK
4K-Hrof olaborowet zet e	460-00-4	2	%	11)	1) 0	HKKK	HKKK	HKKK
EP) 9) S: Orunt oiB Sbrrounie								
TrBmromQaiB	----	5	%	51v5	55v5	HKKK	HKKK	HKKK

Surrogate Control Limits

Sub-Matrix: 3 ARINE WATER		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP) 5) S: TPD-V(,HTEX Sbrrounieh			
1v2KMBjparoeipnt eKM4	17060-07-0	61	141
Toabet eKM5	2037-26-5	73	126
4Kirof olaborowet zet e	460-00-4	60	125
EP) 9) S: Orunt oiB Sbrrounie			
TrBarromQaiB	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS krisbane, NATA accreditation no. 825, site no. 818 (Chemistry / kiology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP2413135**	Page	: 1 of 3
Client	: **mARINE ANn t REMDWATER REMEARCD LAFORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-11	Date Samples Received	: 18-Nov-2024
Order number	: 008006	Date Analysis Commenced	: 21-Nov-2024
C-O-C number	: ----	Issue Date	: 26-Nov-2024
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EPSHS: FTEBN 0QC Lo8 X1(H3X69									
EP2417035-189	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2417173-009	LI-Far	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EPS(S: Or) gao8a Cop uosadl 0Mobs7le9 0QC Lo8 X2S2X3(9									
EP2417173-001	IH-Mid	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit
EP2417178-006	Anonymous	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EPSHS: FTEBN 0QCLo8: X1(H3X69								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	93.7	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	97.5	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	104	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	106	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	110	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	115	77.0	118
EPS(S: Or)gao8a Cop uosadl 0Mobs7lae9 0QCLo8: X2S2X3(9								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	63.3	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EPSHS: FTEBN 0QCLo8: X1(H3X69							
EP2417035-190	Anonymous	EP080: Benzene	71-43-2	20 µg/L	113	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	106	73.5	126
EPS(S: Or)gao8a Cop uosadl 0Mobs7lae9 0QCLo8: X2S2X3(9							
EP2417173-001	IH-Mid	EP090S: Tributyltin	56573-85-4	147 ngSn/L	75.7	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2413135**	Page	: 1 of 4
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Project	: MSC24-11	Date Samples Received	: 18-5 ov-2024
Site	: ----	Issue Date	: 26-5 ov-2024
Sampler	: ----	5 oNof samples received	: 12
Order number	: 008006	5 oNof samples analysed	: 12

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

. rief method summaries and references are also provided to assist in traceabilityN

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Buality Control CB C(ReportN

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

If samples are identified belo/ as having been analysed or e&tracted outside of recommended holding timesqthis should be ta) en into consideration / hen interpreting resultsN

This report summarixes e&traction ; preparation and analysis times and compares each / ith ALS recommended holding times Qeferencing z SEPA SW 846q APHAq AS and 5EPM(based on the sample container providedN Dates reported represent first date of e&traction or analysis and preclude subsewuent dilutions and rerunsNA listing of breaches Qf any(is provided hereinN

Holding time for leachate methods QeNg TCLP(vary according to the analytes reportedN Assessment compares the leach date / ith the shortest analyte holding time for the ewuivalent soil methodN These are: organics 14 daysqmercury 28 days , other metals 180 daysNA recorded breach does not guarantee a breach for all non-volatile parametersN

Holding times for ***VOC in soils*** vary according to analytes of interestN Vinyl Chloride and Styrene holding time is k days7 others 14 daysN A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not) ey analytes of interest;concernN

Matri&: **WATER** Evaluation: × U Holding time breach 7 ✓ U Within holding timeN

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
IH-Midq	=. -. ay 1q	**18-Nov-2024**	**21-Nov-2024**	02-Dec-2024	✓	**22-Nov-2024**	02-Dec-2024 ✓
=. -. ay 2q	=. -. ay 3q						
=. -. ay 4q	=. -. eachq						
=. -SW 1q	=. -SW 2q						
LI-Farq	LI-Midq						
LI-Westq	Diplicate						
EP090: Organotin Compounds (Soluble)							
Amber Glass Bottle - Unpreserved (EP090S)							
IH-Midq	=. -. ay 3q	**18-Nov-2024**	**26-Nov-2024**	2K-5 ov-2024	✓	**26-Nov-2024**	04-Jan-202K ✓
=. -. ay 4q	=. -. eachq						
=. -SW 1q	LI-Farq						
LI-Midq	LI-Westq						
Diplicate							
Amber Glass Bottle - Unpreserved (EP090S)							
=. -. ay 1q	=. -. ay 2q	**18-Nov-2024**	**26-Nov-2024**	2K-5 ov-2024	✓	**27-Nov-2024**	04-Jan-202K ✓
=. -SW 2							

Quality Control Parameter Frequency Compliance

The follo/ ing report summarises the frewuency of laboratory B C samples analysed / ithin the analytical lot3(in / hich the submitted sample3(/ as2 ere(processedNActual rate should be greater than or ewual to the e&pected rateNA listing of breaches is provided in the Summary of OutliersN

Matri&: **WATER**

Evaluation: × U Buality Control frewuency not / ithin specification 7 ✓ U Buality Control frewuency / ithin specification N

Buality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates 0Dz P(							
Organotin Compounds 0Soluble(	EP090S	2	18	**11.11**	**10.00**	✓	5 EPM 2013 . 3 , ALS B C Standard
TRH Volatiles;. TEX	EP080	2	20	**10.00**	**10.00**	✓	5 EPM 2013 . 3 , ALS B C Standard
Laboratory Control Samples 0LCS(							
Organotin Compounds 0Soluble(	EP090S	1	18	**6.67**	**6.00**	✓	5 EPM 2013 . 3 , ALS B C Standard
TRH Volatiles;. TEX	EP080	1	20	**6.00**	**6.00**	✓	5 EPM 2013 . 3 , ALS B C Standard
Method . lan) s 0M. (							
Organotin Compounds 0Soluble(	EP090S	1	18	**6.67**	**6.00**	✓	5 EPM 2013 . 3 , ALS B C Standard
TRH Volatiles;. TEX	EP080	1	20	**6.00**	**6.00**	✓	5 EPM 2013 . 3 , ALS B C Standard
Matri& Spi) es 0MS(							
Organotin Compounds 0Soluble(	EP090S	1	18	**6.67**	**6.00**	✓	5 EPM 2013 . 3 , ALS B C Standard
TRH Volatiles;. TEX	EP080	1	20	**6.00**	**6.00**	✓	5 EPM 2013 . 3 , ALS B C Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognixed procedures such as those published by the z S EPAqAPHAqAS and 5 EPMNIn house developed procedures are employed in the absence of documented standards or by client rewuestNThe follo/ ing report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of AnalysisNSources from / hich ALS methods have been developed are provided / ithin the Method DescriptionsN

Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles;. TEX	EP080	WATER	In house: Referenced to z SEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC;MS and wuantification is by comparison against an established K point calibration curveNAlternativelyqa sample is ewuilibrated in a headspace vial and a portion of the headspace determined by GCMS analysisN This method is compliant / ith the B C rewuirements of 5 EPM Schedule . C3(
Organotin Compounds CSoluble(	EP090S	WATER	In house: Referenced to z SEPA SW 846 - 82k0 Sample e&tracts are analysed by GC;MS coupled / ith high volume injection and wuantification is by comparison against an established K point calibration curveNThis method is compliant / ith 5 EPM Schedule . C3(

Preparation Methods	Method	Matrix	Method Descriptions
Volatiles Water Preparation	ORG16-W	WATER	A K mL aliwuot or K mL of a diluted sample is added to a 40 mL VOC vial for purgingN
Organotin Sample Preparation	ORG34	WATER	In houseN A specified volume of sample is spi) ed / ith surrogateqacidified and vacuum filteredN Reagents and solvent are added and the mi&ture tumbledN The butyltin compounds is derivitisatedqe&tracted and the subtitution reaction completedN The e&tract is transferred to a separatory funnel and further e&tracted t/ o times / ith petroleum etherN The resultant e&tracts are combined and concentrated for analysisN

Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

NATA Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 19/12/2024
Date Received: 4/12/2024
Our Reference: MSC24-12
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit			<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date			9/12/2024	9/12/2024	9/12/2024	11/12/2024	11/12/2024	19/12/2024	19/12/2024	6/12/2024
File			24120901	24120901	24120901	24121101	24121101	24121901	24121901	24120601
IH-Mid	4/12/2024	Marine	15	5	6	18	140	2.0	0.6	3
KB-Bay 1	4/12/2024	Marine	11	5	6	20	150	1.4	0.8	6
KB-Bay 2	4/12/2024	Marine	18	5	8	21	150	2.0	0.9	6
KB-Bay 3	4/12/2024	Marine	<3	5	<2	24	150	1.6	0.9	9
KB-Bay 4	4/12/2024	Marine	<3	5	2	21	130	1.9	0.7	8
KB-Beach	4/12/2024	Marine	<3	5	<2	23	150	1.8	0.7	5
KB-SW 1	4/12/2024	Marine	<3	6	<2	24	170	2.7	1.3	12
KB SW 2	4/12/2024	Marine	<3	5	<2	20	140	1.9	0.8	9
LI-Far	4/12/2024	Marine	<3	4	3	39	270	4.0	2.6	11
LI-Mid	4/12/2024	Marine	<3	3	5	39	270	4.8	2.5	15
LI-West	4/12/2024	Marine	<3	4	<2	30	210	3.1	2.2	13
Duplicate	4/12/2024	Marine	<3	5	3	35	260	4.8	2.3	13

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 19/12/2024

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Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 19/12/2024
Date Received: 4/12/2024
Our Reference: MSC24-12
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit			**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date			**17/12/2024**	**17/12/2024**	**17/12/2024**	**17/12/2024**	**17/12/2024**	**10/12/2024**
File			**24121701**	**24121701**	**24121701**	**24121701**	**24121701**	**24121001**
IH-Mid	4/12/2024	Marine	<0.3	1.0	<1	<0.1	<0.1	<0.0001
KB-Bay 1	4/12/2024	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 2	4/12/2024	Marine	<0.3	0.7	<1	<0.1	<0.1	<0.0001
KB-Bay 3	4/12/2024	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 4	4/12/2024	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-Beach	4/12/2024	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-SW 1	4/12/2024	Marine	0.3	0.8	<1	<0.1	<0.1	<0.0001
KB SW 2	4/12/2024	Marine	<0.3	0.7	<1	<0.1	<0.1	<0.0001
LI-Far	4/12/2024	Marine	<0.3	1.1	<1	<0.1	<0.1	<0.0001
LI-Mid	4/12/2024	Marine	0.3	1.1	<1	<0.1	<0.1	<0.0001
LI-West	4/12/2024	Marine	0.3	1.0	<1	<0.1	<0.1	<0.0001
Duplicate	4/12/2024	Marine	0.4	1.2	<1	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 19/12/2024

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CERTIFICATE OF ANALYSIS

Work Order	: **EP2418435**	Page	: 1 of 6
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 05-Dec-2024 10:30
Order number	: PO-008006	Date Analysis Commenced	: 13-Dec-2024
C-O-C number	: ----	Issue Date	: 16-Dec-2024 10:25
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	IH-Mid	KB-Bay 1	KB-Bay 2	KB-Bay 3	KB-Bay 4
			Sampling date / time	04-Dec-2024 00:00	04-Dec-2024 00:00	04-Dec-2024 00:00	04-Dec-2024 00:00	04-Dec-2024 00:00
Compound	CAS Number	LOR	Unit	EP2418435-001	EP2418435-002	EP2418435-003	EP2418435-004	EP2418435-005
				Result	Result	Result	Result	Result
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ **Total Xylenes**	----	2	µg/L	<2	<2	<2	<2	<2
^ **Sum of BTEX**	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**123**	**130**	**127**	**128**	**124**
Toluene-D8	2037-26-5	2	%	**95.9**	**97.1**	**92.8**	**95.7**	**96.8**
4-Bromofluorobenzene	460-00-4	2	%	**97.3**	**96.9**	**94.8**	**100**	**95.8**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	KB-Beach	KB-SW 1	KB SW 2	LI-Far	LI-Mid
			Sampling date / time	04-Dec-2024 00:00	04-Dec-2024 00:00	04-Dec-2024 00:00	04-Dec-2024 00:00	04-Dec-2024 00:00
Compound	CAS Number	LOR	Unit	EP2418435-006	EP2418435-007	EP2418435-008	EP2418435-009	EP2418435-010
				Result	Result	Result	Result	Result
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ **Total Xylenes**	----	2	µg/L	<2	<2	<2	<2	<2
^ **Sum of BTEX**	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**126**	**125**	**124**	**128**	**126**
Toluene-D8	2037-26-5	2	%	**94.1**	**93.3**	**95.2**	**92.0**	**91.4**
4-Bromofluorobenzene	460-00-4	2	%	**95.4**	**94.6**	**98.4**	**93.0**	**95.2**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	LI-West	Duplicate	----	----	----
			Sampling date / time	04-Dec-2024 00:00	04-Dec-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP2418435-011	EP2418435-012	--------	--------	--------
				Result	Result	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----
^ **Total Xylenes**	----	2	µg/L	<2	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L	<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**127**	**126**	----	----	----
Toluene-D8	2037-26-5	2	%	**94.8**	**93.7**	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**93.2**	**91.1**	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
4-Bromofluorobenzene	460-00-4	60	125

QUALITY CONTROL REPORT

Work Order	: **EP2418435**	Page	: 2 1of
y l@i r	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	3aL1bar1bt	: ni E@1i v ei ral m@E@i Pebr D
y 1i rahr	: cJ A M l WWml J Om	y 1i rahr	: y Rsr1v ebueb E@es nP
J SSbess	: y d A - OmWy U - HMMln OuMTYuW- VU uVOnnV A - OmWy U l J YJ - uVOJ 3M , 260	J SSbess	: 4, O@alC at l ai gaba l J J Rsrbal@a , 0, 6
Vele5D1i e	: p, 2 +f , 04+09	Vele5D1i e	: p, 2/7/+80, 2f 02
Pb1jehr	: A uy 48/24	mare uav 5les Oehe@eS	: 06/meh/4048
WbSebi Rv Leb	: PW/00700,	mare Ji alts@ y 1v v ei heS	: 2f /meh/4048
y /Wy i Rv Leb	: ////	MsRe mare	: 2, /meh/4048
uav 5leb	: ////		
u@e	: ////		
QR1re i Rv Leb	: nP48A J OFOn 000f _N4		
H1. 1osav 5les beheCeS	: 24		
H1. 1osav 5les ai alt seS	: 24		

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VD@s be51br sR5ebseSes ai t 5beE@1Rs be51br(s) w@D rD@s beoebei he. OesRirs a55lt r1 rDe sav 5le(s) as sRLv @reSY Ri less rDe sav 5l@g was h1i SRhreS Lt J 3u. VD@s S1hRv ei r sDall i 1r Le be5b1SRheSYexhe5r @ dRll.

VD@s QRal@t y 1i rb1l Oe51br h1i ra@s rDe o1ll1w@g @o1bv ar@i :

- 3aL1bar1bt mR5l@are (m- P) Oe51br; Oelar@e Pebhei rage m@ebei he (OPm) ai S J hhe5rai he 3@ @s
- A erD1S Blai k (A B) ai S 3aL1bar1bt y 1i rb1l u5@e (3y u) Oe51br; Oeh1Eebt ai S J hhe5rai he 3@ @s
- A arb@ u5@e (A u) Oe51br; Oeh1Eebt ai S J hhe5rai he 3@ @s

Signatories

VD@s S1hRv ei r Das Leei elehrb1i @allt s@i eS Lt rDe aRrD1b@eS s@i ar1b@s Lel1w. nlehrb1i @ s@i @g @ habb@S 1Rr @ h1v 5l@ai he w@D 5b1heSR@es s5eh@eS @ 42 y FO Pabr 22.

Signatories	*Position*	*Accreditation Category*
c1Di U1bw11S	W@gai @ uR5eb E@1b	Pebr D W@gai @ sYl ai gabaYl J

General Comments

VDe ai alt rCal 5b1heSRoes RseS Lt J3u DaEe Leei SeEel15eS do1v esraLlGDeS CrebiarGi allt beh1giGeS 5b1heSRoes sRhD as rD1se 5RLlGDeS Lt rDe - unPJY JPUJY Ju ai S HnPA. MI D1Rse SeEel15eS 5b1heSRoes abe dRlt EalGSareS ai S abe 1orei ar rDe hlGi r beqResr.

I Debe v 1GnRte Serebv CarGi Das Leei 5ebo1bv eSYbesRrs abe be51breS 1i a Sbt weGDr LasG.

I Debe a be51breS less rDai (<) besRrr G DGDeb rDai rDe 3WOY rDG v at Le SRe r1 5bO abt sav 5le exrbahroSGesrare SGRrGi ai Sd1b CsRooGi r sav 5le o1b ai alt sG. I Debe rDe 3WO 1o a be51breS besRrr SGebs do1v srai SabS 3WOYrDG v at Le SRe r1 DGDv 1GnRte h1i rei rYCsRooGi r sav 5le (beSRheS weGDr ev 5l1t eS) 1bv arbG CrebebeiheI.

Ket : Ji 1i t v 1Rs = Oeebs r1 sav 5les wDGDabe i 1r s5ehGallt 5abr 1orDG w1bk 1bSebLRr o1bv eS 5abr 1orDe Qy 5b1hess l1r
y Ju HRv Leb = y Ju begGrbt i Rv Lebdo1v SaraLase v aCraCeS Lt y Dev Cal JLsrbahrs uebECbes. VDe y Dev Cal JLsrbahrs uebECbe G a SGESGi 1orDe Jv ebCai y Dev Cal u1hGrt.
3WO = 3O C 1obe51brCg
OPm = OelarGe Pebhei rage mGebei he
# = MSCares oaDeS Qy

Laboratory Duplicate (DUP) Report

VDe qRalGt h1i rb1l reb v 3aL1bar1bt mR5lCare beoebs r1 a bai S1v lt selehreS CrbalaL1bar1bt s5lC 3aL1bar1bt SR5lCares 5b1EGSe Co1bv arGi begatbSCg v erD1S 5behGSGi ai S sav 5le Dereb1gei eGt. VDe 5ebv GreS bai ges o1b rDe OelarGe Pebhei r meEarGi (OPm) 1o 3aL1bar1bt mR5lCares abe s5ehGeS C J3u AerD1S QI MnHof 7 ai S abe Se5ei Sei r 1i rDe v agiGRSe 1o besRrs C h1v 5abGSi 1i r1 rDe leEel 1o be51brCg: OesRrr < 20 rO es 3WO: H1 3O C; OesRrr Lerweei 20 ai S 40 rO es 3WO: 0% / 60%; OesRrr > 40 rO es 3WO: 0% / 40%.

uRL/Aarb: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 6250358)									
nP48274f 4/002	Ji 1i t v 1Rs	nP070: Bei zei e	92/8f /4	2	µgD3	<2	<2	0.0	H1 3O C
		nP070: V1lRei e	207/77/f	4	µgD3	<4	<4	0.0	H1 3O C
		nP070: nrDtlLei zei e	200/82/8	4	µgD3	<4	<4	0.0	H1 3O C
		nP070: v era/ & 5aba/Xt lei e	207/f 7/f 20, /84/f	4	µgD3	<4	<4	0.0	H1 3O C
		nP070: 1brD1/Xt lei e	+6/89/,	4	µgD3	<4	<4	0.0	H1 3O C
		nP070: Ha5DrDalei e	+2/40/f	6	µgD3	<6	<6	0.0	H1 3O C
nP48278f 6/006	KB/Bat 8	nP070: Bei zei e	92/8f /4	2	µgD3	<2	<2	0.0	H1 3O C
		nP070: V1lRei e	207/77/f	4	µgD3	<4	<4	0.0	H1 3O C
		nP070: nrDtlLei zei e	200/82/8	4	µgD3	<4	<4	0.0	H1 3O C
		nP070: v era/ & 5aba/Xt lei e	207/f 7/f 20, /84/f	4	µgD3	<4	<4	0.0	H1 3O C
		nP070: 1brD1/Xt lei e	+6/89/,	4	µgD3	<4	<4	0.0	H1 3O C
		nP070: Ha5DrDalei e	+2/40/f	6	µgD3	<6	<6	0.0	H1 3O C

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

VDe qRalGt h1irb1l reb/ AerD1S d 3aL1bar1bt Blai k beoebs r1 ai ai altre dbee v arbQx r1 wDGD all beageirs abe aSSeS G rDe sav e E1lRv es 1b 5b151brGi s as RseS G srai SabS sav 5le 5be5abarGi . VDe 5Rb51se 1o rDGs Qy 5abav ereb Gs r1 v 1i G1b 51rei rQl laL1bar1bt h1i rav GarGi . VDe qRalGt h1irb1l reb/ 3aL1bar1bt y 1irb1l uav 5le (3y u) beoebs r1 a hebrGeS beoebei he v areboalY 1b a ki 1wi Greboebei he dbee v arbQx s5GkeS wGD rabger ai altres. VDe 5Rb51se 1orDGs Qy 5abav ereb Gs r1 v 1i G1bv erD1S 5beh GGi ai SahhRbaht GSe5ei Sei r1osav 5le v arbQx. mti av G1 Oeh1Eebt 3Q Gs abe LaseS 1i srarGrGbal eEalRarGi 1o5b1hesseS 3y u.

uRL/Aarbx: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 6250358)								
nP070: Bei zei e	92/8f /4	2	µgG3	<2	40 µgG3	204	78.2	228
nP070: V1lRei e	207/77/f	4	µgG3	<4	40 µgG3	+6.f	72.0	226
nP070: nrDtlLei zei e	200/82/8	4	µgG3	<4	40 µgG3	204	78.8	22f
nP070: v era/ & 5aba/Xtlei e	207/f 7/f 20, /84/f	4	µgG3	<4	80 µgG3	20f	78.f	228
nP070: 1brD1/Xtlei e	+6/89/,	4	µgG3	<4	40 µgG3	20,	7, .6	222
nP070: Ha5DrDalei e	+2/40/f	6	µgG3	<6	6 µgG3	208	99.0	227

Matrix Spike (MS) Report

VDe qRalGt h1irb1l reb/ Aarbx u5Gke (Au) beoebs r1 ai GrbalaL1bar1bt s5lG sav 5le s5GkeS wGD a be5besei rarGEe ser 1o rabger ai altres. VDe 5Rb51se 1o rDGs Qy 5abav ereb Gs r1 v 1i G1b 51rei rQl v arbQx eooehrs 1i ai altre beh1Eebes. urarG1 Oeh1Eebt 3Q Gs as 5eblaL1bar1bt mara QRalGt WLjehrGEes (mQWs). MSeal beh1Eebt bai ges srareS v at Le waGEeS G rDe eEei r1osav 5le v arbQx Greboebei he.

uRL/Aarbx: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
				Concentration	MS	Low	High
EP080: BTEXN (QCLot: 6250358)							
nP4827846/002	Ji 1i t v 1Rs	nP070: Bei zei e	92/8f /4	40 µgG3	20f	99.0	244
		nP070: V1lRei e	207/77/f	40 µgG3	++.8	9f .6	24,

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2418435**	Page	: 1 of 4
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 05-Dec-2024
Site	: ----	Issue Date	: 16-Dec-2024
Sampler	: ----	No. of samples received	: 12
Order number	: PO-008006	No. of samples analysed	: 12

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

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

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

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

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

Matrix: **WATER**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
IH-Mid,	KB-Bay 1,	**04-Dec-2024**	**13-Dec-2024**	18-Dec-2024	✓	**14-Dec-2024**	18-Dec-2024	✓
KB-Bay 2,	KB-Bay 3,							
KB-Bay 4,	KB-Beach,							
KB-SW 1,	KB SW 2,							
LI-Far,	LI-Mid,							
LI-West,	Duplicate							

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

REPORT OF ANALYSIS

Client	: MURDOCH UNIVERSITY	**Job No.**	: MURD03/241205
	MARINE AND FRESHWATER RESEARCH LABORATORY	**Quote No.**	: QT-02294
	SCHOOL OF VETERINARY AND LIFE SCIENCES	**Order No.**	:
	MURDOCH WA 6150	**Date Received**	: 05-DEC-2024
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	:		
Your Client Services Manager	: [redacted]	**Phone**	: 03 9644 4854

Lab Reg No.	Sample Ref	Sample Description
N24/025142	1	WATER IH-MID JOB MSC24-12
N24/025143	2	WATER KB-BAY 1 JOB MSC24-12
N24/025144	3	WATER KB-BAY 2 JOB MSC24-12
N24/025145	4	WATER KB-BAY 3 JOB MSC24-12

Lab Reg No.		**N24/025142**	**N24/025143**	**N24/025144**	**N24/025145**	
Date Sampled		**04-DEC-2024**	**04-DEC-2024**	**04-DEC-2024**	**04-DEC-2024**	
Sample Reference	**Units**	**1**	**2**	**3**	**4**	**Method**
Organotins						
Monobutyltin as Sn	ng/L	<0.4	<0.4	<0.4	<0.4	NR_35
Dibutyltin as Sn	ng/L	<0.4	<0.4	<0.4	<0.4	NR_35
Tributyltin as Sn	ng/L	<0.4	<0.4	<0.4	<0.4	NR_35
Surrogate: Tripropyltin	%REC	79	81	70	74	NR_35
Dates						
Date extracted		11-DEC-2024	11-DEC-2024	11-DEC-2024	11-DEC-2024	
Date analysed		16-DEC-2024	16-DEC-2024	16-DEC-2024	16-DEC-2024	

[redacted]

[redacted], Analyst
Organics - NSW
Accreditation No. 198

17-DEC-2024

REPORT OF ANALYSIS

Report No. RN1450604

Client	: MURDOCH UNIVERSITY	**Job No.**	: MURD03/241205
	MARINE AND FRESHWATER RESEARCH LABORATORY	**Quote No.**	: QT-02294
	SCHOOL OF VETERINARY AND LIFE SCIENCES	**Order No.**	:
	MURDOCH WA 6150	**Date Received**	: 05-DEC-2024
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	:		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N24/025146	5	WATER KB-BAY 4 JOB MSC24-12
N24/025147	6	WATER KB-BEACH JOB MSC24-12
N24/025148	7	WATER KB-SW1 JOB MSC24-12
N24/025149	8	WATER KB-SW2 JOB MSC24-12

Lab Reg No.	Units	N24/025146	N24/025147	N24/025148	N24/025149	Method
Date Sampled		04-DEC-2024	04-DEC-2024	04-DEC-2024	04-DEC-2024	
Sample Reference		5	6	7	8	
Organotins						
Monobutyltin as Sn	ng/L	<0.4	<0.4	<0.4	<0.4	NR_35
Dibutyltin as Sn	ng/L	<0.4	<0.4	<0.4	<0.4	NR_35
Tributyltin as Sn	ng/L	<0.4	<0.4	<0.4	<0.4	NR_35
Surrogate: Tripropyltin	%REC	76	69	57	74	NR_35
Dates						
Date extracted		11-DEC-2024	11-DEC-2024	11-DEC-2024	11-DEC-2024	
Date analysed		16-DEC-2024	16-DEC-2024	16-DEC-2024	16-DEC-2024	

[redacted] Analyst
Organics - NSW
Accreditation No. 198

17-DEC-2024

REPORT OF ANALYSIS

Client	: MURDOCH UNIVERSITY	**Job No.**	: MURD03/241205
	MARINE AND FRESHWATER RESEARCH LABORATORY	**Quote No.**	: QT-02294
	SCHOOL OF VETERINARY AND LIFE SCIENCES	**Order No.**	:
	MURDOCH WA 6150	**Date Received**	: 05-DEC-2024
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	:		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N24/025150	9	WATER LI-FAR JOB MSC24-12
N24/025151	10	WATER LI-MID JOB MSC24-12
N24/025152	11	WATER LI-WEST JOB MSC24-12
N24/025153	12	WATER DUPLICATE JOB MSC24-12

Lab Reg No.	Units	N24/025150	N24/025151	N24/025152	N24/025153	Method
Date Sampled		04-DEC-2024	04-DEC-2024	04-DEC-2024	04-DEC-2024	
Sample Reference		9	10	11	12	
Organotins						
Monobutyltin as Sn	ng/L	<0.4	<0.4	<0.4	<0.4	NR_35
Dibutyltin as Sn	ng/L	<0.4	<0.4	<0.4	<0.4	NR_35
Tributyltin as Sn	ng/L	<0.4	<0.4	<0.4	<0.4	NR_35
Surrogate: Tripropyltin	%REC	72	60	70	62	NR_35
Dates						
Date extracted		11-DEC-2024	11-DEC-2024	11-DEC-2024	11-DEC-2024	
Date analysed		16-DEC-2024	16-DEC-2024	16-DEC-2024	16-DEC-2024	

[redacted] Analyst
Organics - NSW
Accreditation No. 198

17-DEC-2024

REPORT OF ANALYSIS

Client	: MURDOCH UNIVERSITY	**Job No.**	: MURD03/241205
	MARINE AND FRESHWATER RESEARCH LABORATORY	**Quote No.**	: QT-02294
	SCHOOL OF VETERINARY AND LIFE SCIENCES	**Order No.**	:
	MURDOCH WA 6150	**Date Received**	: 05-DEC-2024
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	:		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N24/025154	13	WATER REFERENCE JOB MSC24-12

Lab Reg No.		**N24/025154**				
Date Sampled		**04-DEC-2024**				
Sample Reference		**13**				
	Units					**Method**
Organotins						
Monobutyltin as Sn	ng/L	<0.4				NR_35
Dibutyltin as Sn	ng/L	<0.4				NR_35
Tributyltin as Sn	ng/L	<0.4				NR_35
Surrogate: Tripropyltin	%REC	78				NR_35
Dates						
Date extracted		11-DEC-2024				
Date analysed		16-DEC-2024				

[redacted] Analyst
Organics - NSW
Accreditation No. 198

17-DEC-2024

WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing.
This report shall not be reproduced except in full.
Results relate only to the sample(s) as received and tested.

* Denotes the analyte or test method is not within our ISO/IEC 17025 scope of accreditation.

Measurement Uncertainty is available upon request.

REPORT OF ANALYSIS

The testing was undertaken at: 105 Delhi Road, North Ryde, NSW, 2113

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: MURDOCH UNIVERSITY

NMI QA Report No: MURD03/241205 **Sample Matrix:** Liquid

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		ng/L	ng/L	ng/L	ng/L	%	%	%
Organics Section								
Organotin				**N24/025142**				
Monobutyltin	NR_35	0.4	<0.4	<0.4	<0.4	-	76	NA
Dibutyltin	NR_35	0.4	<0.4	<0.4	<0.4	-	107	NA
Tributyltin	NR_35	0.4	<0.4	<0.4	<0.4	-	97	NA
Organotin Surrogate								
Tripropyltin (%Rec)	NR_35	-	-	79	59	29	73	NA

Results expressed in percentage (%) or ng/L wherever appropriate.
Acceptable Spike recovery is 30-150% (monobutyltin and Tripropyltin); 40-160% (dibutyltin and tributyltin).
Maximum acceptable RPDs on spikes and duplicates is 60%.
'NA ' = Not Applicable.
RPD= Relative Percentage Difference, LCS = Laboratory Control Spike, LOR = Limit of Reporting.
This report shall not be reproduced except in full.

Signed: [redacted]

Organics Manager, NMI-North Ryde

Date: **22/11/2024**

Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 9/01/2025
Date Received: 17/12/2024
Our Reference: MSC24-13
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit			<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date			18/12/2024	18/12/2024	18/12/2024	20/12/2024	20/12/2024	19/12/2024	19/12/2024	18/12/2024
File			24121801	24121801-02	24121801	24122001	24122001	24121903	24121903	24121801
IH-Mid	17/12/2024	Marine	<3	4	<2	21	160	1.8	0.6	2
KB-Bay 1	17/12/2024	Marine	<3	4	<2	20	150	1.2	0.6	5
KB-Bay 2	17/12/2024	Marine	<3	4	2	22	170	0.9	0.5	3
KB-Bay 3	17/12/2024	Marine	3	8	3	44	290	2.7	1.8	31
KB-Bay 4	17/12/2024	Marine	<3	4	<2	22	160	2.0	0.7	3
KB-Beach	17/12/2024	Marine	<3	4	<2	20	140	1.3	0.8	3
KB-SW 1	17/12/2024	Marine	<3	5	<2	22	160	1.9	0.9	6
KB SW 2	17/12/2024	Marine	<3	5	<2	23	160	2.2	0.7	5
LI-Far	17/12/2024	Marine	<3	3	<2	43	320	5.1	2.7	12
LI-Mid	17/12/2024	Marine	<3	3	4	41	310	6.2	2.1	14
LI-West	17/12/2024	Marine	<3	4	<2	34	250	3.3	1.5	8
Duplicate	17/12/2024	Marine	<3	4	<2	43	320	6.7	2.1	15

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 9/01/2025

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Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 9/01/2025
Date Received: 17/12/2024
Our Reference: MSC24-13
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit			**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date			**7/01/2025**	**7/01/2025**	**7/01/2025**	**7/01/2025**	**7/01/2025**	**19/12/2024**
File			**25010701**	**25010701**	**25010701**	**25010701**	**25010701**	**24121901**
IH-Mid	17/12/2024	Marine	<0.3	1.1	1	<0.1	<0.1	<0.0001
KB-Bay 1	17/12/2024	Marine	<0.3	0.4	1	<0.1	<0.1	<0.0001
KB-Bay 2	17/12/2024	Marine	<0.3	0.7	1	<0.1	<0.1	<0.0001
KB-Bay 3	17/12/2024	Marine	<0.3	0.4	1	<0.1	<0.1	<0.0001
KB-Bay 4	17/12/2024	Marine	<0.3	0.7	2	<0.1	<0.1	<0.0001
KB-Beach	17/12/2024	Marine	<0.3	0.6	2	<0.1	<0.1	<0.0001
KB-SW 1	17/12/2024	Marine	<0.3	0.9	2	<0.1	<0.1	<0.0001
KB SW 2	17/12/2024	Marine	<0.3	0.7	1	<0.1	<0.1	<0.0001
LI-Far	17/12/2024	Marine	0.3	1.1	1	<0.1	<0.1	<0.0001
LI-Mid	17/12/2024	Marine	<0.3	1.1	1	<0.1	<0.1	<0.0001
LI-West	17/12/2024	Marine	<0.3	1.1	3	<0.1	<0.1	<0.0001
Duplicate	17/12/2024	Marine	0.3	1.1	2	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 9/01/2025

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CERTIFICATE OF ANALYSIS

Work Order	: **EP2413M3D**	Page	: 1 of 6
Client	: **HARINE ANB FRESi WATER RESEARCi LAt ORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 17-Dec-2024 14:00
Order number	: PO-008006	Date Analysis Commenced	: 18-Dec-2024
C-O-C number	: ----	Issue Date	: 19-Dec-2024 10:56
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Addnarol fm ri porh farol serai el a ao awrb resora u nrm ge poc l d ri awe pornou ri Q besfrfæ fæfywh el ab: , cf ma/ Col arom Resorav , A., C Coh smfl ye Abbebbh el a ao f bbrba u rav , cf ma/ Re^reu f l d Sfh sna Reyers a Noarpyf arol K

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: **WATER**
5Matrix: **WATER8**

			Sample ID	li)H rd	(t)t f/ 1	(t)t f/ 2	(t)t f/ 0	(t)t f/ 4
			Sampling date / time	17-Dec-2024 00:00	17-Dec-2024 00:00	17-Dec-2024 00:00	17-Dec-2024 00:00	17-Dec-2024 00:00
Compound	CAS Number	LOR	Unit	EP2413M3D)DD1	EP2413M3D)DD2	EP2413M3D)DD0	EP2413M3D)DD4	EP2413M3D)DDX
				Result	Result	Result	Result	Result
EPD3D: t TEz N								
t el &el e	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Tomel e	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Eaw rgel &el e	100-41-4	2	µg/L	<2	<2	<2	<2	<2
h eaf) 9 sf rf)z / ral e	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
orawo)z / ral e	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Toaf nz / ral eb	----	2	µg/L	<2	<2	<2	<2	<2
^ Sch opt TEz	----	1	µg/L	<1	<1	<1	<1	<1
Nf swawf ral e	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EPD3DS: TPi 5V8t TEz ScrroQf æb								
1H2)Brywroroeawf l e)B4	17060-07-0	2	%	127	127	126	12X	121
Tomel e)B3	2037-26-5	2	%	M2HO	M2H0	M0HO	33HX	M2HO
4)t roh opnoorogel &el e	460-00-4	2	%	M0H6	M0H7	M7HO	M1H1	M7H2

Analytical Results

Sub-Matrix: WATER
5Matrix: WATER8

Compound	CAS Number	LOR	Unit	Sample ID	(t)t ef yw	(t)SW 1	(t SW 2	LI)Ff r	LI)H rd
				Sampling date / time	17-Dec-2024 00:00	17-Dec-2024 00:00	17-Dec-2024 00:00	17-Dec-2024 00:00	17-Dec-2024 00:00
					EP2413M3D)DD7	EP2413M3D)DD6	EP2413M3D)DD3	EP2413M3D)DDM	EP2413M3D)D1D
					Result	Result	Result	Result	Result
EPD3D: t TEz N									
t el &el e	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Tomel e	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Eaw rgel &el e	100-41-4	2	µg/L		<2	<2	<2	<2	<2
h eaf) 9 sf rf)z / ral e	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
orawo)z / ral e	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Toaf nz / ral eb	----	2	µg/L		<2	<2	<2	<2	<2
^ Sch opt TEz	----	1	µg/L		<1	<1	<1	<1	<1
Nf swawf ral e	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EPD3DS: TPi 5V8t TEz ScrroQf æb									
1H2)Brywroroeawf l e)B4	17060-07-0	2	%		12D	120	124	120	126
Tomel e)B3	2037-26-5	2	%		M1K0	M0K8	M2K0	M2HX	M4K4
4)t roh opnorogel &el e	460-00-4	2	%		1D4	M6K0	1DD	1D0	M4K4

Analytical Results

Sub-Matrix: WATER 5Matrix: WATER8			Sample ID	LI)Weba	Bcsmyfæ	))))	))))	))))
			Sampling date / time	17-Dec-2024 00:00	17-Dec-2024 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP2413M3D)D11	EP2413M3D)D12	))))))))	))))))))	))))))))
				Result	Result	----	----	----
EPD3D: t TEz N								
t el &el e	71-43-2	1	µg/L	<1	<1	))))	))))	))))
Tomel e	108-88-3	2	µg/L	<2	<2	))))	))))	))))
Eaw/rgel &el e	100-41-4	2	µg/L	<2	<2	))))	))))	))))
h eaf) 9 sf rf)z/ral e	108-38-3 106-42-3	2	µg/L	<2	<2	))))	))))	))))
orawo)z/ral e	95-47-6	2	µg/L	<2	<2	))))	))))	))))
^ Toafmz/ral eb	----	2	µg/L	<2	<2	))))	))))	))))
^ Sch opt TEz	----	1	µg/L	<1	<1	))))	))))	))))
Nf swawf ral e	91-20-3	5	µg/L	<5	<5	))))	))))	))))
EPD3DS: TPi 5V8t TEz ScrroQf æb								
1H2)Brywroroeawf l e)B4	17060-07-0	2	%	126	122	))))	))))	))))
Tomel e)B3	2037-26-5	2	%	MXHX	MDH	))))	))))	))))
4)t roh opmorogel &el e	460-00-4	2	%	1D2	M#H2	))))	))))	))))

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EPD3DS: TPi 5V8t TEz ScrroQf æb			
1H2)Brywroroeawf l e)B4	17060-07-0	61	141
Tomel e)B3	2037-26-5	73	126
4)t roh opmorogel &el e	460-00-4	60	125

QUALITY CONTROL REPORT

Work Order	: **EP2418980**	Page	: 2 1of
y lGi r	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	3aL1bar1bt	: ni EG1i v ei ral mGEGGi Pebr D
y 1i rahr	: cJ A M l WWml J Om	y 1i rahr	: y Rsr1v ebueb EGes nP
J SSbess	: y d A - OmWy U - HMMn OuMTYuW- VU uVOnnV A - OmWy U l J YJ - uVOJ 3M , 260	J SSbess	: 4, OGgalG1 at l ai gaba l J J Rsrbal@a , 0, 6
Vele5D1i e	: p, 2 +f , 04+09	Vele5D1i e	: p, 2/7/+80, 2f 02
Pb1jehr	: A uy 48/24	mare uav 5les OehecGeS	: 29/meh/4048
WtSebi Rv Leb	: PW/00700,	mare Ji alts@ y 1v v ei heS	: 27/meh/4048
y /Wy i Rv Leb	: ////	MsRe mare	: 2+/meh/4048
uav 5leb	: ////		
u@e	: ////		
QR1re i Rv Leb	: n P48A J OFOn 000f _N4		
H1. 1osav 5les beheGeS	: 24		
H1. 1osav 5les ai alt seS	: 24		

Accreditation No. 825
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ISO/IEC 17025 - Testing

VDGs be51br sR5ebseSes ai t 5beEG1Rs be51br(s) w@D rDGs beoebei he. OesRirs a55lt r1 rDe sav 5le(s) as sRLv @reSY Ri less rDe sav 5l@g was h1i SRhreS Lt J 3u. VDGs S1hRv ei r sDall i 1r Le be5b1SRheSYexhe5r @ dRIl.

VDGs QRal@t y 1i rb1l Oe51br h1i ra@s rDe o1ll1w@g @o1bv ar@i :

- 3aL1bar1bt mR5l@are (m- P) Oe51br; Oelar@e Pebhei rage m@oebei he (OPm) ai S J hhe5rai he 3@ @s
- A erD1S Blai k (A B) ai S 3aL1bar1bt y 1i rb1l u5@e (3y u) Oe51br; Oeh1Eebt ai S J hhe5rai he 3@ @s
- A arb@ u5@e (A u) Oe51br; Oeh1Eebt ai S J hhe5rai he 3@ @s

Signatories

VDGs S1hRv ei r Das Leei elehrb1i @allt s@i eS Lt rDe aRrD1b@eS s@i ar1b@s Lel1w. nlehrb1i @ s@i @g @s habb@S 1Rr @ h1v 5l@i he w@D 5b1heSR@es s5eh@@S @ 42 y FO Pabr 22.

Signatories	*Position*	*Accreditation Category*
c1Di U1bw11S	W@gai @ uR5ebE@1b	PebrD W@gai @sYl ai gabaYl J

General Comments

VDe ai alt rCal 5b1heSRoes RseS Lt J3u DaEe Leei SeEel15eS do1v esraLlGDeS CrebiarGi allt beh1giGeS 5b1heSRoes sRhD as rD1se 5RLlGDeS Lt rDe - unPJY JPUJY Ju ai S HnPA. MI D1Rse SeEel15eS 5b1heSRoes abe dRlt EalGareS ai S abe 1orei ar rDe hlGi r beqResr.

I Debe v 1GnRte Serebv CarGi Das Leei 5ebo1bv eSYbesRrs abe be51breS 1i a Sbt weGDr LasG.

I Debe a be51breS less rDai (<) besRrr G DGDeb rDai rDe 3WOY rDG v at Le SRe r1 5bO abt sav 5le exrbahroSGesrare SCRrGi ai Sd1b CsRooCGi r sav 5le o1b ai alt sG. I Debe rDe 3WO 1o a be51breS besRrr SGebs do1v srai SabS 3WOYrDG v at Le SRe r1 DGDv 1GnRte h1i rei rYCsRooCGi r sav 5le (beSRheS weGDr ev 5l1t eS) 1bv arbX CrebebeiheI.

Ket : Ji 1i t v 1Rs = Oeebs r1 sav 5les wDCD abe i 1r s5ehGallt 5abr 1orDG w1bk 1bSebLRr o1bv eS 5abr 1orDe Qy 5b1hess l1r
y Ju HRv Leb = y Ju begGrbt i Rv Lebdo1v SaraLase v aCraCeS Lt y Dev Cal JLsrbahrs uebECbes. VDe y Dev Cal JLsrbahrs uebECbe G a SCEGGi 1orDe Jv ebCai y Dev Cal u1hGrt.
3WO = 3O C 1obe51brCg
OPm = OelarGe Pebhei rage mGebei he
# = MSCares oaDeS Qy

Laboratory Duplicate (DUP) Report

VDe qRalGt h1i rb1l rebv 3aL1bar1bt mR5lCare beoebs r1 a bai S1v lt selehreS CrbalaL1bar1bt s5lC 3aL1bar1bt SR5lCares 5b1EGSe Co1bv arGi begatbSCg v erD1S 5behGGi ai S sav 5le Derebfgei eGt. VDe 5ebv GreS bai ges o1b rDe OelarGe Pebhei r meEarGi (OPm) 1o 3aL1bar1bt mR5lCares abe s5ehGeS C J3u AerD1S QI MnHof 7 ai S abe Se5ei Sei r 1i rDe v agiGRSe 1o besRrs C h1v 5abGsi1i r1 rDe leEel 1o be51brCg: OesRrr < 20 rO es 3WO: H1 3O C; OesRrr Lerweei 20 ai S 40 rO es 3WO: 0% / 60%; OesRrr > 40 rO es 3WO: 0% / 40%.

uRL/Aarb: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080: BTEXN (QC Lot: 6267377)									
nP4827+70/002	NU/AGS	nP070: Bei zei e	92/8f /4	2	µgG3	<2	<2	0.0	H1 3O C
		nP070: V1lRei e	207/77/f	4	µgG3	<4	<4	0.0	H1 3O C
		nP070: nrDtlLei zei e	200/82/8	4	µgG3	<4	<4	0.0	H1 3O C
		nP070: v era/ & 5aba/Xtlei e	207/f 7/f 20, /84/f	4	µgG3	<4	<4	0.0	H1 3O C
		nP070: 1brD1/Xtlei e	+6/89/,	4	µgG3	<4	<4	0.0	H1 3O C
		nP070: Ha5DrDalei e	+2/40/f	6	µgG3	<6	<6	0.0	H1 3O C
nP4827+70/022	3MI esr	nP070: Bei zei e	92/8f /4	2	µgG3	<2	<2	0.0	H1 3O C
		nP070: V1lRei e	207/77/f	4	µgG3	<4	<4	0.0	H1 3O C
		nP070: nrDtlLei zei e	200/82/8	4	µgG3	<4	<4	0.0	H1 3O C
		nP070: v era/ & 5aba/Xtlei e	207/f 7/f 20, /84/f	4	µgG3	<4	<4	0.0	H1 3O C
		nP070: 1brD1/Xtlei e	+6/89/,	4	µgG3	<4	<4	0.0	H1 3O C
		nP070: Ha5DrDalei e	+2/40/f	6	µgG3	<6	<6	0.0	H1 3O C

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

VDe qRalGt h1irb1l reb/ AerD1S d 3aL1bar1bt Blaik beoebs r1 ai aialtre dbee varbQx r1 wDGD all beageirs abe aSSeS G rDe sav e E1lRves 1b 5b151brGis as RseS G srai SabS sav 5le 5be5abarGi. VDe 5Rb51se 1o rDGs Qy 5abav ereb Gs r1 v 1iG1b 51reirQl laL1bar1bt h1iravGarGi. VDe qRalGt h1irb1l reb/ 3aL1bar1bt y1irb1l uav 5le (3yu) beoebs r1 a hebrGeS beoebeihe vareboalY 1b a ki 1wi Grebeebeihe dbee varbQx s5GkeS wGD rabger ai altres. VDe 5Rb51se 1orDGs Qy 5abav ereb Gs r1 v 1iG1bv erD1S 5behGGi ai SahhRbaht GSe5ei Seir1osav 5le varbQx. mtiav G Oeh1Eebt 3Q Gs abe LaseS 1i srarGrGoal eEalRarGi 1o5b1hesseS 3yu.

uRL/Aarbx: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*	*Concentration*	*LCS*	*Low*	*High*
EP080: BTEXN (QCLot: 6267377)								
nP070: Beizene	92/8f/4	2	µgG3	<2	40 µgG3	20,	78.2	228
nP070: V1lReie	207/77/f	4	µgG3	<4	40 µgG3	208	72.0	226
nP070: nrDtlLeizeie	200/82/8	4	µgG3	<4	40 µgG3	20,	78.8	22f
nP070: vera/ & 5aba/Xtleie	207/f 7/f 20, /84/f	4	µgG3	<4	80 µgG3	20+	78.f	228
nP070: 1brD1/Xtleie	+6/89/,	4	µgG3	<4	40 µgG3	220	7, .6	222
nP070: Ha5DrDaleie	+2/40/f	6	µgG3	<6	6 µgG3	+6.6	99.0	227

Matrix Spike (MS) Report

VDe qRalGt h1irb1l reb/ Aarbx u5Gke (Au) beoebs r1 ai GrbalaL1bar1bt s5lG sav 5le s5GkeS wGD a be5beseiranGEe ser 1o rabger ai altres. VDe 5Rb51se 1o rDGs Qy 5abav ereb Gs r1 v 1iG1b 51reirQl varbQx eoeehrs 1i ai altre beh1EebGes. urarGi Oeh1Eebt 3Q Gs as 5eblaL1bar1bt mara QRalGt WLjehrGEes (mQWs). MSeal beh1Eebt bai ges srareS v at Le waGEeS G rDe eEeir1osav 5le varbQx Grebeebeihe.

uRL/Aarbx: **WATER**

					Matrix Spike (MS) Report			
					Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*		*Concentration*	*MS*	*Low*	*High*
EP080: BTEXN (QCLot: 6267377)								
nP4827+70/004	KB/Bat 2	nP070: Beizene	92/8f/4		40 µgG3	20+	99.0	244
		nP070: V1lReie	207/77/f		40 µgG3	204	9f.6	24,

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2418980**	Page	: 1 of 4
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: +61-8-9406 1301
Project	: MSC24-12	Date Samples Received	: 15-Dec-2024
Site	: ----	Issue Date	: 19-Dec-2024
Sampler	: ----	No. of samples received	: 12
Order number	: PO-008006	No. of samples analysed	: 12

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

If samples are identified belo/ as having been analysed or e&tracted outside of recommended holding timesqthis should be taken into consideration / hen interpreting results.

This report summarixes e&traction ; preparation and analysis times and compares each / ith ALS recommended holding times (referencing z SEPA SW 846q APHAq AS and NEPM) based on the sample container provided. Dates reported represent first date of e&traction or analysis and preclude subsewuent dilutions and reruns. A listing of breaches (if any) is provided herein.

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

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 5 days7 others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest;concern.

Matri&: **WATER**

Evaluation: × U Holding time breach 7 ✓ U Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
IH-Midq	=B-Bay 1q	**17-Dec-2024**	**18-Dec-2024**	31-Dec-2024	✓	**18-Dec-2024**	31-Dec-2024	✓
=B-Bay 2q	=B-Bay 3q							
=B-Bay 4q	=B-Beachq							
=B-SW 1q	=B SW 2q							
LI-Farq	LI-Midq							
LI-Westq	Duplicate							

Quality Control Parameter Frequency Compliance

The follo/ ing report summarises the frewuency of laboratory QC samples analysed / ithin the analytical lot(s) in / hich the submitted sample(s) / as(/ ere) processed. Actual rate should be greater than or ewual to the e&pected rate. A listing of breaches is provided in the Summary of Outliers.

Matri&: **WATER**

Evaluation: × U Quality Control frewuency not / ithin specification 7 ✓ U Quality Control frewuency / ithin specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (Dz P)							
TRH Volatiles;BTEK	EP080	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 , ALS QC Standard
Laboratory Control Samples (LCS)							
TRH Volatiles;BTEK	EP080	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 , ALS QC Standard
Method Blanks (MB)							
TRH Volatiles;BTEK	EP080	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 , ALS QC Standard
Matri& Spikes (MS)							
TRH Volatiles;BTEK	EP080	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 , ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognixed procedures such as those published by the z S EPAqAPHAqAS and NEPM. In house developed procedures are employed in the absence of documented standards or by client rewuest. The follo/ ing report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from / hich ALS methods have been developed are provided / ithin the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles;BTEK	EP080	WATER	In house: Referenced to z SEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary XC;MS and wuantification is by comparison against an established Gpoint calibration curve. Alternativelyqa sample is ewuilibrated in a headspace vial and a portion of the headspace determined by XCMS analysis. This method is compliant / ith the QC rewuirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Volatiles Water Preparation	ORX16-W	WATER	A GmL aliwuot or GmL of a diluted sample is added to a 40 mL VOC vial for purging.

REPORT OF ANALYSIS

Report No. RN1452643

Client	: MURDOCH UNIVERSITY	**Job No.**	: MURD03/241218
	MARINE AND FRESHWATER RESEARCH LABORATORY	**Quote No.**	: QT-02294
	SCHOOL OF VETERINARY AND LIFE SCIENCES	**Order No.**	:
	MURDOCH WA 6150	**Date Received**	: 18-DEC-2024
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	:		
Your Client Services Manager	: [redacted]	**Phone**	: 03 9644 4854

Lab Reg No.	Sample Ref	Sample Description
N24/026008	1	WATER IH MID JOB MSC24-13
N24/026009	2	WATER KB-BAY 1 JOB MSC24-13
N24/026010	3	WATER KB-BAY 2 JOB MSC24-13
N24/026011	4	WATER KB-BAY 3 JOB MSC24-13

Lab Reg No.		**N24/026008**	**N24/026009**	**N24/026010**	**N24/026011**	
Date Sampled		**17-DEC-2024**	**17-DEC-2024**	**17-DEC-2024**	**17-DEC-2024**	
Sample Reference	**Units**	**1**	**2**	**3**	**4**	**Method**
Organotins						
Monobutyltin as Sn	ng/L	<0.4	<0.4	<0.4	<0.4	NR_35
Dibutyltin as Sn	ng/L	<0.4	<0.4	<0.4	<0.4	NR_35
Tributyltin as Sn	ng/L	<0.4	<0.4	<0.4	<0.4	NR_35
Surrogate: Tripropyltin	%REC	101	124	92	94	NR_35
Dates						
Date extracted		23-DEC-2024	23-DEC-2024	23-DEC-2024	23-DEC-2024	
Date analysed		14-JAN-2025	14-JAN-2025	14-JAN-2025	14-JAN-2025	

[redacted]
Organics - NSW
Accreditation No. 198

15-JAN-2025

REPORT OF ANALYSIS

Report No. RN1452643

Client	: MURDOCH UNIVERSITY	**Job No.**	: MURD03/241218
	MARINE AND FRESHWATER RESEARCH LABORATORY	**Quote No.**	: QT-02294
	SCHOOL OF VETERINARY AND LIFE SCIENCES	**Order No.**	:
	MURDOCH WA 6150	**Date Received**	: 18-DEC-2024
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	:		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N24/026012	5	WATER KB-BAY 4 JOB MSC24-13
N24/026013	6	WATER KB-BEACH JOB MSC24-13
N24/026014	7	WATER KB-SW 1 JOB MSC24-13
N24/026015	8	WATER KB-SW 2 JOB MSC24-13

Lab Reg No.	Units	N24/026012	N24/026013	N24/026014	N24/026015	Method
Date Sampled		17-DEC-2024	17-DEC-2024	17-DEC-2024	17-DEC-2024	
Sample Reference		5	6	7	8	
Organotins						
Monobutyltin as Sn	ng/L	<0.4	<0.4	<0.4	<0.4	NR_35
Dibutyltin as Sn	ng/L	<0.4	<0.4	<0.4	<0.4	NR_35
Tributyltin as Sn	ng/L	<0.4	<0.4	<0.4	<0.4	NR_35
Surrogate: Tripropyltin	%REC	98	110	96	95	NR_35
Dates						
Date extracted		23-DEC-2024	23-DEC-2024	23-DEC-2024	23-DEC-2024	
Date analysed		14-JAN-2025	14-JAN-2025	14-JAN-2025	14-JAN-2025	

[redacted]
Organics - NSW
Accreditation No. 198

15-JAN-2025

REPORT OF ANALYSIS

Report No. RN1452643

Client	: MURDOCH UNIVERSITY	**Job No.**	: MURD03/241218
	MARINE AND FRESHWATER RESEARCH LABORATORY	**Quote No.**	: QT-02294
	SCHOOL OF VETERINARY AND LIFE SCIENCES	**Order No.**	:
	MURDOCH WA 6150	**Date Received**	: 18-DEC-2024
Attention	: [redacted]	**Sampled By**	: CLIENT
Project Name	:		
Your Client Services Manager	: [redacted]	**Phone**	: [redacted]

Lab Reg No.	Sample Ref	Sample Description
N24/026016	9	WATER LI-FAR JOB MSC24-13
N24/026017	10	WATER LI-MID JOB MSC24-13
N24/026018	11	WATER LI-WEST JOB MSC24-13
N24/026019	12	WATER DUPLICATE JOB MSC24-13

Lab Reg No.	Units	N24/026016	N24/026017	N24/026018	N24/026019	Method
Date Sampled		17-DEC-2024	17-DEC-2024	17-DEC-2024	17-DEC-2024	
Sample Reference		9	10	11	12	
Organotins						
Monobutyltin as Sn	ng/L	<0.4	<0.4	<0.4	<0.4	NR_35
Dibutyltin as Sn	ng/L	<0.4	<0.4	<0.4	<0.4	NR_35
Tributyltin as Sn	ng/L	<0.4	<0.4	<0.4	<0.4	NR_35
Surrogate: Tripropyltin	%REC	79	108	86	78	NR_35
Dates						
Date extracted		23-DEC-2024	23-DEC-2024	23-DEC-2024	23-DEC-2024	
Date analysed		14-JAN-2025	14-JAN-2025	14-JAN-2025	14-JAN-2025	

[redacted]
Organics - NSW
Accreditation No. 198

15-JAN-2025

NATA
WORLD RECOGNISED
ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing.
This report shall not be reproduced except in full.
Results relate only to the sample(s) as received and tested.

REPORT OF ANALYSIS

* Denotes the analyte or test method is not within our ISO/IEC 17025 scope of accreditation.

Measurement Uncertainty is available upon request.

Note: Sampling date(s) have been provided by the client.
The testing was undertaken at: 105 Delhi Road, North Ryde, NSW, 2113

Australian Government

National Measurement Institute

QUALITY ASSURANCE REPORT

Client: MURDOCH UNIVERSITY

NMI QA Report No: MURD03/241218 **Sample Matrix:** Liquid

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		ng/L	ng/L	ng/L	ng/L	%	%	%
Organics Section								
Organotin				**N24/026008**				**N24/026008**
Monobutyltin	NR_35	0.4	<0.4	<0.4	<0.4	-	71	94
Dibutyltin	NR_35	0.4	<0.4	<0.4	<0.4	-	86	104
Tributyltin	NR_35	0.4	<0.4	<0.4	<0.4	-	86	80
Organotin Surrogate								
Tripropyltin (%Rec)	NR_35	-	-	101	103	2	81	97

Results expressed in percentage (%) or ng/L wherever appropriate.
Acceptable Spike recovery is 30-150% (monobutyltin and Tripropyltin); 40-160% (dibutyltin and tributyltin).
Maximum acceptable RPDs on spikes and duplicates is 60%.
'NA ' = Not Applicable.
RPD= Relative Percentage Difference, LCS = Laboratory Control Spike, LOR = Limit of Reporting.
This report shall not be reproduced except in full.

Signed: [redacted]

Organics Manager, NMI-North Ryde

Date: **15/01/2025**

Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 31/01/2025
Date Received: 8/01/2025
Our Reference: MSC25-1
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit			<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date			14/01/2025	14/01/2025	14/01/2025	10/01/2025	10/01/2025	14/01/2025	14/01/2025	9/01/2025
File			25011401	25011401-2001	25011401	25011001	25011001-2401	25011401	25011401	250109
IH-Mid	8/01/2024	Marine	<3	3	<2	22	180	1.9	0.4	1
KB-Bay 1	8/01/2024	Marine	<3	4	2	16	140	0.5	<0.2	1
KB-Bay 2	8/01/2024	Marine	<3	5	<2	18	140	0.8	<0.2	2
KB-Bay 3	8/01/2024	Marine	<3	4	<2	17	130	0.6	<0.2	1
KB-Bay 4	8/01/2024	Marine	<3	3	<2	18	150	0.8	<0.2	2
KB-Beach	8/01/2024	Marine	<3	4	<2	19	130	0.6	<0.2	2
KB-SW 1	8/01/2024	Marine	<3	4	3	23	170	1.2	0.4	2
KB SW 2	8/01/2024	Marine	<3	3	<2	20	150	1.1	0.3	2
LI-Far	8/01/2024	Marine	<3	3	2	48	330	7.2	1.7	14
LI-Mid	8/01/2024	Marine	<3	3	<2	49	350	5.2	2.1	13
LI-West	8/01/2024	Marine	<3	3	<2	29	230	2.0	1.1	7
Duplicate	8/01/2024	Marine	<3	4	<2	46	350	5.7	1.7	13

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 31/01/2025

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Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 31/01/2025
Date Received: 8/01/2025
Our Reference: MSC25-1
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit			**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date			**30/01/2025**	**30/01/2025**	**30/01/2025**	**30/01/2025**	**30/01/2025**	**13/01/2025**
File			**25013001-3101**	**25013001-3101**	**25013001**	**25013001-3101**	**25013001-3101**	**25011301**
IH-Mid	8/01/2024	Marine	<0.3	0.5	2	<0.1	<0.1	<0.0001
KB-Bay 1	8/01/2024	Marine	0.4	0.4	1	<0.1	<0.1	<0.0001
KB-Bay 2	8/01/2024	Marine	<0.3	0.4	2	<0.1	<0.1	<0.0001
KB-Bay 3	8/01/2024	Marine	<0.3	0.6	2	<0.1	<0.1	<0.0001
KB-Bay 4	8/01/2024	Marine	<0.3	0.4	1	<0.1	<0.1	<0.0001
KB-Beach	8/01/2024	Marine	<0.3	0.4	3	<0.1	<0.1	<0.0001
KB-SW 1	8/01/2024	Marine	<0.3	0.7	2	<0.1	<0.1	<0.0001
KB SW 2	8/01/2024	Marine	<0.3	0.5	2	<0.1	<0.1	<0.0001
LI-Far	8/01/2024	Marine	0.3	1.2	2	<0.1	<0.1	<0.0001
LI-Mid	8/01/2024	Marine	<0.3	1.3	2	<0.1	<0.1	<0.0001
LI-West	8/01/2024	Marine	0.4	1.2	3	<0.1	<0.1	<0.0001
Duplicate	8/01/2024	Marine	0.3	1.1	3	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 31/01/2025

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CERTIFICATE OF ANALYSIS

Work Order	: **EP2411234**	Page	: 1 of 6
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 08-Jan-2025 13:45
Order number	: PO-008006	Date Analysis Commenced	: 10-Jan-2025
C-O-C number	: ----	Issue Date	: 14-Jan-2025 15:37
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	k risbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: MARINE WATER 0Matrix: WATER5			Sample ID	IH-Mid	KB-Bay)	KB-Bay 2	KB-Bay (	KB-Bay 3
			Sampling date / time	08-Jan-2025 00:00	08-Jan-2025 00:00	08-Jan-2025 00:00	08-Jan-2025 00:00	08-Jan-2025 00:00
Compound	CAS Number	LOR	Unit	EP2411234-11)	EP2411234-112	EP2411234-11(	EP2411234-113	EP2411234-114
				Result	Result	Result	Result	Result
EP181: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ **Total Xylenes**	----	2	µg/L	<2	<2	<2	<2	<2
^ **Sum of BTEX**	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP191: Organotin Compounds 0Soluble5								
Tributyltin	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP181S: TPH0V5BTEX Surrogates								
) .2-Dichloroethane-D3	17060-07-0	2	%	**9) .3**	**93.)**	**89.2**	**92.3**	**9) .1**
Toluene-D8	2037-26-5	2	%	**) 19**	**) 13**	**) 19**	**) 14**	**) 14**
3-Bromofluorobenzene	460-00-4	2	%	**)) 2**	**) 14**	**)) 2**	**) 17**	**) 19**
EP191S: Organotin Surrogate								
Tripropyltin	----	5	%	**91.4**	**9) .(**	**8(.6**	**88.4**	**9) .)**

Analytical Results

Sub-Matrix: MARINE WATER
0Matrix: WATER5

Compound	CAS Number	LOR	Unit	Sample ID	KB-Beach	KB-SW)	KB-SW 2	LI-Far	LI-Mid
				Sampling date / time	08-Jan-2025 00:00	08-Jan-2025 00:00	08-Jan-2025 00:00	08-Jan-2025 00:00	08-Jan-2025 00:00
					EP2411234-116	EP2411234-117	EP2411234-118	EP2411234-119	EP2411234-1) 1
					Result	Result	Result	Result	Result
EP181: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ **Total Xylenes**	----	2	µg/L		<2	<2	<2	<2	<2
^ **Sum of BTEX**	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP191: Organotin Compounds 0Soluble5									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP181S: TPH0V5BTEX Surrogates									
) .2-Dichloroethane-D3	17060-07-0	2	%		**89.2**	**91.9**	**91.3**	**89.8**	**9) .4**
Toluene-D8	2037-26-5	2	%		**) 14**	**) 13**	**) 12**	**) 1(**	**) 13**
3-Bromofluorobenzene	460-00-4	2	%		**) 18**	**) 16**	**) 18**	**)) 1**	**) 19**
EP191S: Organotin Surrogate									
Tripropyltin	----	5	%		**7(.4**	**8(.7**	**94.9**	**83.8**	**86.7**

Analytical Results

Sub-Matrix: MARINE WATER 0Matrix: WATER5				Sample ID	LI-West	Duplicate	----	----	----
				Sampling date / time	08-Jan-2025 00:00	08-Jan-2025 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2411234-1))	EP2411234-1) 2	--------	--------	--------
					Result	Result	----	----	----
EP181: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP191: Organotin Compounds 0Soluble5									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	----	----	----
EP181S: TPH0V5BTEX Surrogates									
) .2-Dichloroethane-D3	17060-07-0	2	%		**9) .7**	**9) .3**	----	----	----
Toluene-D8	2037-26-5	2	%		**) 18**	**) 16**	----	----	----
3-Bromofluorobenzene	460-00-4	2	%		**)) 6**	**)) 1**	----	----	----
EP191S: Organotin Surrogate									
Tripropyltin	----	5	%		**82.4**	**7(.4**	----	----	----

Surrogate Control Limits

Sub-Matrix: **MARINE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP181S: TPH0/5BTEX Surrogates			
) .2-Dichloroethane-D3	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
3-Bromofluorobenzene	460-00-4	60	125
EP191S: Organotin Surrogate			
Tripropyltin	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS krisbane, NATA accreditation no. 825, site no. 818 (Chemistry / kiology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP2500245**	Page	: 1 of 3
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 08-Jan-2025
Order number	: PO-008006	Date Analysis Commenced	: 10-Jan-2025
C-O-C number	: ----	Issue Date	: 14-Jan-2025
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 6302503)									
EP2500190-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2500245-005	KB-Bay 4	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP090: Organotin Compounds (Soluble) (QC Lot: 6306074)									
EP2500245-001	IH-Mid	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 6302503)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	98.5	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	108	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	106	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	105	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	108	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	105	77.0	118
EP090: Organotin Compounds (Soluble) (QCLot: 6306074)								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	103	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 6302503)							
EP2500190-002	Anonymous	EP080: Benzene	71-43-2	20 µg/L	94.0	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	109	73.5	126
EP090: Organotin Compounds (Soluble) (QCLot: 6306074)							
EP2500245-001	IH-Mid	EP090S: Tributyltin	56573-85-4	147 ngSn/L	90.2	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2500245**	Page	: 1 of 5
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Project	: Mj CS5-1S	Date j amples Receive2	: 48-Jan-S4Sd
j ite	: ----	Issue Date	: 15-Jan-S4Sd
j ampler	: ----	No. of samples receive2	: 1S
Or2er number	: PO-448446	No. of samples analyse2	: 1S

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

Brief metho2 summaries an2 references are also provi2e2 to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagge2 in the Quality Control (QC) Report.

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control j ample Type		Count		Rate (G)		Quality Control j pecification
Analytical Metho2s	Metho2	QC	Regular	Actual	Expecte2	
Laboratory Duplicates (DKP)						
Organotin Compoun2s (j oluble)	EP494j	1	1S	8.00	14.44	NEPM S410 B0 %ALj QC j tan2ar2

Analysis Holding Time Compliance

If samples are i2entifie2 belo; as having been analyse2 or extracte2 outsi2e of recommen2e2 hol2ing timeswthis shoul2 be taken into consi2eration ; hen interpreting results.

This report summariqes extraction 7 preparation an2 analysis times an2 compares each ; ith ALj recommen2e2 hol2ing times (referencing Kj EPA j W 856w APHAw Aj an2 NEPM) base2 on the sample container provi2e2. Dates reporte2 represent first 2ate of extraction or analysis an2 preclu2e subse/ uent 2ilutions an2 reruns. A listing of breaches (if any) is provi2e2 herein.

Hol2ing time for leachate metho2s (e.g. TCLP) vary accor2ing to the analytes reporte2. Assessment compares the leach 2ate ; ith the shortest analyte hol2ing time for the e/ uivalent soil metho2. These are: organics 15 2aysw mercury S8 2ays %other metals 184 2ays. A recor2e2 breach 2oes not guarantee a breach for all non-volatile parameters.

Hol2ing times for ***VOC in soils*** vary accor2ing to analytes of interest. Uinyl Chlori2e an2 j tyrene hol2ing time is &2aysV others 15 2ays. A recor2e2 breach 2oes not guarantee a breach for all UOC analytes an2 shoul2 be verifie2 in case the reporte2 breach is a false positive or Uinyl Chlori2e an2 j tyrene are not key analytes of interest7concern.

Matrix: **WATER** Evaluation: × , Hol2ing time breach V✓ , Within hol2ing time.

Method / *Container* / Client Sample ID(s)		*Sample Date*	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
IH-Mi2w	z B-Bay 1w	**08-Jan-2025**	**10-Jan-2025**	SS-Jan-S4Sd	✓	**10-Jan-2025**	SS-Jan-S4Sd	✓
z B-Bay Sw	z B-Bay 0w							
z B-Bay 5w	z B-Beachw							
z B-j W 1w	z B-j W Sw							
LI-Farw	LI-Mi2w							
LI-Westw	Duplicate							
EP090: Organotin Compounds (Soluble)								
Amber Glass Bottle - Unpreserved (EP090S)								
IH-Mi2w	z B-Bay 1w	**08-Jan-2025**	**13-Jan-2025**	1d-Jan-S4Sd	✓	**13-Jan-2025**	SS-Feb-S4Sd	✓
z B-Bay Sw	z B-Bay 0w							
z B-Bay 5w	z B-Beachw							
z B-j W 1w	z B-j W Sw							
LI-Farw	LI-Mi2w							
LI-Westw	Duplicate							

Quality Control Parameter Frequency Compliance

The follo; ing report summarises the fre/ uency of laboratory QC samples analyse2 ; ithin the analytical lot(s) in ; hich the submitte2 sample(s) ; as(; ere) processe2. Actual rate shoul2 be greater than or e/ ual to the expecte2 rate. A listing of breaches is provi2e2 in the j ummary of Outliers.

Matrix: **WATER**

Evaluation: ×, Quality Control fre/ uency not ; ithin specification V✓, Quality Control fre/ uency ; ithin specification.

Quality Control j ample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DKP)							
Organotin Compoun2s (j oluble)	EP494j	1	1S	**8.33**	**10.00**	✗	NEPM S410 B0 %ALj QC j tan2ar2
TRH Uolatiles7BTE=	EP484	S	18	**11.11**	**10.00**	✓	NEPM S410 B0 %ALj QC j tan2ar2
Laboratory Control j amples (LCj)							
Organotin Compoun2s (j oluble)	EP494j	1	1S	**8.33**	**5.00**	✓	NEPM S410 B0 %ALj QC j tan2ar2
TRH Uolatiles7BTE=	EP484	1	18	**5.56**	**5.00**	✓	NEPM S410 B0 %ALj QC j tan2ar2
Metho2 Blanks (MB)							
Organotin Compoun2s (j oluble)	EP494j	1	1S	**8.33**	**5.00**	✓	NEPM S410 B0 %ALj QC j tan2ar2
TRH Uolatiles7BTE=	EP484	1	18	**5.56**	**5.00**	✓	NEPM S410 B0 %ALj QC j tan2ar2
Matrix j pikes (Mj)							
Organotin Compoun2s (j oluble)	EP494j	1	1S	**8.33**	**5.00**	✓	NEPM S410 B0 %ALj QC j tan2ar2
TRH Uolatiles7BTE=	EP484	1	18	**5.56**	**5.00**	✓	NEPM S410 B0 %ALj QC j tan2ar2

Brief Method Summaries

The analytical proce2ures use2 by the Environmental Division have been 2evelope2 from establishe2 internationally recogniqe2 proce2ures such as those publishe2 by the Kj EPAwAPHAwAj an2 NEPM. In house 2evelope2 proce2ures are employe2 in the absence of 2ocumente2 stan2ar2s or by client re/ uest. The follo; ing report provi2es brief 2escriptions of the analytical proce2ures employe2 for results reporte2 in the Certificate of Analysis. j ources from ; hich ALj metho2s have been 2evelope2 are provi2e2 ; ithin the Metho2 Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
TRH Uolatiles7BTE=	EP484	WATER	In house: Reference2 to Kj EPA j W 856 - 8S64 Water samples are 2irectly purge2 prior to analysis by Capillary XC7Mj an2 / uantification is by comparison against an establishe2 d point calibration curve. Alternativelywa sample is e/ uilibrate2 in a hea2space vial an2 a portion of the hea2space 2etermine2 by XCMj analysis. This metho2 is compliant ; ith the QC re/ uirements of NEPM j che2ule B(0)
Organotin Compoun2s (j oluble)	EP494i	WATER	In house: Reference2 to Kj EPA j W 856 - 8S&4 j ample extracts are analyse2 by XC7Mj couple2 ; ith high volume in3ection an2 / uantification is by comparison against an establishe2 d point calibration curve. This metho2 is compliant ; ith NEPM j che2ule B(0)

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Uolatiles Water Preparation	ORX16-W	WATER	A d mL ali/ uot or d mL of a 2ilute2 sample is a22e2 to a 54 mL UOC vial for purging.
Organotin j ample Preparation	ORX05	WATER	In house. A specifie2 volume of sample is spike2 ; ith surrogatewaci2ifie2 an2 vacuum filtere2. Reagents an2 solvent are a22e2 an2 the mixture tumble2. The butyltin compoun2s is 2erivitisate2wextracte2 an2 the subtitution reaction complete2. The extract is transferre2 to a separatory funnel an2 further extracte2 t; o times ; ith petroleum ether. The resultant extracts are combine2 an2 concentrate2 for analysis.

Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

NATA Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 6/02/2025
Date Received: 23/01/2025
Our Reference: MSC25-2
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit			<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date			4/02/2025	4/02/2025	4/02/2025	24/01/2025	24/01/2025	30/01/2025	30/01/2025	24/01/2025
File			25020401	25020401	25020401	25012401	25012401	25013002	25013002	25012401
IH-Mid	23/01/2025	Marine	7	6	2	23	200	2.5	0.8	2
KB-Bay 1	23/01/2025	Marine	3	4	4	16	140	1.1	0.3	2
KB-Bay 2	23/01/2025	Marine	<3	3	<2	19	150	2.0	0.7	2
KB-Bay 3	23/01/2025	Marine	18	4	7	21	170	0.8	0.3	4
KB-Bay 4	23/01/2025	Marine	<3	4	<2	17	160	0.9	0.7	3
KB-Beach	23/01/2025	Marine	<3	4	<2	18	170	1.3	0.5	3
KB-SW 1	23/01/2025	Marine	11	3	4	22	190	2.4	1.3	5
KB SW 2	23/01/2025	Marine	3	4	<2	20	160	1.3	0.7	3
LI-Far	23/01/2025	Marine	10	4	4	58	430	9.7	5.8	26
LI-Mid	23/01/2025	Marine	<3	3	<2	35	280	4.8	2.3	10
LI-West	23/01/2025	Marine	<3	4	<2	41	350	6.0	2.5	11
Duplicate	23/01/2025	Marine	<3	<2	<2	35	290	5.2	2.2	8

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 6/02/2025

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Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 6/02/2025
Date Received: 23/01/2025
Our Reference: MSC25-2
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit			**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date			**30/01/2025**	**30/01/2025**	**30/01/2025**	**30/01/2025**	**30/01/2025**	**29/01/2025**
File			**25013001**	**25013001**	**25013001**	**25013001**	**25013001**	**25012901**
IH-Mid	23/01/2025	Marine	<0.3	0.8	2	<0.1	<0.1	<0.0001
KB-Bay 1	23/01/2025	Marine	<0.3	0.4	2	<0.1	<0.1	<0.0001
KB-Bay 2	23/01/2025	Marine	<0.3	0.4	1	<0.1	<0.1	<0.0001
KB-Bay 3	23/01/2025	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-Bay 4	23/01/2025	Marine	<0.3	0.4	1	<0.1	<0.1	<0.0001
KB-Beach	23/01/2025	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-SW 1	23/01/2025	Marine	<0.3	0.7	1	<0.1	<0.1	<0.0001
KB SW 2	23/01/2025	Marine	<0.3	0.6	1	<0.1	<0.1	<0.0001
LI-Far	23/01/2025	Marine	0.3	1.0	2	<0.1	<0.1	<0.0001
LI-Mid	23/01/2025	Marine	0.3	1.4	2	<0.1	<0.1	<0.0001
LI-West	23/01/2025	Marine	<0.3	1.0	1	<0.1	<0.1	<0.0001
Duplicate	23/01/2025	Marine	0.3	1.3	2	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 6/02/2025

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CERTIFICATE OF ANALYSIS

Work Order	: **EP2411873**	Page	: 1 of 6
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-15	Date Samples Received	: 23-Jan-2025 13:45
Order number	: PO-008006	Date Analysis Commenced	: 24-Jan-2025
C-O-C number	: ----	Issue Date	: 31-Jan-2025 09:19
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	k risbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: WATER
0Matrix: WATER5

Compound	CAS Number	LOR	Unit	Sample ID	IH-Mid	KB-Bay)	KB-Bay 2	KB-Bay (	KB-Bay 3
				Sampling date / time	23-Jan-2025 00:00	23-Jan-2025 00:00	23-Jan-2025 00:00	23-Jan-2025 00:00	23-Jan-2025 00:00
					EP2411873-11)	EP2411873-112	EP2411873-11(	EP2411873-113	EP2411873-114
					Result	Result	Result	Result	Result
EP1X1: BTEz N									
Ben&ene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylben&ene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- 9 para-z ylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-z ylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Total z ylenes	----	2	µg/L		<2	<2	<2	<2	<2
^ Sum of BTEz	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP181: Organotin Compounds 0Soluble5									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP1X1S: TPH0V5BTEz Surrogates									
) .2-Dichloroethane-D3	17060-07-0	2	%		74.6	71.8	63.X	73.8	71.)
Toluene-DX	2037-26-5	2	%		) 11	84.7	)) 4	8X.X	8) .2
3-Bromofluoroben&ene	460-00-4	2	%		84.)	8) .3	8(.(	) 13	)) 2
EP181S: Organotin Surrogate									
Tripropyltin	----	5	%		81.6	X) .6	8(.)	7X.4	78.)

Analytical Results

Sub-Matrix: WATER 0Matrix: WATER5			Sample ID	KB-Beach	KB-SW)	KB-SW 2	LI-Far	LI-Mid
			Sampling date / time	23-Jan-2025 00:00	23-Jan-2025 00:00	23-Jan-2025 00:00	23-Jan-2025 00:00	23-Jan-2025 00:00
Compound	CAS Number	LOR	Unit	EP2411873-116	EP2411873-117	EP2411873-11X	EP2411873-118	EP2411873-1) 1
				Result	Result	Result	Result	Result
EP1X1: BTEz N								
Ben&ene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylben&ene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- 9 para-z ylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-z ylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total z ylenes	----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEz	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP181: Organotin Compounds 0Soluble5								
Tributyltin	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP1X1S: TPH0V5BTEz Surrogates								
) .2-Dichloroethane-D3	17060-07-0	2	%	71.X	67.3	7(.X	68.X	74.6
Toluene-DX	2037-26-5	2	%	8X.2	84.X	) 14	87.3	88.4
3-Bromofluoroben&ene	460-00-4	2	%	) 1)	86.2	84.7	) 16	) 14
EP181S: Organotin Surrogate								
Tripropyltin	----	5	%	X8.)	X) .8	) 1)	4) .(	X3.2

Analytical Results

Sub-Matrix: WATER 0Matrix: WATER5				Sample ID	LI-West	Duplicate	----	----	----
				Sampling date / time	23-Jan-2025 00:00	23-Jan-2025 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2411873-1))	EP2411873-1) 2	--------	--------	--------
					Result	Result	----	----	----
EP1X1: BTEz N									
Ben&ene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylben&ene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- 9 para-z ylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-z ylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ Total z ylenes	----	2	µg/L		<2	<2	----	----	----
^ Sum of BTEz	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP181: Organotin Compounds 0Soluble5									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	----	----	----
EP1X1S: TPH0V5BTEz Surrogates									
) .2-Dichloroethane-D3	17060-07-0	2	%		7(.2	73.3	----	----	----
Toluene-DX	2037-26-5	2	%		83.1	XX.)	----	----	----
3-Bromofluoroben&ene	460-00-4	2	%		) 16	82.2	----	----	----
EP181S: Organotin Surrogate									
Tripropyltin	----	5	%		X2.(	6X.6	----	----	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP1X1S: TPH0/5BTEz Surrogates			
) .2-Dichloroethane-D3	17060-07-0	61	141
Toluene-DX	2037-26-5	73	126
3-Bromofluoroben&ene	460-00-4	60	125
EP181S: Organotin Surrogate			
Tripropyltin	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS krisbane, NATA accreditation no. 825, site no. 818 (Chemistry / kiology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP241135m**	Page	: 1 of 3
Client	: **n ARINE ANt MREDF WATER REDEARCF LASORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-15	Date Samples Received	: 23-Jan-2025
Order number	: PO-008006	Date Analysis Commenced	: 24-Jan-2025
C-O-C number	: ----	Issue Date	: 31-Jan-2025
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP1H1: STEBN 0QC Lo8 X((2(416									
EP2500861-013	Anonymous	EP080: Benzene	71-43-2	1	µg/L	16	14	12.4	0% - 50%
		EP080: Toluene	108-88-3	2	µg/L	16	19	18.7	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	17	16	7.2	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	34	31	8.3	0% - 50%
		EP080: ortho-Xylene	95-47-6	2	µg/L	17	16	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	5	5	0.0	No Limit
EP2500974-006	KB-Beach	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP131: Or9) go8g Coi pougds 0Doluble6 0QC Lo8 X(m75Hn6									
EP2500974-001	IH-Mid	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP1H1: STEBN 0QCLo8: X((2(416								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	94.0	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	100	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	105	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	105	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	105	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	107	77.0	118
EP131: Or9) go8g Coi pougds 0Doluble6 0QCLo8: X(m75Hm6								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	75.0	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP1H1: STEBN 0QCLo8: X((2(416							
EP2500929-001	Anonymous	EP080: Benzene	71-43-2	20 µg/L	92.0	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	96.0	73.5	126
EP131: Or9) go8g Coi pougds 0Doluble6 0QCLo8: X(m75Hm6							
EP2500974-001	IH-Mid	EP090S: Tributyltin	56573-85-4	147 ngSn/L	83.5	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2500974**	Page	: 1 of 5
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Project	: Mj CS5-12	Date samples Received	: S0-Jan-S4S2
site	: ----	Issue Date	: 01-Jan-S4S2
sampler	: ----	No. of samples received	: 1S
Order number	: PO-448446	No. of samples analysed	: 1S

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Frequency of Quality Control Samples

MatriQ: **WATER**

Quality Control j ample Type		Count		Rate (K)		Quality Control j pecification
Analytical Methods	Method	QC	Regular	Actual	EQpected	
Laboratory Duplicates (D%P)						
Organotin Compounds (j oluble)	EP494j	1	10	F.69	14.44	NEPM S410 B0 U ALj QC j tandard

Analysis Holding Time Compliance

If samples are identified belo; as having been analysed or eGracted outside of recommended holding timeswthis should be taken into consideration ; hen interpreting results.

This report summariqes eGraction 7 preparation and analysis times and compares each ; ith ALj recommended holding times (referencing %j EPA j W 856w APYAw Aj and NEPM) based on the sample container provided. Dates reported represent first date of eGraction or analysis and preclude subse/ uent dilutions and reruns. A listing of breaches (if any) is provided herein.

Yolding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date ; ith the shortest analyte holding time for the e/ uivalent soil method. These are: organics 15 daysw mercury S8 days U other metals 184 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Yolding times for ***VOC in soils*** vary according to analytes of interest. &inyl Chloride and j tyrene holding time is F daysV others 15 days. A recorded breach does not guarantee a breach for all &OC analytes and should be verified in case the reported breach is a false positive or &inyl Chloride and j tyrene are not key analytes of interest7concern.

MatriQ: **WATER** Evaluation: × , Yolding time breach V✓ , Within holding time.

Method / *Container* / Client Sample ID(s)		*Sample Date*	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
IY-Midw	z B-Bay 1w	**23-Jan-2025**	**24-Jan-2025**	46-Heb-S4S2	✓	**24-Jan-2025**	46-Heb-S4S2	✓
z B-Bay Sw	z B-Bay 0w							
z B-Bay 5w	z B-Beachw							
z B-j W 1w	z B-j W Sw							
LI-Harw	LI-Midw							
LI-Westw	Duplicate							
EP090: Organotin Compounds (Soluble)								
Amber Glass Bottle - Unpreserved (EP090S)								
IY-Midw	z B-Bay 1w	**23-Jan-2025**	**30-Jan-2025**	04-Jan-S4S2	✓	**30-Jan-2025**	11-Mar-S4S2	✓
z B-Bay Sw	z B-Bay 0w							
z B-Bay 5w	z B-Beachw							
z B-j W 1w	z B-j W Sw							
LI-Harw	LI-Midw							
LI-Westw	Duplicate							

Quality Control Parameter Frequency Compliance

The follo; ing report summarises the fre/ uency of laboratory QC samples analysed ; ithin the analytical lot(s) in ; hich the submitted sample(s) ; as(; ere) processed. Actual rate should be greater than or e/ ual to the eQpected rate. A listing of breaches is provided in the j ummary of Outliers.

MatriG: **WATER**

Evaluation: × , Quality Control fre/ uency not ; ithin specification V✓ , Quality Control fre/ uency ; ithin specification.

Quality Control j ample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (D%P)							
Organotin Compounds (j oluble)	EP494j	1	10	**7.69**	**10.00**	✗	NEPM S410 B0 U ALj QC j tandard
TRY &olatiles7BTE=	EP484	S	1F	**11.76**	**10.00**	✓	NEPM S410 B0 U ALj QC j tandard
Laboratory Control j amples (LCj)							
Organotin Compounds (j oluble)	EP494j	1	10	**7.69**	**5.00**	✓	NEPM S410 B0 U ALj QC j tandard
TRY &olatiles7BTE=	EP484	1	1F	**5.88**	**5.00**	✓	NEPM S410 B0 U ALj QC j tandard
Method Blanks (MB)							
Organotin Compounds (j oluble)	EP494j	1	10	**7.69**	**5.00**	✓	NEPM S410 B0 U ALj QC j tandard
TRY &olatiles7BTE=	EP484	1	1F	**5.88**	**5.00**	✓	NEPM S410 B0 U ALj QC j tandard
MatriGj pikes (Mj)							
Organotin Compounds (j oluble)	EP494j	1	10	**7.69**	**5.00**	✓	NEPM S410 B0 U ALj QC j tandard
TRY &olatiles7BTE=	EP484	1	1F	**5.88**	**5.00**	✓	NEPM S410 B0 U ALj QC j tandard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recogniqed procedures such as those published by the %j EPAwAPYAwAj and NEPM. In house developed procedures are employed in the absence of documented standards or by client re/ uest. The follo; ing report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. j ources from ; hich ALj methods have been developed are provided ; ithin the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
TRY &olatiles7BTE=	EP484	WATER	In house: Referenced to %j EPA j W 856 - 8S64 Water samples are directly purged prior to analysis by Capillary XC7Mj and / uantification is by comparison against an established 2 point calibration curve. Alternativelywa sample is e/ uilibrated in a headspace vial and a portion of the headspace determined by XCMj analysis. This method is compliant ; ith the QC re/ uirements of NEPM j chedule B(0)
Organotin Compounds (j oluble)	EP494i	WATER	In house: Referenced to %j EPA j W 856 - 8SF4 j ample eGracts are analysed by XC7Mj coupled ; ith high volume in3ection and / uantification is by comparison against an established 2 point calibration curve. This method is compliant ; ith NEPM j chedule B(0)

Preparation Methods	Method	Matrix	Method Descriptions
&olatiles Water Preparation	ORX16-W	WATER	A 2 mL ali/ uot or 2 mL of a diluted sample is added to a 54 mL &OC vial for purging.
Organotin j ample Preparation	ORX05	WATER	In house. A specified volume of sample is spiked ; ith surrogatewacidified and vacuum filtered. Reagents and solvent are added and the miGure tumbled. The butyltin compounds is derivitisatedweGracted and the subtitution reaction completed. The eGract is transferred to a separatory funnel and further eGracted t; o times ; ith petroleum ether. The resultant eGracts are combined and concentrated for analysis.

Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

NATA Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 18/02/2025
Date Received: 5/02/2025
Our Reference:MSC25-3
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit			**<3**	**<2**	**<2**	**<5**	**<50**	**<0.1**	**<0.2**	**<1**
Analysis Date			**10/02/2025**	**10/02/2025**	**10/02/2025**	**14/02/2025**	**14/02/2025**	**12/02/2025**	**12/02/2025**	**6/02/2025**
File			**25021001**	**25021001**	**25021001**	**25021402-03**	**25021402-03**	**25021201**	**25021201**	**25020601**
IH-Mid	5/02/2025	Marine	3	6	<2	19	160	4.8	1.1	6
KB-Bay 1	5/02/2025	Marine	<3	3	<2	13	130	0.7	<0.2	3
KB-Bay 2	5/02/2025	Marine	<3	5	<2	18	150	2.3	0.5	4
KB-Bay 3	5/02/2025	Marine	<3	3	<2	16	180	1.1	0.3	3
KB-Bay 4	5/02/2025	Marine	12	3	5	18	140	1.2	0.5	4
KB-Beach	5/02/2025	Marine	<3	5	<2	17	140	1.4	0.5	4
KB-SW 1	5/02/2025	Marine	5	4	7	19	160	2.5	0.6	4
KB SW 2	5/02/2025	Marine	<3	4	<2	17	140	1.7	0.5	5
LI-Far	5/02/2025	Marine	<3	3	<2	49	360	5.4	2.0	9
LI-Mid	5/02/2025	Marine	12	3	6	42	330	4.3	1.5	8
LI-West	5/02/2025	Marine	<3	4	3	37	290	2.5	1.3	7
Duplicate	5/02/2025	Marine	<3	4	<2	45	330	4.4	1.5	9

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 18/02/2025

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Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 18/02/2025
Date Received: 5/02/2025
Our Reference:MSC25-3
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit			**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date			**6/02/2025**	**6/02/2025**	**6/02/2025**	**6/02/2025**	**6/02/2025**	**7/02/2025**
File			**25020601**	**25020601**	**25020601**	**25020601**	**25020601**	**25020701A**
IH-Mid	5/02/2025	Marine	<0.3	0.5	<1	<0.1	<0.1	<0.0001
KB-Bay 1	5/02/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 2	5/02/2025	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-Bay 3	5/02/2025	Marine	<0.3	0.4	1	<0.1	<0.1	<0.0001
KB-Bay 4	5/02/2025	Marine	0.4	0.4	1	<0.1	<0.1	<0.0001
KB-Beach	5/02/2025	Marine	<0.3	0.6	1	<0.1	<0.1	<0.0001
KB-SW 1	5/02/2025	Marine	0.3	0.7	1	<0.1	<0.1	<0.0001
KB SW 2	5/02/2025	Marine	<0.3	0.5	1	<0.1	<0.1	<0.0001
LI-Far	5/02/2025	Marine	0.3	1.0	1	<0.1	<0.1	<0.0001
LI-Mid	5/02/2025	Marine	0.3	1.1	2	<0.1	<0.1	<0.0001
LI-West	5/02/2025	Marine	0.3	0.9	1	<0.1	<0.1	<0.0001
Duplicate	5/02/2025	Marine	0.4	1.0	1	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 18/02/2025

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CERTIFICATE OF ANALYSIS

Work Order	: **EP24134M4**	Page	: 1 of 6
Client	: **DARINE ANH FRESBWATER RESEARCB LAi ORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-16	Date Samples Received	: 05-Qeb-2025 14:30
Order number	: 008006	Date Analysis Commenced	: 07-Qeb-2025
C-O-C number	: ----	Issue Date	: 12-Qeb-2025 15:00
Sampler	: ----		
Site	: ----		
F uote number	: EP24MARQRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Addtrtoal f tarrorp I rtoa herrtaean ro rstw rehorn b tff ue rogad ta rse roffob tac wehl rl re I rrl Qsp earw: y gl ftn Coarrof Rehorn/ y Avy C Cop hftl aQe Awwewwp ean ro I wwtwn b trs y gl ftn Re. teb I ad Sl p hfe ReQethnNortrtQ rtoa ^

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	SENIOR LAB TECH	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, F LD

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: DARINE WATER 5Matrix: WATER8			Sample ID	IB(Dtd	- i (i l , 3	- i (i l , 2	- i (i l , 0	- i (i l ,)
			Sampling date / time	05-Qeb-2025 00:00	05-Qeb-2025 00:00	05-Qeb-2025 00:00	05-Qeb-2025 00:00	05-Qeb-2025 00:00
Compound	CAS Number	LOR	Unit	EP24134M4(113	EP24134M4(112	EP24134M4(110	EP24134M4(11)	EP24134M4(114
				Result	Result	Result	Result	Result
EP1X1: i TEz N								
i ea&eae	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Tofgeae	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ens, fuea&eae	100-41-4	2	µg/L	<2	<2	<2	<2	<2
p erl (9 hl rl (z , feae	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ornso(z , feae	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Torl f z , feaew	----	2	µg/L	<2	<2	<2	<2	<2
^ Sgp orri TEz	----	1	µg/L	<1	<1	<1	<1	<1
Nl hsrnsl feae	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP1M1: Orcl aorta Cop hogadw5Sofgufe8								
Trtugn frta	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP1X1S: TPB5V8i TEz Sgrrocl rew								
3^2(HtQsforoensl ae(H)	17060-07-0	2	%	31M	312	310	333	310
Tofgeae(HX	2037-26-5	2	%	MX^M	MM^4	311	311	312
) (i rop orfgorouea&eae	460-00-4	2	%	311^1	MM^4	M7^2	313	310
EP1M1S: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	X7^2	M8^3	X1^6	M0^7	70^6

Analytical Results

Sub-Matrix: DARINE WATER
5Matrix: WATER8

Compound	CAS Number	LOR	Unit	Sample ID	- i (i el Qs	- i (SW 3	- i (SW 2	LI(Fl r	LI(D td
				Sampling date / time	05-Qeb-2025 00:00	05-Qeb-2025 00:00	05-Qeb-2025 00:00	05-Qeb-2025 00:00	05-Qeb-2025 00:00
					EP24134M4(116	EP24134M4(117	EP24134M4(11X	EP24134M4(11M	EP24134M4(131
					Result	Result	Result	Result	Result
EP1X1: i TEz N									
i ea&eae	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Tofgeae	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ens, fuea&eae	100-41-4	2	µg/L		<2	<2	<2	<2	<2
p erl (9 hl rl (z , feae	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ornso(z , feae	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Torl f z , feaew	----	2	µg/L		<2	<2	<2	<2	<2
^ Sgp orri TEz	----	1	µg/L		<1	<1	<1	<1	<1
Nl hsrnsl feae	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP1M1: Orcl aorta Cop hogadw5Sofgufe8									
Trtugn frta	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP1X1S: TPB5V8i TEz Sgrrocl rew									
3^2(HtQsforoensl ae(H)	17060-07-0	2	%		31M	31)	314	312	31)
Tofgeae(HX	2037-26-5	2	%		MK^2	M4^7	313	311	MM^1
) (i rop orfgorouea&eae	460-00-4	2	%		MK^0	M) ^0	314	311	M4^)
EP1M1S: Orcl aorta Sgrrocl re									
Trthroh, frta	----	5	%		X) ^)	X6^4	7) ^7	66^)	X0^2

Analytical Results

Sub-Matrix: DARINE WATER 5Matrix: WATER8			Sample ID	LI(Wewn	HghftQl re	((((	((((	((((
			Sampling date / time	05-Qeb-2025 00:00	05-Qeb-2025 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP24134M4(133	EP24134M4(132	((((((((	((((((((	((((((((
				Result	Result	----	----	----
EP1X1: i TEz N								
i ea&eae	71-43-2	1	µg/L	<1	<1	((((	((((	((((
Tofgeae	108-88-3	2	µg/L	<2	<2	((((	((((	((((
Ens, fuea&eae	100-41-4	2	µg/L	<2	<2	((((	((((	((((
p erl (9 hl rl (z , feae	108-38-3 106-42-3	2	µg/L	<2	<2	((((	((((	((((
ornso(z , feae	95-47-6	2	µg/L	<2	<2	((((	((((	((((
^ Torl f z , feaew	----	2	µg/L	<2	<2	((((	((((	((((
^ Sgp orri TEz	----	1	µg/L	<1	<1	((((	((((	((((
Nl hsrnsl feae	91-20-3	5	µg/L	<5	<5	((((	((((	((((
EP1M1: Orcl aorta Cop hogadw5Sofgufe8								
Trtugn frta	56573-85-4	2	ngSn/L	<2	<2	((((	((((	((((
EP1X1S: TPB5V8i TEz Sgrrocl rew								
3'2(HtQsforoensl ae(H)	17060-07-0	2	%	31)	310	((((	((((	((((
Tofgeae(HX	2037-26-5	2	%	MM'3	M'^)	((((	((((	((((
) (i rop orfgorouea&eae	460-00-4	2	%	MM'7	31)	((((	((((	((((
EP1M1S: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	64'0	67'7	((((	((((	((((

Surrogate Control Limits

Sub-Matrix: DARINE WATER		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP1X1S: TPB5V8i TEz Sgrrocl rew			
3'2(HtQsforoensl ae(H)	17060-07-0	61	141
Tofgeae(HX	2037-26-5	73	126
) (i rop onfgorouea&eae	460-00-4	60	125
EP1M1S: Orcl aorta Sgrrocl re			
Trthroh, frta	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: EP24134M4	Page	: 1 of 3
Client	: DARINE ANF SREHBWATER REHEARCB LA0 ORATORY	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-16	Date Samples Received	: 05-Feb-2025
Order number	: 008006	Date Analysis Commenced	: 07-Feb-2025
C-O-C number	: ----	Issue Date	: 12-Feb-2025
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	SENIOR LAB TECH	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP181: 0 TEXN (QC Lot: 6) 612649									
EP2501595-001	IH-Mid	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2501595-011	LI-West	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP1M: Organotin Compounds (Holuble9 (QC Lot: 6) 65) 5M9									
EP2501595-001	IH-Mid	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP181: 0 TEXN (QCLot: 6) 612649								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	104	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	105	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	104	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	101	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	102	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	102	77.0	118
EP1M: Organotin Compounds (Holuble9 (QCLot: 6) 65) 5M9								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	80.5	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP181: 0 TEXN (QCLot: 6) 612649							
EP2501595-002	KB-Bay 1	EP080: Benzene	71-43-2	20 µg/L	101	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	108	73.5	126
EP1M: Organotin Compounds (Holuble9 (QCLot: 6) 65) 5M9							
EP2501595-001	IH-Mid	EP090S: Tributyltin	56573-85-4	147 ngSn/L	81.7	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2501595**	Page	: 1 of 5
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	[redacted]	Telephone	: [redacted]
Pro3ect	: Mj CS5-16	Date j amples Receive2	: 4d-Neb-S4Sd
j ite	: ----	Issue Date	: 1S-Neb-S4Sd
j ampler	: ----	. oBof samples receive2	: 1S
Or2er number	: 448446	. oBof samples analyse2	: 1S

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

Qrief metho2 summaries an2 references are also provi2e2 to assist in traceabilityB

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagge2 in the (uality Control)(CkReportB

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

(uality Control j ample Type		Count		Rate)Gk		(uality Control j pecification
Analytical Metho2s	Metho2	(C	Regular	Actual	Expecte2	
Laboratory Duplicates)DKPk						
Organotin Compoun2s)j olublek	EP494j	1	1d	6B6U	14B44	. EPM S410 Q0 %ALj (C j tan2ar2

Analysis Holding Time Compliance

If samples are i2entifie2 belo; as having been analyse2 or extracte2 outsi2e of recommen2e2 hol2ing timeswthis shoul2 be taFen into consi2eration ; hen interpreting resultsB

This report summariqes extraction 7 preparation an2 analysis times an2 compares each ; ith ALj recommen2e2 hol2ing times)referencing Kj EPA j W 856w APHAw Aj an2 . EPMk base2 on the sample container provi2e2B Dates reporte2 represent first 2ate of extraction or analysis an2 preclu2e subse/ uent 2ilutions an2 rerunsBA listing of breaches)if anykis provi2e2 hereinB

Hol2ing time for leachate metho2s)eBgB TCLPk vary accor2ing to the analytes reporte2B Assessment compares the leach 2ate ; ith the shortest analyte hol2ing time for the e/ uivalent soil metho2B These are: organics 15 2ayswmercury S8 2ays %other metals 184 2aysB A recor2e2 breach 2oes not guarantee a breach for all non-volatile parametersB

Hol2ing times for ***VOC in soils*** vary accor2ing to analytes of interestB &inyl Chlori2e an2 j tyrene hol2ing time is U2aysV others 15 2aysB A recor2e2 breach 2oes not guarantee a breach for all &OC analytes an2 shoul2 be verifie2 in case the reporte2 breach is a false positive or &inyl Chlori2e an2 j tyrene are not Fey analytes of interest7concernB

Matrix: **WATER** Evaluation: × , Hol2ing time breach V✓ , Within hol2ing timeE

Method / *Container* / Client Sample ID(s)		*Sample Date*	*Extraction / Preparation*			*Analysis*		
			Date extracted	Due for extraction	Evaluation	*Date analysed*	Due for analysis	Evaluation
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
IH-Mi2w	z Q-Qay 1w	**05-Feb-2025**	**07-Feb-2025**	19-Neb-S4Sd	✓	**07-Feb-2025**	19-Neb-S4Sd	✓
z Q-Qay Sw	z Q-Qay 0w							
z Q-Qay 5w	z Q-Qeachw							
z Q-j W 1w	z Q-j W Sw							
LI-Narw	LI-Mi2w							
LI-Westw	Duplicate							
EP090: Organotin Compounds (Soluble)								
Amber Glass Bottle - Unpreserved (EP090S)								
IH-Mi2w	z Q-Qay 1w	**05-Feb-2025**	**11-Feb-2025**	1S-Neb-S4Sd	✓	**11-Feb-2025**	S0-Mar-S4Sd	✓
z Q-Qay Sw	z Q-Qay 0w							
z Q-Qay 5w	z Q-Qeachw							
z Q-j W 1w	z Q-j W S							
Amber Glass Bottle - Unpreserved (EP090S)								
LI-Narw	LI-Mi2w	**05-Feb-2025**	**11-Feb-2025**	1S-Neb-S4Sd	✓	**12-Feb-2025**	S0-Mar-S4Sd	✓
LI-Westw	Duplicate							

Quality Control Parameter Frequency Compliance

The follo; ing report summarises the fre/ uency of laboratory (C samples analyse2 ; ithin the analytical lot)skin ; hich the submitte2 sample)sk; as); erekprocesse2BActual rate shoul2 be greater than or e/ ual to the expecte2 rateBA listing of breaches is provi2e2 in the j ummary of OutliersB

Matrix: **WATER**

Evaluation: ×, (uality Control fre/ uency not ; ithin specification V✓, (uality Control fre/ uency ; ithin specification E

(uality Control j ample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates)DKPk							
Organotin Compoun2s)j olublek	EP494j	1	1d	**6.67**	**10.00**	×	. EPM S410 Q0 %ALj (C j tan2ar2
TRH &olatiles7QTE=	EP484	S	1S	**16.67**	**10.00**	✓	. EPM S410 Q0 %ALj (C j tan2ar2
Laboratory Control j amples)LCj k							
Organotin Compoun2s)j olublek	EP494j	1	1d	**6.67**	**5.00**	✓	. EPM S410 Q0 %ALj (C j tan2ar2
TRH &olatiles7QTE=	EP484	1	1S	**8.33**	**5.00**	✓	. EPM S410 Q0 %ALj (C j tan2ar2
Metho2 QlanFs)MQk							
Organotin Compoun2s)j olublek	EP494j	1	1d	**6.67**	**5.00**	✓	. EPM S410 Q0 %ALj (C j tan2ar2
TRH &olatiles7QTE=	EP484	1	1S	**8.33**	**5.00**	✓	. EPM S410 Q0 %ALj (C j tan2ar2
Matrix j piFes)Mj k							
Organotin Compoun2s)j olublek	EP494j	1	1d	**6.67**	**5.00**	✓	. EPM S410 Q0 %ALj (C j tan2ar2
TRH &olatiles7QTE=	EP484	1	1S	**8.33**	**5.00**	✓	. EPM S410 Q0 %ALj (C j tan2ar2

Brief Method Summaries

The analytical proce2ures use2 by the Environmental Division have been 2evelope2 from establishe2 internationally recogniqe2 proce2ures such as those publishe2 by the Kj EPAwAPHAwAj an2 . EPMBIn house 2evelope2 proce2ures are employe2 in the absence of 2ocumente2 stan2ar2s or by client re/ uestBThe follo; ing report provi2es brief 2escriptions of the analytical proce2ures employe2 for results reporte2 in the Certificate of AnalysisBj ources from ; hich ALj metho2s have been 2evelope2 are provi2e2 ; ithin the Metho2 DescriptionsB

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
TRH &olatiles7QTE=	EP484	WATER	In house: Reference2 to Kj EPA j W 856 - 8S64 Water samples are 2irectly purge2 prior to analysis by Capillary XC7Mj an2 / uantification is by comparison against an establishe2 d point calibration curveBAlternativelywa sample is e/ uilibrate2 in a hea2space vial an2 a portion of the hea2space 2etermine2 by XCMj analysisB This metho2 is compliant ; ith the (C re/ uirements of . EPM j che2ule Q)0k
Organotin Compoun2s)j olublek	EP494i	WATER	In house: Reference2 to Kj EPA j W 856 - 8SU4 j ample extracts are analyse2 by XC7Mj couple2 ; ith high volume in3ection an2 / uantification is by comparison against an establishe2 d point calibration curveBThis metho2 is compliant ; ith . EPM j che2ule Q)0k

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
&olatiles Water Preparation	ORX16-W	WATER	A d mL ali/ uot or d mL of a 2ilute2 sample is a22e2 to a 54 mL &OC vial for purgingB
Organotin j ample Preparation	ORX05	WATER	In houseB A specifie2 volume of sample is spiFe2 ; ith surrogatewaci2ifie2 an2 vacuum filtere2B Reagents an2 solvent are a22e2 an2 the mixture tumble2B The butyltin compoun2s is 2erivitisate2wextracte2 an2 the subtitution reaction complete2B The extract is transferre2 to a separatory funnel an2 further extracte2 t; o times ; ith petroleum etherB The resultant extracts are combine2 an2 concentrate2 for analysisB

Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 7/03/2025
Date Received: 20/02/2025
Our Reference: MSC25-4
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit			**<3**	**<2**	**<2**	**<5**	**<50**	**<0.1**	**<0.2**	**<1**
Analysis Date			**4/03/2025**	**4/03/2025**	**4/03/2025**	**26/02/2025**	**26/02/2025**	**28/02/2025**	**28/02/2025**	**21/02/2025**
File			**25030401**	**25030401**	**25030401**	**25022601**	**25022601**	**25022801**	**25022801**	**25022101**
IH-Mid	20/02/2025	Marine	7	8	8	25	190	5.5	0.9	3
KB-Bay 1	20/02/2025	Marine	<3	2	3	12	120	1.2	<0.2	1
KB-Bay 2	20/02/2025	Marine	<3	3	<2	18	130	2.4	0.7	2
KB-Bay 3	20/02/2025	Marine	<3	3	2	15	140	1.2	0.2	2
KB-Bay 4	20/02/2025	Marine	<3	3	2	14	120	1.2	0.3	1
KB-Beach	20/02/2025	Marine	<3	4	<2	17	140	2.2	0.7	3
KB-SW 1	20/02/2025	Marine	<3	4	<2	19	160	1.2	0.3	2
KB SW 2	20/02/2025	Marine	<3	3	<2	18	150	3.3	0.7	4
LI-Far	20/02/2025	Marine	<3	3	2	29	220	4.6	1.4	6
LI-Mid	20/02/2025	Marine	<3	4	<2	23	190	4.0	0.9	4
LI-West	20/02/2025	Marine	<3	3	2	22	180	4.1	0.9	5
Duplicate	20/02/2025	Marine	4	3	3	24	200	4.6	0.9	5

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 7/03/2025

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Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 7/03/2025
Date Received: 20/02/2025
Our Reference: MSC25-4
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit			**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date			**25/02/2025**	**25/02/2025**	**25/02/2025**	**25/02/2025**	**25/02/2025**	**25/02/2025**
File			**25022501**	**25022501**	**25022501**	**25022501**	**25022501**	**25022502**
IH-Mid	20/02/2025	Marine	<0.3	1.2	1	<0.1	<0.1	<0.0001
KB-Bay 1	20/02/2025	Marine	<0.3	0.2	1	<0.1	<0.1	<0.0001
KB-Bay 2	20/02/2025	Marine	<0.3	0.4	2	<0.1	<0.1	<0.0001
KB-Bay 3	20/02/2025	Marine	<0.3	0.3	1	<0.1	<0.1	<0.0001
KB-Bay 4	20/02/2025	Marine	<0.3	0.3	2	<0.1	<0.1	<0.0001
KB-Beach	20/02/2025	Marine	<0.3	0.5	2	<0.1	<0.1	<0.0001
KB-SW 1	20/02/2025	Marine	<0.3	0.6	2	<0.1	<0.1	<0.0001
KB SW 2	20/02/2025	Marine	0.3	0.3	2	<0.1	<0.1	<0.0001
LI-Far	20/02/2025	Marine	0.3	1.0	2	<0.1	<0.1	<0.0001
LI-Mid	20/02/2025	Marine	0.3	1.5	2	<0.1	<0.1	<0.0001
LI-West	20/02/2025	Marine	<0.3	0.6	1	<0.1	<0.1	<0.0001
Duplicate	20/02/2025	Marine	<0.3	1.0	3	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 7/03/2025

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CERTIFICATE OF ANALYSIS

Work Order	: **EP2412433**	Page	: 1 of 6
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 20-Qeb-2025 14:05
Order number	: PO-008006	Date Analysis Commenced	: 21-Qeb-2025
C-O-C number	: ----	Issue Date	: 26-Qeb-2025 16:29
Sampler	: ----		
Site	: ----		
F uote number	: EP24MARQRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, F LD

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: WATER / Matrix: WATER			Sample ID	IH-MID	KB-Bay 3	KB-Bay 2	KB-Bay)	KB-Bay (
			Sampling date / time	20-Feb-2025 00:00	20-Feb-2025 00:00	20-Feb-2025 00:00	20-Feb-2025 00:00	20-Feb-2025 00:00
Compound	CAS Number	LOR	Unit	EP2412433-113	EP2412433-112	EP2412433-11)	EP2412433-11(	EP2412433-114
				Result	Result	Result	Result	Result
EP181: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP191: Organotin Compounds (Soluble)								
Tributyltin	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP181S: TPH(V)/BTEX Surrogates								
3.2-Dichloroethane-D(	17060-07-0	2	%	333	332	97.9	317	313
Toluene-D8	2037-26-5	2	%	98.4	9(.7	96.4	99.(	9(.(
(-Bromofluorobenzene	460-00-4	2	%	332	312	331	33)	312
EP191S: Organotin Surrogate								
Tripropyltin	----	5	%	62.4	64.(	6) .4	49.4	91.3

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	KB-Beach	KB-SW3	KB-SW 2	LI-Far	LI-Mid
				Sampling date / time	20-Feb-2025 00:00	20-Feb-2025 00:00	20-Feb-2025 00:00	20-Feb-2025 00:00	20-Feb-2025 00:00
Compound	CAS Number	LOR	Unit		EP2412433-117	EP2412433-116	EP2412433-118	EP2412433-119	EP2412433-131
					Result	Result	Result	Result	Result
EP181: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L		<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP191: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP181S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%		102	103	103	104	98.1
Toluene-D8	2037-26-5	2	%		101	99.6	98.9	98.8	96.4
4-Bromofluorobenzene	460-00-4	2	%		103	103	103	103	101
EP191S: Organotin Surrogate									
Tripropyltin	----	5	%		81.8	82.7	86.7	74.7	78.2

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	LI-West	Duplicate	----	----	----
				Sampling date / time	20-Feb-2025 00:00	20-Feb-2025 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2412433-133	EP2412433-132	--------	--------	--------
					Result	Result	----	----	----
EP181: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ Total Xylenes	----	2	µg/L		<2	<2	----	----	----
^ Sum of BTEX	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP191: Organotin Compounds (Soluble)									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	----	----	----
EP181S: TPH(V)/BTEX Surrogates									
3.2-Dichloroethane-D(	17060-07-0	2	%		103	104	----	----	----
Toluene-D8	2037-26-5	2	%		94.9	96.9	----	----	----
(-Bromofluorobenzene	460-00-4	2	%		102	103	----	----	----
EP191S: Organotin Surrogate									
Tripropyltin	----	5	%		69.1	6(.(	----	----	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP181S: TPH0/5BTEX Surrogates			
3.2-Dichloroethane-D(	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
(-Bromofluorobenzene	460-00-4	60	125
EP191S: Organotin Surrogate			
Tripropyltin	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP2502511**	Page	: 1 of 3
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 20-Feb-2025
Order number	: PO-008006	Date Analysis Commenced	: 21-Feb-2025
C-O-C number	: ----	Issue Date	: 26-Feb-2025
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 6392209)									
EP2502500-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<0.001 mg/L	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<0.005 mg/L	<5	0.0	No Limit
EP2502511-003	KB-Bay 2	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP090: Organotin Compounds (Soluble) (QC Lot: 6398764)									
EP2502511-001	IH-MID	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 6392209)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	93.6	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	104	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	104	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	102	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	107	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	96.9	77.0	118
EP090: Organotin Compounds (Soluble) (QCLot: 6398764)								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	75.0	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 6392209)							
EP2502504-001	Anonymous	EP080: Benzene	71-43-2	20 µg/L	110	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	124	73.5	126
EP090: Organotin Compounds (Soluble) (QCLot: 6398764)							
EP2502511-001	IH-MID	EP090S: Tributyltin	56573-85-4	147 ngSn/L	80.4	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2502511**	Page	: 1 of 5
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Pro3ect	: Mj CS5-1S	Date j amples Receive2	: S4-deb-S4SN
j ite	: ----	Issue Date	: S6-deb-S4SN
j ampler	: ----	. oBof samples receive2	: 1S
Or2er number	: PO-448446	. oBof samples analyse2	: 1S

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

Qrief metho2 summaries an2 references are also provi2e2 to assist in traceabilityB

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagge2 in the (uality Control)(CkReportB

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

(uality Control j ample Type		Count		Rate)Gk		(uality Control j pecification
Analytical Metho2s	Metho2	(C	Regular	Actual	Expecte2	
Laboratory Duplicates)DKPk						
Organotin Compoun2s)j olublek	EP494j	1	1S	8E00	14B44	. EPM S410 Q0 %ALj (C j tan2ar2

Analysis Holding Time Compliance

If samples are i2entifie2 belo; as having been analyse2 or extracte2 outsi2e of recommen2e2 hol2ing timeswthis shoul2 be taFen into consi2eration ; hen interpreting resultsB

This report summariqes extraction 7 preparation an2 analysis times an2 compares each ; ith ALj recommen2e2 hol2ing times)referencing Kj EPA j W 856w APHAw Aj an2 . EPMk base2 on the sample container provi2e2B Dates reporte2 represent first 2ate of extraction or analysis an2 preclu2e subse/ uent 2ilutions an2 rerunsBA listing of breaches)if anykis provi2e2 hereinB

Hol2ing time for leachate metho2s)eBgB TCLPk vary accor2ing to the analytes reporte2B Assessment compares the leach 2ate ; ith the shortest analyte hol2ing time for the e/ uivalent soil metho2B These are: organics 15 2aysw mercury S8 2ays %other metals 184 2aysB A recor2e2 breach 2oes not guarantee a breach for all non-volatile parametersB

Hol2ing times for ***VOC in soils*** vary accor2ing to analytes of interestB Uinyl Chlori2e an2 j tyrene hol2ing time is &2aysV others 15 2aysB A recor2e2 breach 2oes not guarantee a breach for all UOC analytes an2 shoul2 be verifie2 in case the reporte2 breach is a false positive or Uinyl Chlori2e an2 j tyrene are not Fey analytes of interest7concernB

Matrix: **WATER** Evaluation: × , Hol2ing time breach V✓ , Within hol2ing timeE

Method / *Container* / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
IH-MIDw	z Q-Qay 1w	**20-Feb-2025**	**21-Feb-2025**	46-Mar-S4SN	✓	**21-Feb-2025**	46-Mar-S4SN	✓
z Q-Qay Sw	z Q-Qay 0w							
z Q-Qay 5w	z Q-Qeachw							
z Q-j W1w	z Q-j W Sw							
LI-darw	LI-Mi2w							
LI-Westw	Duplicate							
EP090: Organotin Compounds (Soluble)								
Amber Glass Bottle - Unpreserved (EP090S)								
IH-MIDw	z Q-Qay 1w	**20-Feb-2025**	**26-Feb-2025**	S&-deb-S4SN	✓	**26-Feb-2025**	4&-Apr-S4SN	✓
z Q-Qay Sw	z Q-Qay 0w							
z Q-Qay 5w	z Q-Qeachw							
z Q-j W1w	z Q-j W Sw							
LI-darw	LI-Mi2w							
LI-Westw	Duplicate							

Quality Control Parameter Frequency Compliance

The follo; ing report summarises the fre/ uency of laboratory (C samples analyse2 ; ithin the analytical lot)skin ; hich the submitte2 sample)sk; as); erekprocesse2BActual rate shoul2 be greater than or e/ ual to the expecte2 rateBA listing of breaches is provi2e2 in the j ummary of OutliersB

Matrix: **WATER**

Evaluation: × , (uality Control fre/ uency not ; ithin specification V✓ , (uality Control fre/ uency ; ithin specification E

(uality Control j ample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates)DKPk							
Organotin Compoun2s)j olublek	EP494j	1	1S	**8.33**	**10.00**	✗	. EPM S410 Q0 %ALj (C j tan2ar2
TRH Uolatiles7QTE=	EP484	S	S4	**10.00**	**10.00**	✓	. EPM S410 Q0 %ALj (C j tan2ar2
Laboratory Control j amples)LCj k							
Organotin Compoun2s)j olublek	EP494j	1	1S	**8.33**	**5.00**	✓	. EPM S410 Q0 %ALj (C j tan2ar2
TRH Uolatiles7QTE=	EP484	1	S4	**5.00**	**5.00**	✓	. EPM S410 Q0 %ALj (C j tan2ar2
Metho2 QlanFs)MQk							
Organotin Compoun2s)j olublek	EP494j	1	1S	**8.33**	**5.00**	✓	. EPM S410 Q0 %ALj (C j tan2ar2
TRH Uolatiles7QTE=	EP484	1	S4	**5.00**	**5.00**	✓	. EPM S410 Q0 %ALj (C j tan2ar2
Matrix j piFes)Mj k							
Organotin Compoun2s)j olublek	EP494j	1	1S	**8.33**	**5.00**	✓	. EPM S410 Q0 %ALj (C j tan2ar2
TRH Uolatiles7QTE=	EP484	1	S4	**5.00**	**5.00**	✓	. EPM S410 Q0 %ALj (C j tan2ar2

Brief Method Summaries

The analytical proce2ures use2 by the Environmental Division have been 2evelope2 from establishe2 internationally recogniqe2 proce2ures such as those publishe2 by the Kj EPAwAPHAwAj an2 . EPMBIn house 2evelope2 proce2ures are employe2 in the absence of 2ocumente2 stan2ar2s or by client re/ uestBThe follo; ing report provi2es brief 2escriptions of the analytical proce2ures employe2 for results reporte2 in the Certificate of AnalysisBj ources from ; hich ALj metho2s have been 2evelope2 are provi2e2 ; ithin the Metho2 DescriptionsB

Analytical Methods	Method	Matrix	Method Descriptions
TRH Uolatiles7QTE=	EP484	WATER	In house: Reference2 to Kj EPA j W 856 - 8S64 Water samples are 2irectly purge2 prior to analysis by Capillary XC7Mj an2 / uantification is by comparison against an establishe2 N point calibration curveBAlternativelywa sample is e/ uilibrate2 in a hea2space vial an2 a portion of the hea2space 2etermine2 by XCMj analysisB This metho2 is compliant ; ith the (C re/ uirements of . EPM j che2ule Q)0k
Organotin Compoun2s)j olublek	EP494i	WATER	In house: Reference2 to Kj EPA j W 856 - 8S&4 j ample extracts are analyse2 by XC7Mj couple2 ; ith high volume in3ection an2 / uantification is by comparison against an establishe2 N point calibration curveBThis metho2 is compliant ; ith . EPM j che2ule Q)0k

Preparation Methods	Method	Matrix	Method Descriptions
Uolatiles Water Preparation	ORX16-W	WATER	A NmL ali/ uot or NmL of a 2ilute2 sample is a22e2 to a 54 mL UOC vial for purgingB
Organotin j ample Preparation	ORX05	WATER	In houseB A specifie2 volume of sample is spiFe2 ; ith surrogatewaci2ifie2 an2 vacuum filtere2B Reagents an2 solvent are a22e2 an2 the mixture tumble2B The butyltin compoun2s is 2erivitisate2wextracte2 an2 the subtitution reaction complete2B The extract is transferre2 to a separatory funnel an2 further extracte2 t; o times ; ith petroleum etherB The resultant extracts are combine2 an2 concentrate2 for analysisB

[OFFICIAL]

Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 20/03/2025
Date Received: 6/03/2025
Our Reference: MSC25-5
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit			<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date			11/03/2025	11/03/2025	11/03/2025	7/03/2025	7/03/2025	19/03/2025	19/03/2025	11/03/2025
File			25031101	25031101	25031101	25030702	25030702	25031901	25031901	250311
IH-Mid	6/03/2025	Marine	14	8	5	26	190	4.1	1.7	3
KB-Bay 1	6/03/2025	Marine	<3	5	2	18	150	1.8	0.5	2
KB-Bay 2	6/03/2025	Marine	<3	5	3	21	160	1.3	0.4	<1
KB-Bay 3	6/03/2025	Marine	4	4	3	16	130	1.0	0.5	2
KB-Bay 4	6/03/2025	Marine	6	6	<2	21	150	1.4	0.5	3
KB-Beach	6/03/2025	Marine	31	8	<2	28	220	3.0	0.7	4
KB-SW 1	6/03/2025	Marine	<3	5	<2	24	180	4.1	0.7	3
KB SW 2	6/03/2025	Marine	<3	6	<2	16	140	1.6	0.9	2
LI-Far	6/03/2025	Marine	<3	5	<2	42	320	4.8	3.2	8
LI-Mid	6/03/2025	Marine	<3	6	<2	35	270	4.7	2.7	7
LI-West	6/03/2025	Marine	<3	6	<2	27	210	3.9	1.6	6
Duplicate	6/03/2025	Marine	<3	5	<2	24	190	2.0	0.4	2

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 20/03/2025

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[OFFICIAL]

Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 20/03/2025
Date Received: 6/03/2025
Our Reference: MSC25-5
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit			**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date			**11/03/2025**	**11/03/2025**	**11/03/2025**	**11/03/2025**	**11/03/2025**	**11/03/2025**
File			**25031101**	**25031101**	**25031101**	**25031101**	**25031101**	**25031101**
IH-Mid	6/03/2025	Marine	<0.3	0.7	<1	<0.1	<0.1	<0.0001
KB-Bay 1	6/03/2025	Marine	<0.3	<0.2	<1	<0.1	<0.1	<0.0001
KB-Bay 2	6/03/2025	Marine	<0.3	0.2	<1	<0.1	<0.1	<0.0001
KB-Bay 3	6/03/2025	Marine	<0.3	<0.2	<1	<0.1	<0.1	<0.0001
KB-Bay 4	6/03/2025	Marine	<0.3	<0.2	<1	<0.1	<0.1	<0.0001
KB-Beach	6/03/2025	Marine	<0.3	<0.2	<1	<0.1	<0.1	<0.0001
KB-SW 1	6/03/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB SW 2	6/03/2025	Marine	<0.3	0.2	<1	<0.1	<0.1	<0.0001
LI-Far	6/03/2025	Marine	<0.3	0.7	<1	<0.1	<0.1	<0.0001
LI-Mid	6/03/2025	Marine	<0.3	1.0	<1	<0.1	<0.1	<0.0001
LI-West	6/03/2025	Marine	<0.3	0.5	<1	<0.1	<0.1	<0.0001
Duplicate	6/03/2025	Marine	<0.3	0.2	<1	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 20/03/2025

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CERTIFICATE OF ANALYSIS

Work Order	: **EP24133MD**	Page	: 1 of 6
Client	: **HARINE ANB FRESi WATER RESEARCi LAt ORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 06-Mar-2025 14:00
Order number	: PO-008006	Date Analysis Commenced	: 07-Mar-2025
C-O-C number	: ----	Issue Date	: 18-Mar-2025 10:15
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Addrarol fm rl porh farol serarl el a ao awrb resora urmm ge pocl d rl awe pomou rl Q besfrfæ fæfywh el ab: , cf ma/ Col arom Resorav , A., C Coh smfl ye Abbebbh el a ao fbbrba u rav , cf ma/ Re^reu f l d Sfh sra Reyers a Noarpyf arol K

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	k risbane Organics, Stafford, QLD
[redacted]	Senior Chemist - Organics	k risbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: HARINE WATER
5Matrix: WATER8

			Sample ID	li)Hrd	(t)t f/ M	(t)t f/ 2	(t)t f/ 3	(t)t f/ 0
			Sampling date / time	06-Mar-2025 00:00	06-Mar-2025 00:00	06-Mar-2025 00:00	06-Mar-2025 00:00	06-Mar-2025 00:00
Compound	CAS Number	LOR	Unit	EP24133MD)11M	EP24133MD)112	EP24133MD)113	EP24133MD)110	EP24133MD)114
				Result	Result	Result	Result	Result
EP1D1: t TEXN								
t el zel e	71-43-2	1	µg/L	=1	=1	=1	=1	=1
Tomel e	108-88-3	2	µg/L	=2	=2	=2	=2	=2
Eaw/rgel zel e	100-41-4	2	µg/L	=2	=2	=2	=2	=2
h eaf) & sf rf)X/ral e	108-38-3 106-42-3	2	µg/L	=2	=2	=2	=2	=2
orawo)X/ral e	95-47-6	2	µg/L	=2	=2	=2	=2	=2
^ Toaf mX/ral eb	----	2	µg/L	=2	=2	=2	=2	=2
^ Sch opt TEX	----	1	µg/L	=1	=1	=1	=1	=1
Nf swawf ral e	91-20-3	5	µg/L	=5	=5	=5	=5	=5
EP191: OrQf l oal Coh socl db 5Sorngra8								
Trrgca/ ral	56573-85-4	2	ngSn/L	=2	=2	=2	=2	=2
EP1D1S: TPi 5V8t TEX ScrroQf æb								
M2)Bryworoeawf l e)B0	17060-07-0	2	%	MV3	M14	M14	M13	M17
Tomel e)BD	2037-26-5	2	%	97K8	9DK6	96K6	94KM	96K1
0)t roh opnorogel zel e	460-00-4	2	%	M12	M10	M17	M1M	M17
EP191S: OrQf l oal ScrroQf æ								
Trrsros/ ral	----	5	%	96K4	2DK2	29K1	2DK4	47KO

Analytical Results

Sub-Matrix: HARINE WATER
5Matrix: WATER8

			Sample ID	(t)t ef yw	(t)SW M	(t)SW 2	LI)Ff r	LI)H rd
			Sampling date / time	06-Mar-2025 00:00	06-Mar-2025 00:00	06-Mar-2025 00:00	06-Mar-2025 00:00	06-Mar-2025 00:00
Compound	CAS Number	LOR	Unit	EP24133MD)117	EP24133MD)116	EP24133MD)11D	EP24133MD)119	EP24133MD)1Ml
				Result	Result	Result	Result	Result
EP1D1: t TEXN								
t el zel e	71-43-2	1	µg/L	=1	=1	=1	=1	=1
Tomel e	108-88-3	2	µg/L	=2	=2	=2	=2	=2
Eaw/rgel zel e	100-41-4	2	µg/L	=2	=2	=2	=2	=2
h eaf) & sf rf)X/ ral e	108-38-3 106-42-3	2	µg/L	=2	=2	=2	=2	=2
orawo)X/ ral e	95-47-6	2	µg/L	=2	=2	=2	=2	=2
^ Toaf mX/ ral eb	----	2	µg/L	=2	=2	=2	=2	=2
^ Sch opt TEX	----	1	µg/L	=1	=1	=1	=1	=1
Nf swawf ral e	91-20-3	5	µg/L	=5	=5	=5	=5	=5
EP191: OrQf l oal Coh socl db 5Sorngra8								
Trrgca/ ral	56573-85-4	2	ngSn/L	=2	=2	=2	=2	=2
EP1D1S: TPi 5V8t TEX ScrroQf æb								
M2)Bryworoeawf l e)B0	17060-07-0	2	%	Ml 7	Ml 0	Ml M	9DkO	Ml 0
Tomel e)BD	2037-26-5	2	%	96k0	94k6	97k0	99k2	94k4
0)t roh opnorogel zel e	460-00-4	2	%	Ml 2	99k0	Ml 6	Ml 7	Ml M
EP191S: OrQf l oal ScrroQf æ								
Trrsros/ ral	----	5	%	2Dk1	0Dk8	3Dk2	32k8	D0kO

Analytical Results

Sub-Matrix: HARINE WATER
5Matrix: WATER8

			Sample ID	LI)Weba	Bcsmyfæ	))))	))))	))))
			Sampling date / time	06-Mar-2025 00:00	06-Mar-2025 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP24133MD)1MM	EP24133MD)1M2	))))))))	))))))))	))))))))
				Result	Result	----	----	----
EP1D1: t TEXN								
t el zel e	71-43-2	1	µg/L	=1	=1	))))	))))	))))
Tomel e	108-88-3	2	µg/L	=2	=2	))))	))))	))))
Eaw/rgel zel e	100-41-4	2	µg/L	=2	=2	))))	))))	))))
h eaf) & sf rf)X/ral e	108-38-3 106-42-3	2	µg/L	=2	=2	))))	))))	))))
orawo)X/ral e	95-47-6	2	µg/L	=2	=2	))))	))))	))))
^ Toaf mX/ral eb	----	2	µg/L	=2	=2	))))	))))	))))
^ Sch opt TEX	----	1	µg/L	=1	=1	))))	))))	))))
Nf swawf ral e	91-20-3	5	µg/L	=5	=5	))))	))))	))))
EP191: OrQf l oal Coh socl db 5Sorngra8								
Trrgca/ral	56573-85-4	2	ngSn/L	=2	=2	))))	))))	))))
EP1D1S: TPi 5V8t TEX ScrroQf æb								
M2)Brywororoeawf l e)B0	17060-07-0	2	%	99K7	M10	))))	))))	))))
Tomel e)BD	2037-26-5	2	%	90K0	97K0	))))	))))	))))
0)t roh opnorogel zel e	460-00-4	2	%	M11	M14	))))	))))	))))
EP191S: OrQf l oal ScrroQf æ								
Trrsros/ral	----	5	%	34K4	0MK1	))))	))))	))))

Surrogate Control Limits

Sub-Matrix: HARINE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP1D1S: TPi 5V8t TEX ScrroQf æb			
M2)Brywroroeawf l e)B0	17060-07-0	61	141
Tomel e)BD	2037-26-5	73	126
0)t roh opnorogel zel e	460-00-4	60	125
EP191S: OrQf l oal ScrroQf æ			
Trnsros/ ral	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS krisbane, NATA accreditation no. 825, site no. 818 (Chemistry / k iology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP24133MD**	Page	: 1 of 3
Client	: **F ARINE ANS HREB0 WATER REBEARC0 LA8 ORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6140	Address	: 26 Rigali Way Wangara WA Australia 6064
Tele5hone	: [redacted]	Tele5hone	: [redacted]
Project	: MSC28-12	Date Sam5les Received	: 06-Mar-2024
Order number	: PO-007006	Date Analysis Commenced	: 09-Mar-2024
C-O-C number	: ----	Issue Date	: 17-Mar-2024
Sam5ler	: ----		
Site	: ----		
Quote number	: EP28MARFRE0003_V2		
No. of sam5les received	: 12		
No. of sam5les analysed	: 12		

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

This re5ort su5ersedes any 5revious re5ort(s) with this reference. Results a55ly to the sam5le(s) as submitted, unless the sam5ling was conducted by ALS. This document shall not be re5roduced, exce5t in full.

This Quality Control Re5ort contains the following information:

- Laboratory Du5licate (DUP) Re5ort; Relative Percentage Difference (RPD) and Acce5tance Limits
- Method Blank (MB) and Laboratory Control S5ike (LCS) Re5ort; Recovery and Acce5tance Limits
- Matrix S5ike (MS) Re5ort; Recovery and Acce5tance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in com5liance with 5rocedures s5ecified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Su5ervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

The analytical 5rocedures used by ALS have been develo5ed from established internationally recognised 5rocedures such as those 5ublished by the USEPA, APHA, AS and NEPM. In house develo5ed 5rocedures are fully validated and are often at the client re<uest.

Where moisture determination has been 5erformed, results are re5orted on a dry weight basis.

Where a re5orted less than (=) result is higher than the LOR, this may be due to 5rimary sam5le extract/digestate dilution and/or insufficient sam5le for analysis. Where the LOR of a re5orted result differs from standard LOR, this may be due to high moisture content, insufficient sam5le (reduced weight em5loyed) or matrix interference.

q ey : Anonymous # Refers to sam5les which are not s5ecifically 5art of this work order but formed 5art of the QC 5rocess lot
CAS Number # CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR # Limit of re5orting
RPD # Relative Percentage Difference
K # Indicates failed QC

Laboratory Duplicate (DUP) Report

The <uality control term Laboratory Du5licate refers to a randomly selected intralaboratory s5lit. Laboratory du5licates 5rovide information regarding method 5recision and sam5le heterogeneity. The 5ermitted ranges for the Relative Percent Deviation (RPD) of Laboratory Du5licates are s5ecified in ALS Method QWI-EN/37 and are de5endent on the magnitude of results in com5arison to the level of re5orting: Result = 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 40%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP1D1: 8 TEXN (QC Lot: 6) 232) 9g									
EP2403236-001	Anonymous	EP070: Benzene	91-83-2	1	µg/L	=1	=1	0.0	No Limit
		EP070: Toluene	107-77-3	2	µg/L	=2	=2	0.0	No Limit
		EP070: Ethylbenzene	100-81-8	2	µg/L	=2	=2	0.0	No Limit
		EP070: meta- & 5ara-Xylene	107-37-3 106-82-3	2	µg/L	=2	=2	0.0	No Limit
		EP070: ortho-Xylene	+4-89-6	2	µg/L	=2	=2	0.0	No Limit
		EP070: Na5hthalene	+1-20-3	4	µg/L	=4	=4	0.0	No Limit
EP2403317-004	qB-Bay 8	EP070: Benzene	91-83-2	1	µg/L	=1	=1	0.0	No Limit
		EP070: Toluene	107-77-3	2	µg/L	=2	=2	0.0	No Limit
		EP070: Ethylbenzene	100-81-8	2	µg/L	=2	=2	0.0	No Limit
		EP070: meta- & 5ara-Xylene	107-37-3 106-82-3	2	µg/L	=2	=2	0.0	No Limit
		EP070: ortho-Xylene	+4-89-6	2	µg/L	=2	=2	0.0	No Limit
		EP070: Na5hthalene	+1-20-3	4	µg/L	=4	=4	0.0	No Limit
EP191: Orani otin Cop uosi dl (Bobs 5leg (QC Lot: 6) 36249g									
EP2403317-001	IH-Mid	EP0+0S: Tributyltin	46493-74-8	2	ngSn/L	=2	=2	0.0	No Limit

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

The <uality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or 5ro5ortions as used in standard sam5le 5re5aration. The 5ur5ose of this QC 5arameter is to monitor 5otential laboratory contamination. The <uality control term Laboratory Control Sam5le (LCS) refers to a certified reference material, or a known interference free matrix s5iked with target analytes. The 5ur5ose of this QC 5arameter is to monitor method 5recision and accuracy inde5endent of sam5le matrix. Dynamic Recovery Limits are based on statistical evaluation of 5rocessed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP1D1: 8 TEXN (QCLot: 6) 232) 9g								
EP070: Benzene	91-83-2	1	µg/L	=1	20 µg/L	7+.7	78.1	118
EP070: Toluene	107-77-3	2	µg/L	=2	20 µg/L	79.0	71.0	114
EP070: Ethylbenzene	100-81-8	2	µg/L	=2	20 µg/L	79.8	78.8	113
EP070: meta- & 5ara-Xylene	107-37-3 106-82-3	2	µg/L	=2	80 µg/L	76.2	78.3	118
EP070: ortho-Xylene	+4-89-6	2	µg/L	=2	20 µg/L	7+.7	76.4	111
EP070: Na5hthalene	+1-20-3	4	µg/L	=4	4 µg/L	+4.0	99.0	117
EP191: Orani otin Cop uosi dl (Bots 5le g (QCLot: 6) 36249g								
EP0+0S: Tributyltin	46493-74-8	2	ngSn/L	=2	189 ngSn/L	4+.3	30.9	138

Matrix Spike (MS) Report

The <uality control term Matrix S5ike (MS) refers to an intralaboratory s5lit sam5le s5iked with a re5resentative set of target analytes. The 5ur5ose of this QC 5arameter is to monitor 5otential matrix effects on analyte recoveries. Static Recovery Limits as 5er laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sam5le matrix interference.

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP1D1: 8 TEXN (QCLot: 6) 232) 9g							
EP2403236-002	Anonymous	EP070: Benzene	91-83-2	20 µg/L	109	99.0	122
		EP070: Toluene	107-77-3	20 µg/L	109	93.4	126
EP191: Orani otin Cop uosi dl (Bots 5le g (QCLot: 6) 36249g							
EP2403317-001	IH-Mid	EP0+0S: Tributyltin	46493-74-8	189 ngSn/L	+9.4	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2413357**	Page	: 1 of 5
Client	: **0 ARM E AI N DREFS WAHER REFEARCS TAL ORAHORB**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Pro3ect	: Mj CS5-1S	Date j amples Receive2	: 46-Mar-S4Sd
j ite	: ----	Issue Date	: 18-Mar-S4Sd
j ampler	: ----	No. of samples receive2	: 1S
Or2er number	: PO-448446	No. of samples analyse2	: 1S

Hhis report is automatically Yenerated gy the ATF TM F throuYh interpretation obthe ATF Quality Control Report and several Quality Assurance parameters measured gy ATFf Hhis automated reportinY hiYhliYhts any non.conbormances- bacilitates baster and more accurate data validation and is desiYned to assist internal e, pert and e, ternal Auditor reviewf 0 any components obthis report contrigute to the overall NQO assessment and reportinY bor Yuideline compliancef

Brief metho2 summaries an2 references are also provi2e2 to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagge2 in the Quality Control (QC) Report.

- **I O 0 ethod L lank value outliers occurf**
- **I O Nuplicate outliers occurf**
- **I O Tagoratory Control outliers occurf**
- **I O 0 atri, Fpike outliers occurf**
- **Dor all reYular sample matrices- where applicagle to the methodoloYy- I O surroYate recovery outliers occurf**

Outliers : Analysis Holding Time Compliance

- **I O Analysis SoldinY Hime Outliers e, istf**

Outliers : Frequency of Quality Control Samples

- **Quality Control Fample Drexuency Outliers e, ist . please see bollowinY paYes bor bull detailsf**

Outliers : Frequency of Quality Control Samples

Matrix: **WAHER**

Quality Control j ample Type		Count		Rate (G)		Quality Control j pecification
Analytical Metho2s	Metho2	QC	Regular	Actual	Expecte2	
Laboratory Duplicates (DKP)						
Organotin Compoun2s (j oluble)	EP494j	1	16	6.Sd	14.44	NEPM S410 B0 %ALj QC j tan2ar2

Analysis Holding Time Compliance

If samples are i2entifie2 belo; as having been analyse2 or extracte2 outsi2e of recommen2e2 hol2ing timeswthis shoul2 be taken into consi2eration ; hen interpreting results.

This report summariqes extraction 7 preparation an2 analysis times an2 compares each ; ith ALj recommen2e2 hol2ing times (referencing Kj EPA j W 856w APHAw Aj an2 NEPM) base2 on the sample container provi2e2. Dates reporte2 represent first 2ate of extraction or analysis an2 preclu2e subse/ uent 2ilutions an2 reruns. A listing of breaches (if any) is provi2e2 herein.

Hol2ing time for leachate metho2s (e.g. TCLP) vary accor2ing to the analytes reporte2. Assessment compares the leach 2ate ; ith the shortest analyte hol2ing time for the e/ uivalent soil metho2. These are: organics 15 2aysw mercury S8 2ays %other metals 184 2ays. A recor2e2 breach 2oes not guarantee a breach for all non-volatile parameters.

Hol2ing times for ***VOC in soils*** vary accor2ing to analytes of interest. Uinyl Chlori2e an2 j tyrene hol2ing time is &2aysV others 15 2ays. A recor2e2 breach 2oes not guarantee a breach for all UOC analytes an2 shoul2 be verifie2 in case the reporte2 breach is a false positive or Uinyl Chlori2e an2 j tyrene are not key analytes of interest7concern.

Matrix: **WAHER** Evaluation: × , Hol2ing time breach V✓ , Within hol2ing time.

Method / *Container* / Client Sample ID(s)		*Sample Date*	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP171: LHEql								
Amger 8OC 8ial . Fulburic Acid XEP171V								
IH-Mi2w	z B-Bay 1w	**1) .0 ar.2124**	**1(.0 ar.2124**	S4-Mar-S4Sd	✓	**17.0 ar.2124**	S4-Mar-S4Sd	✓
z B-Bay Sw	z B-Bay 0w							
z B-Bay 5w	z B-Beachw							
z B-j W 1w	z B-j W Sw							
LI-Farw	LI-Mi2w							
LI-Westw	Duplicate							
EP191: OrYanotin Compounds XFolugleV								
Amger Glass Lottle . Unpreserved XEP191FV								
IH-Mi2w	z B-Bay 1w	**1) .0 ar.2124**	**53.0 ar.2124**	10-Mar-S4Sd	✓	**56.0 ar.2124**	SS-Apr-S4Sd	✓
z B-Bay Sw	z B-Bay 0w							
z B-Bay 5w	z B-Beachw							
z B-j W 1w	z B-j W Sw							
LI-Farw	LI-Mi2w							
LI-Westw	Duplicate							

Quality Control Parameter Frequency Compliance

The follo; ing report summarises the fre/ uency of laboratory QC samples analyse2 ; ithin the analytical lot(s) in ; hich the submitte2 sample(s) ; as(; ere) processe2. Actual rate shoul2 be greater than or e/ ual to the expecte2 rate. A listing of breaches is provi2e2 in the j ummary of Outliers.

Matrix: **WAHER**

Evaluation: × , Quality Control fre/ uency not ; ithin specification V✓ , Quality Control fre/ uency ; ithin specification.

Quality Control j ample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DKP)							
Organotin Compoun2s (j oluble)	EP494j	1	16	**) f24**	**51f11**	✗	NEPM S410 B0 %ALj QC j tan2ar2
TRH Uolatiles7BTE=	EP484	S	18	**55f55**	**51f11**	✓	NEPM S410 B0 %ALj QC j tan2ar2
Laboratory Control j amples (LCj)							
Organotin Compoun2s (j oluble)	EP494j	1	16	**) f24**	**4f11**	✓	NEPM S410 B0 %ALj QC j tan2ar2
TRH Uolatiles7BTE=	EP484	1	18	**4f4)**	**4f11**	✓	NEPM S410 B0 %ALj QC j tan2ar2
Metho2 Blanks (MB)							
Organotin Compoun2s (j oluble)	EP494j	1	16	**) f24**	**4f11**	✓	NEPM S410 B0 %ALj QC j tan2ar2
TRH Uolatiles7BTE=	EP484	1	18	**4f4)**	**4f11**	✓	NEPM S410 B0 %ALj QC j tan2ar2
Matrix j pikes (Mj)							
Organotin Compoun2s (j oluble)	EP494j	1	16	**) f24**	**4f11**	✓	NEPM S410 B0 %ALj QC j tan2ar2
TRH Uolatiles7BTE=	EP484	1	18	**4f4)**	**4f11**	✓	NEPM S410 B0 %ALj QC j tan2ar2

Brief Method Summaries

The analytical proce2ures use2 by the Environmental Division have been 2evelope2 from establishe2 internationally recogniqe2 proce2ures such as those publishe2 by the Kj EPAwAPHAwAj an2 NEPM. In house 2evelope2 proce2ures are employe2 in the absence of 2ocumente2 stan2ar2s or by client re/ uest. The follo; ing report provi2es brief 2escriptions of the analytical proce2ures employe2 for results reporte2 in the Certificate of Analysis. j ources from ; hich ALj metho2s have been 2evelope2 are provi2e2 ; ithin the Metho2 Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
TRH Uolatiles7BTE=	EP484	WATER	In house: Reference2 to Kj EPA j W 856 - 8S64 Water samples are 2irectly purge2 prior to analysis by Capillary XC7Mj an2 / uantification is by comparison against an establishe2 d point calibration curve. Alternativelywa sample is e/ uilibrate2 in a hea2space vial an2 a portion of the hea2space 2etermine2 by XCMj analysis. This metho2 is compliant ; ith the QC re/ uirements of NEPM j che2ule B(0)
Organotin Compoun2s (j oluble)	EP494i	WATER	In house: Reference2 to Kj EPA j W 856 - 8S&4 j ample extracts are analyse2 by XC7Mj couple2 ; ith high volume in3ection an2 / uantification is by comparison against an establishe2 d point calibration curve. This metho2 is compliant ; ith NEPM j che2ule B(0)

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Uolatiles Water Preparation	ORX16-W	WATER	A d mL ali/ uot or d mL of a 2ilute2 sample is a22e2 to a 54 mL UOC vial for purging.
Organotin j ample Preparation	ORX05	WATER	In house. A specifie2 volume of sample is spike2 ; ith surrogatewaci2ifie2 an2 vacuum filtere2. Reagents an2 solvent are a22e2 an2 the mixture tumble2. The butyltin compoun2s is 2erivitisate2wextracte2 an2 the subtitution reaction complete2. The extract is transferre2 to a separatory funnel an2 further extracte2 t; o times ; ith petroleum ether. The resultant extracts are combine2 an2 concentrate2 for analysis.

Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 2/04/2025
Date Received: 18/03/2025
Our Reference: MSC25-6
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit			<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date			27/03/2025	27/03/2025	27/03/2025	21/03/2025	21/03/2025	27/03/2025	27/03/2025	18/03/2025
File			25032701	25032701	25032701,3101	25032101	25032101	25032702	25032702	25031801
IH-Mid	18/03/2025	Marine	71	13	11	30	230	2.1	0.7	5
KB-Bay 1	18/03/2025	Marine	4	5	<2	22	160	2.7	0.9	3
KB-Bay 2	18/03/2025	Marine	31	6	9	21	160	2.2	0.6	2
KB-Bay 3	18/03/2025	Marine	7	4	3	21	160	2.3	0.7	4
KB-Bay 4	18/03/2025	Marine	18	6	3	20	160	1.8	0.5	2
KB-Beach	18/03/2025	Marine	18	5	<2	21	160	1.8	0.5	5
KB-SW 1	18/03/2025	Marine	<3	4	<2	22	160	3.1	0.8	3
KB SW 2	18/03/2025	Marine	11	7	3	20	160	1.8	0.5	4
LI-Far	18/03/2025	Marine	<3	4	<2	40	290	4.2	1.8	8
LI-Mid	18/03/2025	Marine	<3	4	<2	35	270	4.4	2.0	6
LI-West	18/03/2025	Marine	<3	4	<2	23	170	3.5	0.8	4
Duplicate	18/03/2025	Marine	<3	5	<2	23	170	3.7	1.4	4

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 2/04/2025

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Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 2/04/2025
Date Received: 18/03/2025
Our Reference: MSC25-6
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit			**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date			**27/03/2025**	**27/03/2025**	**27/03/2025**	**27/03/2025**	**27/03/2025**	**2/04/2025**
File			**25032701**	**25032701**	**25032701**	**25032701**	**25032701**	**25040203**
IH-Mid	18/03/2025	Marine	0.3	0.6	2	<0.1	<0.1	<0.0001
KB-Bay 1	18/03/2025	Marine	0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-Bay 2	18/03/2025	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-Bay 3	18/03/2025	Marine	0.4	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 4	18/03/2025	Marine	0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Beach	18/03/2025	Marine	0.4	0.5	<1	<0.1	<0.1	<0.0001
KB-SW 1	18/03/2025	Marine	0.4	0.5	<1	<0.1	<0.1	<0.0001
KB SW 2	18/03/2025	Marine	0.3	0.3	<1	<0.1	<0.1	<0.0001
LI-Far	18/03/2025	Marine	0.3	1.0	1	<0.1	<0.1	<0.0001
LI-Mid	18/03/2025	Marine	0.4	1.2	1	<0.1	<0.1	<0.0001
LI-West	18/03/2025	Marine	0.3	0.7	1	<0.1	<0.1	<0.0001
Duplicate	18/03/2025	Marine	0.3	0.6	1	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 2/04/2025

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CERTIFICATE OF ANALYSIS

Work Order	: **EP24131MB**	Page	: 1 of 6
Client	: **DARINE ANH FRESBWATER RESEARCB LAi ORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 18-Mar-2025 14:30
Order number	: PO-008006	Date Analysis Commenced	: 19-Mar-2025
C-O-C number	: ----	Issue Date	: 27-Mar-2025 12:38
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Addtrtoal f tarrorp l rtoa herrtaean ro rstw rehorn b tff ue rogad ta rse roffob tac wehl rl re l rrl Qsp eanw: y gl ftn Coarrof Rehorn/ y Aw C Cop hftl aQe Awwewwp ean ro l wwtwn b trs y gl ftn Re. teb l ad Sl p hfe ReQethnNortrtQ rtoa ^

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	k risbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: DARINE WATER
0Matrix: WATER5

			Sample ID	IB(Dtd	- i (i l , M	- i (i l , 2	- i (i l ,)	- i (i l , 3
			Sampling date / time	18-Mar-2025 00:00	18-Mar-2025 00:00	18-Mar-2025 00:00	18-Mar-2025 00:00	18-Mar-2025 00:00
Compound	CAS Number	LOR	Unit	EP24131M3(11M	EP24131M3(112	EP24131M3(11)	EP24131M3(113	EP24131M3(114
				Result	Result	Result	Result	Result
EP181: i TEXN								
i eazeae	71-43-2	1	µg/L	=1	=1	=1	=1	=1
Tofgeae	108-88-3	2	µg/L	=2	=2	=2	=2	=2
Ens, fueazeae	100-41-4	2	µg/L	=2	=2	=2	=2	=2
p erl (& hl rl (X, feae	108-38-3 106-42-3	2	µg/L	=2	=2	=2	=2	=2
ornso(X, feae	95-47-6	2	µg/L	=2	=2	=2	=2	=2
^ Torl f X, feaew	----	2	µg/L	=2	=2	=2	=2	=2
^ Sgp orri TEX	----	1	µg/L	=1	=1	=1	=1	=1
Nl hsrsl feae	91-20-3	5	µg/L	=5	=5	=5	=5	=5
EP191: Orcl aorta Cop hogadw0Sofgufe5								
Trtugn frta	56573-85-4	2	ngSn/L	=2	=2	=2	=2	=2
EP181S: TPB0V5i TEX Sgrrocl rew								
M2(HtQsforoersl ae(H3	17060-07-0	2	%	94'7	MV6	MV7	M19	M17
Tofgeae(H8	2037-26-5	2	%	9) ^1	96'4	M14	91'7	91'9
3(i rop orfgoroueazeae	460-00-4	2	%	M12	M14	MV8	M12	M1M
EP191S: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	77'7	46'8	81'4	71'6	86'2

Analytical Results

Sub-Matrix: DARINE WATER 0Matrix: WATER5			Sample ID	- i (i el Qs	- i (SW M	- i (SW 2	LI(FI r	LI(D td
			Sampling date / time	18-Mar-2025 00:00	18-Mar-2025 00:00	18-Mar-2025 00:00	18-Mar-2025 00:00	18-Mar-2025 00:00
Compound	CAS Number	LOR	Unit	EP24131M3(116	EP24131M3(117	EP24131M3(118	EP24131M3(119	EP24131M3(1MI
				Result	Result	Result	Result	Result
EP181: i TEXN								
i eazeae	71-43-2	1	µg/L	=1	=1	=1	=1	=1
Tofgeae	108-88-3	2	µg/L	=2	=2	=2	=2	=2
Ens, fueazeae	100-41-4	2	µg/L	=2	=2	=2	=2	=2
p erl (& hl rl (X, feae	108-38-3 106-42-3	2	µg/L	=2	=2	=2	=2	=2
ornso(X, feae	95-47-6	2	µg/L	=2	=2	=2	=2	=2
^ Torl f X, feaew	----	2	µg/L	=2	=2	=2	=2	=2
^ Sgp orri TEX	----	1	µg/L	=1	=1	=1	=1	=1
NI hsrsl feae	91-20-3	5	µg/L	=5	=5	=5	=5	=5
EP191: Orcl aorta Cop hogadw0Sofgufe5								
Trtugn frta	56573-85-4	2	ngSn/L	=2	=2	=2	=2	=2
EP181S: TPB0V5i TEX Sgrrocl rew								
M2(HtQsforoersl ae(H3	17060-07-0	2	%	MM2	MI3	MI8	MI8	93^)
Tofgeae(H8	2037-26-5	2	%	MI4	99^2	9M^7	9) ^4	9) ^8
3(i rop orfgoroueazeae	460-00-4	2	%	MMI	MI3	97^6	MIM	97^7
EP191S: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	7M^4	73^1	6) ^8	62^6	6M)

Analytical Results

Sub-Matrix: DARINE WATER 0Matrix: WATER5			Sample ID	LI(Wewn	HghftQl re	((((	((((	((((
			Sampling date / time	18-Mar-2025 00:00	18-Mar-2025 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP24131M3(1MM	EP24131M3(1M2	((((((((	(((((((	(((((((
				Result	Result	----	----	----
EP181: i TEXN								
i eazeae	71-43-2	1	µg/L	=1	=1	((((	((((	((((
Tofgeae	108-88-3	2	µg/L	=2	=2	((((	((((	((((
Ens, fueazeae	100-41-4	2	µg/L	=2	=2	((((	((((	((((
p erl (& hl rl (X, feae	108-38-3 106-42-3	2	µg/L	=2	=2	((((	((((	((((
ornso(X, feae	95-47-6	2	µg/L	=2	=2	((((	((((	((((
^ Torl f X, feaew	----	2	µg/L	=2	=2	((((	((((	((((
^ Sgp orri TEX	----	1	µg/L	=1	=1	((((	((((	((((
Nl hsnsl feae	91-20-3	5	µg/L	=5	=5	((((	((((	((((
EP191: Orcl aorta Cop hogadw0Sofgufe5								
Trtugn frta	56573-85-4	2	ngSn/L	=2	=2	((((	((((	((((
EP181S: TPB0V5i TEX Sgrrocl rew								
M2(HtQsforoensl ae(H3	17060-07-0	2	%	Ml6	Ml9	((((	((((	((((
Tofgeae(H8	2037-26-5	2	%	947	9) 7	((((	((((	((((
3(i rop orfgoroueazeae	460-00-4	2	%	99^)	967	((((	((((	((((
EP191S: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	794	764	((((	((((	((((

Surrogate Control Limits

Sub-Matrix: DARINE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP181S: TPB0V5i TEX Sgrrocl rew			
M2(HtQsforoensl ae(H3	17060-07-0	61	141
Tofgeae(H8	2037-26-5	73	126
3(i rop onfgoroueazeae	460-00-4	60	125
EP191S: Orcl aorta Sgrrocl re			
Trthroh, frta	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS krisbane, NATA accreditation no. 825, site no. 818 (Chemistry / kiology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: EP24131MB	Page	: 1 of 3
Client	: DARINE ANF SREHBWATER REHEARCB LA0 ORATORY	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 18-Mar-2025
Order number	: PO-008006	Date Analysis Commenced	: 19-Mar-2025
C-O-C number	: ----	Issue Date	: 27-Mar-2025
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

q ey : Anonymous # Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number # CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR # Limit of reporting
RPD # Relative Percentage Difference
K # Indicates failed QC

Laboratory Duplicate (DUP) Report

The <uality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result = 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP181: 0 TEXN (QC Lot: 6338))) 9									
EP2504014-001	IH-Mid	EP080: Benzene	71-43-2	1	µg/L	=1	=1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	=2	=2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	=2	=2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	=2	=2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	=2	=2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	=5	=5	0.0	No Limit
EP2504014-011	LI-West	EP080: Benzene	71-43-2	1	µg/L	=1	=1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	=2	=2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	=2	=2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	=2	=2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	=2	=2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	=5	=5	0.0	No Limit
EP1g1: Orani otrn Cop uosi dl (Hobs 5le9 (QC Lot: 6361) 4g9									
EP2504014-001	IH-Mid	EP090S: Tributyltin	56573-85-4	2	ngSn/L	=2	=2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP181: 0 TEXN (QCLot: 6338))) 9								
EP080: Benzene	71-43-2	1	µg/L	=1	20 µg/L	95.5	84.1	114
EP080: Toluene	108-88-3	2	µg/L	=2	20 µg/L	96.5	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	=2	20 µg/L	97.1	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	=2	40 µg/L	95.6	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	=2	20 µg/L	98.0	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	=5	5 µg/L	104	77.0	118
EP1g1: Orani otrn Cop uosi dl (Hots 5le9 (QCLot: 6361) 4g9								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	=2	147 ngSn/L	90.7	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP181: 0 TEXN (QCLot: 6338))) 9							
EP2504014-002	qB-Bay 1	EP080: Benzene	71-43-2	20 µg/L	98.7	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	107	73.5	126
EP1g1: Orani otrn Cop uosi dl (Hots 5le9 (QCLot: 6361) 4g9							
EP2504014-001	IH-Mid	EP090S: Tributyltin	56573-85-4	147 ngSn/L	90.9	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2504014**	Page	: 1 of 5
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Pro3ect	: Mj CS5-1S	Date j amples Receive2	: 18-Mar-S4Sd
j ite	: ----	Issue Date	: SN-Mar-S4Sd
j ampler	: ----	. oBof samples receive2	: 1S
Or2er number	: PO-448446	. oBof samples analyse2	: 1S

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

Qrief metho2 summaries an2 references are also provi2e2 to assist in traceabilityB

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagge2 in the (uality Control)(CkReportB

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Frequency of Quality Control Samples

MatriQ: **WATER**

(uality Control j ample Type		Count		Rate)K k		(uality Control j pecification
Analytical Metho2s	Metho2	(C	Regular	Actual	EQpecte2	
Laboratory Duplicates)D%Pk						
Organotin Compoun2s)j olublek	EP494j	1	19	d556	14B44	. EPM S410 Q0 U ALj (C j tan2ar2

Analysis Holding Time Compliance

If samples are i2entifie2 belo; as having been analyse2 or eGracte2 outsi2e of recommen2e2 hol2ing timeswthis shoul2 be taFen into consi2eration ; hen interpreting resultsB

This report summariqes eGraction 7 preparation an2 analysis times an2 compares each ; ith ALj recommen2e2 hol2ing times)referencing %j EPA j W 856w APYAw Aj an2 . EPMk base2 on the sample container provi2e2B Dates reporte2 represent first 2ate of eGraction or analysis an2 preclu2e subse/ uent 2ilutions an2 rerunsBA listing of breaches)if anykis provi2e2 hereinB

Yol2ing time for leachate metho2s)eBgB TCLPk vary accor2ing to the analytes reporte2B Assessment compares the leach 2ate ; ith the shortest analyte hol2ing time for the e/ uivalent soil metho2B These are: organics 15 2aysvmercury S8 2ays U other metals 184 2aysB A recor2e2 breach 2oes not guarantee a breach for all non-volatile parametersB

Yol2ing times for ***VOC in soils*** vary accor2ing to analytes of interestB &inyl Chlori2e an2 j tyrene hol2ing time is N2aysV others 15 2aysB A recor2e2 breach 2oes not guarantee a breach for all &OC analytes an2 shoul2 be verifie2 in case the reporte2 breach is a false positive or &inyl Chlori2e an2 j tyrene are not Fey analytes of interest7concernB

MatriQ: **WATER** Evaluation: × , Yol2ing time breach V✓ , Within hol2ing timeE

Method / *Container* / Client Sample ID(s)		*Sample Date*	*Extraction / Preparation*			*Analysis*		
			Date extracted	Due for extraction	Evaluation	*Date analysed*	Due for analysis	Evaluation
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
IY-Mi2w	z Q-Qay 1w	**18-Mar-2025**	**19-Mar-2025**	41-Apr-S4Sd	✓	**19-Mar-2025**	41-Apr-S4Sd	✓
z Q-Qay Sw	z Q-Qay 0w							
z Q-Qay 5w	z Q-Qeachw							
z Q-j W 1w	z Q-j W Sw							
LI-Harw	LI-Mi2w							
LI-Westw	Duplicate							
EP090: Organotin Compounds (Soluble)								
Amber Glass Bottle - Unpreserved (EP090S)								
IY-Mi2w	z Q-Qay 1w	**18-Mar-2025**	**25-Mar-2025**	Sd-Mar-S4Sd	✓	**26-Mar-2025**	45-May-S4Sd	✓
z Q-Qay Sw	z Q-Qay 0w							
z Q-Qay 5w	z Q-Qeachw							
z Q-j W 1w	z Q-j W Sw							
LI-Harw	LI-Mi2w							
LI-West								
Amber Glass Bottle - Unpreserved (EP090S)								
Duplicate		**18-Mar-2025**	**25-Mar-2025**	Sd-Mar-S4Sd	✓	**27-Mar-2025**	45-May-S4Sd	✓

Quality Control Parameter Frequency Compliance

The follo; ing report summarises the fre/ uency of laboratory (C samples analyse2 ; ithin the analytical lot)skin ; hich the submitte2 sample)sk; as); erekprocesse2BActual rate shoul2 be greater than or e/ ual to the eQpecte2 rateBA listing of breaches is provi2e2 in the j ummary of OutliersB

MatriG: **WATER** Evaluation: ×, (uality Control fre/ uency not ; ithin specification V✓, (uality Control fre/ uency ; ithin specification E

(uality Control j ample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates)D%Pk							
Organotin Compoun2s)j olublek	EP494j	1	19	**5.26**	**10.00**	✗	. EPM S410 Q0 U ALj (C j tan2ar2
TRY &olatiles7QTE=	EP484	S	1d	**13.33**	**10.00**	✓	. EPM S410 Q0 U ALj (C j tan2ar2
Laboratory Control j amples)LCj k							
Organotin Compoun2s)j olublek	EP494j	1	19	**5.26**	**5.00**	✓	. EPM S410 Q0 U ALj (C j tan2ar2
TRY &olatiles7QTE=	EP484	1	1d	**6.67**	**5.00**	✓	. EPM S410 Q0 U ALj (C j tan2ar2
Metho2 QlanFs)MQk							
Organotin Compoun2s)j olublek	EP494j	1	19	**5.26**	**5.00**	✓	. EPM S410 Q0 U ALj (C j tan2ar2
TRY &olatiles7QTE=	EP484	1	1d	**6.67**	**5.00**	✓	. EPM S410 Q0 U ALj (C j tan2ar2
MatriGj piFes)Mj k							
Organotin Compoun2s)j olublek	EP494j	1	19	**5.26**	**5.00**	✓	. EPM S410 Q0 U ALj (C j tan2ar2
TRY &olatiles7QTE=	EP484	1	1d	**6.67**	**5.00**	✓	. EPM S410 Q0 U ALj (C j tan2ar2

Brief Method Summaries

The analytical proce2ures use2 by the Environmental Division have been 2evelope2 from establishe2 internationally recogniqe2 proce2ures such as those publishe2 by the %j EPAwAPYAwAj an2 . EPMBIn house 2evelope2 proce2ures are employe2 in the absence of 2ocumente2 stan2ar2s or by client re/ uestBThe follo; ing report provi2es brief 2escriptions of the analytical proce2ures employe2 for results reporte2 in the Certificate of AnalysisBj ources from ; hich ALj metho2s have been 2evelope2 are provi2e2 ; ithin the Metho2 DescriptionsB

Analytical Methods	Method	Matrix	Method Descriptions
TRY &olatiles7QTE=	EP484	WATER	In house: Reference2 to %j EPA j W 856 - 8S64 Water samples are 2irectly purge2 prior to analysis by Capillary XC7Mj an2 / uantification is by comparison against an establishe2 d point calibration curveBAlternativelywa sample is e/ uilibrate2 in a hea2space vial an2 a portion of the hea2space 2etermine2 by XCMj analysisB This metho2 is compliant ; ith the (C re/ uirements of . EPM j che2ule Q)0k
Organotin Compoun2s)j olublek	EP494i	WATER	In house: Reference2 to %j EPA j W 856 - 8SN4 j ample eGracts are analyse2 by XC7Mj couple2 ; ith high volume in3ection an2 / uantification is by comparison against an establishe2 d point calibration curveBThis metho2 is compliant ; ith . EPM j che2ule Q)0k

Preparation Methods	Method	Matrix	Method Descriptions
&olatiles Water Preparation	ORX16-W	WATER	A d mL ali/ uot or d mL of a 2ilute2 sample is a22e2 to a 54 mL &OC vial for purgingB
Organotin j ample Preparation	ORX05	WATER	In houseB A specifie2 volume of sample is spiFe2 ; ith surrogatewaci2ifie2 an2 vacuum filtere2B Reagents an2 solvent are a22e2 an2 the miGture tumble2B The butyltin compoun2s is 2erivitisate2weGtracte2 an2 the subtitution reaction complete2B The eGtract is transferre2 to a separatory funnel an2 further eGtracte2 t; o times ; ith petroleum etherB The resultant eGtracts are combine2 an2 concentrate2 for analysisB

Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 16/04/2025
Date Received: 1/04/2025
Our Reference: MSC25-7
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit			<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date			8/04/2025	8/04/2025	8/04/2025	9/04/2025	9/04/2025	3/04/2025	3/04/2025	3/04/2025
File			25040801	25040801	25040801	25040901	25040901	25040301	25040301	25040302
IH-Mid	1/04/2025	Marine	18	6	3	24	190	5.4	0.5	3
KB-Bay 1	1/04/2025	Marine	<3	4	<2	16	140	1.3	0.2	1
KB-Bay 2	1/04/2025	Marine	<3	4	2	15	120	1.0	0.2	<1
KB-Bay 3	1/04/2025	Marine	<3	4	<2	14	130	1.1	0.2	1
KB-Bay 4	1/04/2025	Marine	<3	3	5	14	120	1.1	<0.2	<1
KB-Beach	1/04/2025	Marine	<3	6	<2	20	150	3.3	0.3	2
KB-SW 1	1/04/2025	Marine	<3	6	<2	23	190	2.5	0.5	3
KB SW 2	1/04/2025	Marine	<3	4	<2	21	140	1.4	0.2	2
LI-Far	1/04/2025	Marine	<3	3	<2	38	290	7.7	1.8	8
LI-Mid	1/04/2025	Marine	<3	3	<2	28	220	5.4	1.2	4
LI-West	1/04/2025	Marine	<3	5	<2	21	160	2.3	0.9	4
Duplicate	1/04/2025	Marine	<3	5	<2	20	180	3.3	0.4	2

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 16/04/2025

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Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 16/04/2025
Date Received: 1/04/2025
Our Reference: MSC25-7
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit			**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date			**9/04/2025**	**9/04/2025**	**9/04/2025**	**9/04/2025**	**9/04/2025**	**3/04/2025**
File			**25040901**	**25040901**	**25040901**	**25040901**	**25040901**	**25040301**
IH-Mid	1/04/2025	Marine	<0.3	0.9	1	<0.1	<0.1	<0.0001
KB-Bay 1	1/04/2025	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-Bay 2	1/04/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 3	1/04/2025	Marine	0.3	0.4	1	<0.1	<0.1	<0.0001
KB-Bay 4	1/04/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Beach	1/04/2025	Marine	<0.3	0.7	1	<0.1	<0.1	<0.0001
KB-SW 1	1/04/2025	Marine	0.3	0.6	1	<0.1	<0.1	<0.0001
KB SW 2	1/04/2025	Marine	0.3	0.6	1	<0.1	<0.1	<0.0001
LI-Far	1/04/2025	Marine	0.3	0.9	1	<0.1	<0.1	<0.0001
LI-Mid	1/04/2025	Marine	<0.3	1.1	1	<0.1	<0.1	<0.0001
LI-West	1/04/2025	Marine	<0.3	0.6	1	0.1	<0.1	<0.0001
Duplicate	1/04/2025	Marine	<0.3	0.8	1	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 16/04/2025

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CERTIFICATE OF ANALYSIS

Work Order	: **EP2413M14**	Page	: 1 of 6
Client	: **DARINE ANH FRESBWATER RESEARCB LAi ORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 01-Apr-2025 14:05
Order number	: PO-008006	Date Analysis Commenced	: 02-Apr-2025
C-O-C number	: ----	Issue Date	: 09-Apr-2025 09:03
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Addtrtoal f tarorp lrtoa herrtaean ro rstw rehorn btff ue rogad ta rse roffobtac wehlrlre lrrlQsp eanw: y gl ftn Coarrof Rehorn/ y Aw C Cop hftlaQe Awwewwp ean ro lwwtwn btns y gl ftn Re. teb lad Sl p hfe ReQethnNortrtQ rtoa^

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	krisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: WATER
5Matrix: WATER8

			Sample ID	IB(Dtd	- i (i l , 0	- i (i l , 2	- i (i l ,)	- i (i l , 3
			Sampling date / time	01-Apr-2025 00:00	01-Apr-2025 00:00	01-Apr-2025 00:00	01-Apr-2025 00:00	01-Apr-2025 00:00
Compound	CAS Number	LOR	Unit	EP2413Ml4(110	EP2413Ml4(112	EP2413Ml4(11)	EP2413Ml4(113	EP2413Ml4(114
				Result	Result	Result	Result	Result
EP1X1: i TEz N								
i ea&eae	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Tofgeae	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ens, fuea&eae	100-41-4	2	µg/L	<2	<2	<2	<2	<2
p erl (9 hl rl (z , feae	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ornso(z , feae	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Torl f z , feaew	----	2	µg/L	<2	<2	<2	<2	<2
^ Sgp orri TEz	----	1	µg/L	<1	<1	<1	<1	<1
Nl hsrnsl feae	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP1Ml: Orcl aorta Cop hogadw5Sofgufe8								
Trtugn frta	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP1X1S: TPB5V8i TEz Sgrrocl rew								
0^2(HtQsforoensl ae(H3	17060-07-0	2	%	017	000	014	000	01M
Tofgeae(HX	2037-26-5	2	%	Mj ^)	M4^6	Mj ^0	M2^3	Mj ^6
3(i rop orfgorouea&eae	460-00-4	2	%	013	016	MK^X	013	013
EP1MlS: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	7X^X	61^7	6M^X	7MM	63^X

Analytical Results

Sub-Matrix: WATER
5Matrix: WATER8

Compound	CAS Number	LOR	Unit	Sample ID	- i (i el Qs	- i (SW 0	- i SW 2	Lf(Fl r	Lf(D td
				Sampling date / time	01-Apr-2025 00:00	01-Apr-2025 00:00	01-Apr-2025 00:00	01-Apr-2025 00:00	01-Apr-2025 00:00
					EP2413Ml4(117	EP2413Ml4(116	EP2413Ml4(11X	EP2413Ml4(11M	EP2413Ml4(101
					Result	Result	Result	Result	Result
EP1X1: i TEz N									
i ea&eae	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Tofgeae	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ens, fuea&eae	100-41-4	2	µg/L		<2	<2	<2	<2	<2
p erl (9 hl rl (z , feae	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ornso(z , feae	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Torl f z , feaew	----	2	µg/L		<2	<2	<2	<2	<2
^ Sgp orri TEz	----	1	µg/L		<1	<1	<1	<1	<1
Nl hsrnsl feae	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP1Ml: Orcl aorta Cop hogadw5Sofgufe8									
Trtugn frta	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP1X1S: TPB5V8i TEz Sgrrocl rew									
0^2(HtQsforoensl ae(H3	17060-07-0	2	%		001	016	017	002	012
Tofgeae(HX	2037-26-5	2	%		Ml^0	Mj ^1	XX^6	Mj ^2	XM^1
3(i rop orfgorouea&eae	460-00-4	2	%		MM^M	010	MM^1	011	M6^1
EP1MlS: Orcl aorta Sgrrocl re									
Trthroh, frta	----	5	%		72^)	64^1	64^7	X1^2	76^2

Analytical Results

Sub-Matrix: WATER 5Matrix: WATER8			Sample ID	Lf(Wewn	HghftQl re	((((	((((	((((
			Sampling date / time	01-Apr-2025 00:00	01-Apr-2025 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP2413M14(100	EP2413M14(102	((((((((	((((((((	((((((((
				Result	Result	----	----	----
EP1X1: i TEz N								
i ea&eae	71-43-2	1	µg/L	<1	<1	((((	((((	((((
Tofgeae	108-88-3	2	µg/L	<2	<2	((((	((((	((((
Ens, fuea&eae	100-41-4	2	µg/L	<2	<2	((((	((((	((((
p erl (9 hl rl (z, feae	108-38-3 106-42-3	2	µg/L	<2	<2	((((	((((	((((
ornso(z, feae	95-47-6	2	µg/L	<2	<2	((((	((((	((((
^ Torl f z, feaew	----	2	µg/L	<2	<2	((((	((((	((((
^ Sgp orri TEz	----	1	µg/L	<1	<1	((((	((((	((((
Nl hsrnsl feae	91-20-3	5	µg/L	<5	<5	((((	((((	((((
EP1M1: Orcl aorta Cop hogadw5Sofgufe8								
Trtugn frta	56573-85-4	2	ngSn/L	<2	<2	((((	((((	((((
EP1X1S: TPB5V8i TEz Sgrrocl rew								
0^2(HtQsforoensl ae(H3	17060-07-0	2	%	002	00)	((((	((((	((((
Tofgeae(HX	2037-26-5	2	%	M1^M	M8^7	((((	((((	((((
3(i rop orfgorouea&eae	460-00-4	2	%	01)	012	((((	((((	((((
EP1M1S: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	X4^3	X7^)	((((	((((	((((

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP1X1S: TPB5V8i TEz Sgrrocl rew			
0'2(HtQsforoensl ae(H3	17060-07-0	61	141
Tofgeae(HX	2037-26-5	73	126
3(i rop onfgorouea&eae	460-00-4	60	125
EP1MIS: Orcl aorta Sgrrocl re			
Trthroh, frta	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS krisbane, NATA accreditation no. 825, site no. 818 (Chemistry / kiology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP2504905**	Page	: 1 of 3
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 01-Apr-2025
Order number	: PO-008006	Date Analysis Commenced	: 02-Apr-2025
C-O-C number	: ----	Issue Date	: 09-Apr-2025
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 6480926)									
EP2504899-022	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2504905-010	LI-Mid	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP090: Organotin Compounds (Soluble) (QC Lot: 6490130)									
EP2504905-001	IH-Mid	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 6480926)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	104	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	95.9	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	97.5	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	99.7	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	102	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	99.2	77.0	118
EP090: Organotin Compounds (Soluble) (QCLot: 6490130)								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	87.3	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 6480926)							
EP2504905-001	IH-Mid	EP080: Benzene	71-43-2	20 µg/L	114	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	117	73.5	126
EP090: Organotin Compounds (Soluble) (QCLot: 6490130)							
EP2504905-001	IH-Mid	EP090S: Tributyltin	56573-85-4	147 ngSn/L	91.8	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2413514**	Page	: 1 of 5
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Project	: Mj CS5-1S	Date j amples Receive2	: 41-Apr-S4Sd
j ite	: ----	Issue Date	: 49-Apr-S4Sd
j ampler	: ----	No. of samples receive2	: 1S
Or2er number	: PO-448446	No. of samples analyse2	: 1S

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

Brief metho2 summaries an2 references are also provi2e2 to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagge2 in the Quality Control (QC) Report.

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control j ample Type		Count		Rate (G)		Quality Control j pecification
Analytical Metho2s	Metho2	QC	Regular	Actual	Expecte2	
Laboratory Duplicates (DKP)						
Organotin Compoun2s (j oluble)	EP494j	1	1S	8.00	14.44	NEPM S410 B0 %ALj QC j tan2ar2

Analysis Holding Time Compliance

If samples are i2entifie2 belo; as having been analyse2 or extracte2 outsi2e of recommen2e2 hol2ing timeswthis shoul2 be taken into consi2eration ; hen interpreting results.

This report summariqes extraction 7 preparation an2 analysis times an2 compares each ; ith ALj recommen2e2 hol2ing times (referencing Kj EPA j W 856w APHAw Aj an2 NEPM) base2 on the sample container provi2e2. Dates reporte2 represent first 2ate of extraction or analysis an2 preclu2e subse/ uent 2ilutions an2 reruns. A listing of breaches (if any) is provi2e2 herein.

Hol2ing time for leachate metho2s (e.g. TCLP) vary accor2ing to the analytes reporte2. Assessment compares the leach 2ate ; ith the shortest analyte hol2ing time for the e/ uivalent soil metho2. These are: organics 15 2aysw mercury S8 2ays %other metals 184 2ays. A recor2e2 breach 2oes not guarantee a breach for all non-volatile parameters.

Hol2ing times for ***VOC in soils*** vary accor2ing to analytes of interest. Uinyl Chlori2e an2 j tyrene hol2ing time is &2aysV others 15 2ays. A recor2e2 breach 2oes not guarantee a breach for all UOC analytes an2 shoul2 be verifie2 in case the reporte2 breach is a false positive or Uinyl Chlori2e an2 j tyrene are not key analytes of interest7concern.

Matrix: **WATER** Evaluation: × , Hol2ing time breach V✓ , Within hol2ing time.

Method / *Container* / Client Sample ID(s)		*Sample Date*	*Extraction / Preparation*			*Analysis*		
			Date extracted	Due for extraction	Evaluation	*Date analysed*	Due for analysis	Evaluation
EP101: BTE8N								
Amber XOC Xial - Sulfuric Acid \EP101(								
IH-Mi2w	z B-Bay 1w	**19-Apr-2124**	**12-Apr-2124**	1d-Apr-S4Sd	✓	**1) -Apr-2124**	1d-Apr-S4Sd	✓
z B-Bay Sw	z B-Bay 0w							
z B-Bay 5w	z B-Beachw							
z B-j W 1w	z B j W Sw							
LI-Farw	LI-Mi2w							
LI-Westw	Duplicate							
EP151: Organotin Compounds \Soluble(								
Amber Glass Bottle - Unpreserved \EP151S(								
IH-Mi2w	z B-Bay 1w	**19-Apr-2124**	**16-Apr-2124**	48-Apr-S4Sd	✓	**10-Apr-2124**	1&-May-S4Sd	✓
z B-Bay Sw	z B-Bay 0w							
z B-Bay 5w	z B-Beachw							
z B-j W 1w	z B j W Sw							
LI-Farw	LI-Mi2w							
LI-Westw	Duplicate							

Quality Control Parameter Frequency Compliance

The follo; ing report summarises the fre/ uency of laboratory QC samples analyse2 ; ithin the analytical lot(s) in ; hich the submitte2 sample(s) ; as(; ere) processe2. Actual rate shoul2 be greater than or e/ ual to the expecte2 rate. A listing of breaches is provi2e2 in the j ummary of Outliers.

Matrix: **WATER**

Evaluation: ×, Quality Control fre/ uency not ; ithin specification V✓, Quality Control fre/ uency ; ithin specification.

Quality Control j ample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DKP)							
Organotin Compoun2s (j oluble)	EP494j	1	1S	**0.))**	**91.11**	✗	NEPM S410 B0 %ALj QC j tan2ar2
TRH Uolatiles7BTE=	EP484	S	10	**94.) 0**	**91.11**	✓	NEPM S410 B0 %ALj QC j tan2ar2
Laboratory Control j amples (LCj)							
Organotin Compoun2s (j oluble)	EP494j	1	1S	**0.))**	**4.11**	✓	NEPM S410 B0 %ALj QC j tan2ar2
TRH Uolatiles7BTE=	EP484	1	10	**6.75**	**4.11**	✓	NEPM S410 B0 %ALj QC j tan2ar2
Metho2 Blanks (MB)							
Organotin Compoun2s (j oluble)	EP494j	1	1S	**0.))**	**4.11**	✓	NEPM S410 B0 %ALj QC j tan2ar2
TRH Uolatiles7BTE=	EP484	1	10	**6.75**	**4.11**	✓	NEPM S410 B0 %ALj QC j tan2ar2
Matrix j pikes (Mj)							
Organotin Compoun2s (j oluble)	EP494j	1	1S	**0.))**	**4.11**	✓	NEPM S410 B0 %ALj QC j tan2ar2
TRH Uolatiles7BTE=	EP484	1	10	**6.75**	**4.11**	✓	NEPM S410 B0 %ALj QC j tan2ar2

Brief Method Summaries

The analytical proce2ures use2 by the Environmental Division have been 2evelope2 from establishe2 internationally recogniqe2 proce2ures such as those publishe2 by the Kj EPAwAPHAwAj an2 NEPM. In house 2evelope2 proce2ures are employe2 in the absence of 2ocumente2 stan2ar2s or by client re/ uest. The follo; ing report provi2es brief 2escriptions of the analytical proce2ures employe2 for results reporte2 in the Certificate of Analysis. j ources from ; hich ALj metho2s have been 2evelope2 are provi2e2 ; ithin the Metho2 Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
TRH Uolatiles7BTE=	EP484	WATER	In house: Reference2 to Kj EPA j W 856 - 8S64 Water samples are 2irectly purge2 prior to analysis by Capillary XC7Mj an2 / uantification is by comparison against an establishe2 d point calibration curve. Alternativelywa sample is e/ uilibrate2 in a hea2space vial an2 a portion of the hea2space 2etermine2 by XCMj analysis. This metho2 is compliant ; ith the QC re/ uirements of NEPM j che2ule B(0)
Organotin Compoun2s (j oluble)	EP494i	WATER	In house: Reference2 to Kj EPA j W 856 - 8S&4 j ample extracts are analyse2 by XC7Mj couple2 ; ith high volume in3ection an2 / uantification is by comparison against an establishe2 d point calibration curve. This metho2 is compliant ; ith NEPM j che2ule B(0)

Preparation Methods	Method	Matrix	Method Descriptions
Uolatiles Water Preparation	ORX16-W	WATER	A d mL ali/ uot or d mL of a 2ilute2 sample is a22e2 to a 54 mL UOC vial for purging.
Organotin j ample Preparation	ORX05	WATER	In house. A specifie2 volume of sample is spike2 ; ith surrogatewaci2ifie2 an2 vacuum filtere2. Reagents an2 solvent are a22e2 an2 the mixture tumble2. The butyltin compoun2s is 2erivitisate2wextracte2 an2 the subtitution reaction complete2. The extract is transferre2 to a separatory funnel an2 further extracte2 t; o times ; ith petroleum ether. The resultant extracts are combine2 an2 concentrate2 for analysis.

Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

NATA Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 2/05/2025
Date Received: 16/04/2025
Our Reference: MSC25-8
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit			<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date			2/05/2025	2/05/2025	2/05/2025	24/04/2025	24/04/2025	24/04/2025	24/04/2025	17/04/2025
File			25050201	25050201	25050201	25042401	25042401	25042401	25042401	250417
IH-Mid	16/04/2025	Marine	20	7	5	23	220	3.5	1.1	4
KB-Bay 1	16/04/2025	Marine	<3	4	<2	16	120	1.3	0.3	2
KB-Bay 2	16/04/2025	Marine	4	7	6	19	150	2.4	0.8	2
KB-Bay 3	16/04/2025	Marine	<3	6	4	15	130	1.1	0.2	1
KB-Bay 4	16/04/2025	Marine	<3	5	3	18	160	2.1	0.9	4
KB-Beach	16/04/2025	Marine	<3	6	3	21	180	2.9	0.9	3
KB-SW 1	16/04/2025	Marine	<3	6	<2	22	180	1.5	1.2	4
KB SW 2	16/04/2025	Marine	<3	6	<2	20	170	1.5	0.7	3
LI-Far	16/04/2025	Marine	<3	7	<2	37	330	8.0	2.6	13
LI-Mid	16/04/2025	Marine	<3	7	2	34	260	6.0	1.6	7
LI-West	16/04/2025	Marine	<3	5	<2	26	210	3.4	1.1	6
Duplicate	16/04/2025	Marine	<3	6	<2	26	210	3.0	1.1	5

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 2/05/2025

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Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 2/05/2025
Date Received: 16/04/2025
Our Reference: MSC25-8
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit			**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date			**28/04/2025**	**28/04/2025**	**28/04/2025**	**28/04/2025**	**28/04/2025**	**2/05/2025**
File			**25042801**	**25042801**	**25042801**	**25042801**	**25042801**	**25050201**
IH-Mid	16/04/2025	Marine	0.3	0.9	1	<0.1	<0.1	<0.0001
KB-Bay 1	16/04/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 2	16/04/2025	Marine	0.3	0.6	<1	<0.1	<0.1	<0.0001
KB-Bay 3	16/04/2025	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-Bay 4	16/04/2025	Marine	0.3	0.6	<1	<0.1	<0.1	<0.0001
KB-Beach	16/04/2025	Marine	<0.3	0.6	<1	<0.1	<0.1	<0.0001
KB-SW 1	16/04/2025	Marine	0.3	0.4	1	<0.1	<0.1	<0.0001
KB SW 2	16/04/2025	Marine	0.3	0.5	<1	<0.1	<0.1	<0.0001
LI-Far	16/04/2025	Marine	0.3	0.9	<1	<0.1	<0.1	<0.0001
LI-Mid	16/04/2025	Marine	<0.3	0.9	<1	<0.1	<0.1	<0.0001
LI-West	16/04/2025	Marine	<0.3	0.5	<1	<0.1	<0.1	<0.0001
Duplicate	16/04/2025	Marine	0.3	0.6	<1	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 2/05/2025

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CERTIFICATE OF ANALYSIS

Work Order	: **EP24143MD**	Page	: 1 of 6
Client	: **HARINE ANB FRESi WATER RESEARCi LAt ORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 16-Apr-2025 14:00
Order number	: 0017381	Date Analysis Commenced	: 17-Apr-2025
C-O-C number	: ----	Issue Date	: 24-Apr-2025 15:49
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Addrarol fm rl porh farol serarel a ao awrb resora urmm ge pocl d rl awe porrourl Q besfrfæ fæfywh el ab: , cfma/ Col arom Resorav , A., C Coh smfl ye Abbebbh el a ao fbbrba uraw , cfma/ Re^reu f l d Sfh sra ReyersaNoarpyfarol K

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	krisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: HARINE WATER
8Matrix: WATERX

Compound	CAS Number	LOR	Unit	Sample ID	li)Hrd	(t)t f/ 5	(t)t f/ 2	(t)t f/ 0	(t)t f/ M
				Sampling date / time	16-Apr-2025 00:00	16-Apr-2025 00:00	16-Apr-2025 00:00	16-Apr-2025 00:00	16-Apr-2025 00:00
					EP24143MD)115	EP24143MD)112	EP24143MD)110	EP24143MD)11M	EP24143MD)114
					Result	Result	Result	Result	Result
EP1D1: t TEz N									
t el &el e	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Tomel e	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Eaw/rgel &el e	100-41-4	2	µg/L		<2	<2	<2	<2	<2
h eaf) 9 sf rf)z/ral e	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
orawo)z/ral e	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Toafnz/ral eb	----	2	µg/L		<2	<2	<2	<2	<2
^ Sch opt TEz	----	1	µg/L		<1	<1	<1	<1	<1
Nf swawfral e	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP131: OrQf l oal Coh socl db 8Sorngra X									
Trrgca/ral	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP1D1S: TPi 8VXt TEz ScrroQf æb									
5K2)Bryworoeawf l e)BM	17060-07-0	2	%		51D	51M	553	552	557
Tomel e)BD	2037-26-5	2	%		512	37KO	36KM	37K2	36K7
Mjt roh opnorogel &el e	460-00-4	2	%		550	31K6	51D	37K1	55M
EP131S: OrQf l oal ScrroQf æ									
Trrsros/ral	----	5	%		73KM	513	30K1	6DK8	44K1

Analytical Results

Sub-Matrix: HARINE WATER
8Matrix: WATERX

Compound	CAS Number	LOR	Unit	Sample ID	(t)t ef yw	(t)SW 5	(t)SW 2	LI)Ff r	LI)H rd
				Sampling date / time	16-Apr-2025 00:00	16-Apr-2025 00:00	16-Apr-2025 00:00	16-Apr-2025 00:00	16-Apr-2025 00:00
					EP24143MD)117	EP24143MD)116	EP24143MD)11D	EP24143MD)113	EP24143MD)151
					Result	Result	Result	Result	Result
EP1D1: t TEz N									
t el &el e	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Tomel e	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Eaw rgel &el e	100-41-4	2	µg/L		<2	<2	<2	<2	<2
h eaf) 9 sf rf)z / ral e	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
orawo)z / ral e	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Toaf nz / ral eb	----	2	µg/L		<2	<2	<2	<2	<2
^ Sch opt TEz	----	1	µg/L		<1	<1	<1	<1	<1
Nf swawf ral e	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP131: OrQf l oal Coh socl db 8Sonogra X									
Trrgca/ ral	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP1D1S: TPi 8VXt TEz ScrroQf æb									
5K2)Bryworoeawf l e)BM	17060-07-0	2	%		514	521	55M	525	557
Tomel e)BD	2037-26-5	2	%		37HM	510	3DK4	37HO	34K7
Mjt roh opnorogel &el e	460-00-4	2	%		512	556	34K0	557	555
EP131S: OrQf l oal ScrroQf æ									
Trrsros / ral	----	5	%		67K6	D0K7	51M	24K6	7MK5

Analytical Results

Sub-Matrix: HARINE WATER
8Matrix: WATERX

Compound	CAS Number	LOR	Unit	Sample ID	LI)Weba	Bcsmyfæ	))))	))))	))))
				Sampling date / time	16-Apr-2025 00:00	16-Apr-2025 00:00	----	----	----
					EP24143MD)155	EP24143MD)152	))))))))	))))))))	))))))))
					Result	Result	----	----	----
EP1D1: t TEz N									
t el &el e	71-43-2	1	µg/L		<1	<1	))))	))))	))))
Tomel e	108-88-3	2	µg/L		<2	<2	))))	))))	))))
Eaw/rgel &el e	100-41-4	2	µg/L		<2	<2	))))	))))	))))
h eaf)9 sf rf)z/ral e	108-38-3 106-42-3	2	µg/L		<2	<2	))))	))))	))))
orawo)z/ral e	95-47-6	2	µg/L		<2	<2	))))	))))	))))
^ Toafnz/ral eb	----	2	µg/L		<2	<2	))))	))))	))))
^ Sch opt TEz	----	1	µg/L		<1	<1	))))	))))	))))
Nf swawf ral e	91-20-3	5	µg/L		<5	<5	))))	))))	))))
EP131: OrQf l oan Coh socl db 8Sonogra X									
Trrgca/ran	56573-85-4	2	ngSn/L		<2	<2	))))	))))	))))
EP1D1S: TPi 8VXt TEz ScrroQf æb									
5k2)Bryworoeawf l e)BM	17060-07-0	2	%		512	515	))))	))))	))))
Tomel e)BD	2037-26-5	2	%		37kO	36k8	))))	))))	))))
Mjt roh opnorogel &el e	460-00-4	2	%		DDk8	51D	))))	))))	))))
EP131S: OrQf l oan ScrroQf æ									
Trrsros/ran	----	5	%		40k0	D5k7	))))	))))	))))

Surrogate Control Limits

Sub-Matrix: HARINE WATER		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP1D1S: TPi 8/Xt TEz ScrroQf æb			
5l2)Brywroroeawf l e)BM	17060-07-0	61	141
Tomel e)BD	2037-26-5	73	126
Mjt roh opnorogel &el e	460-00-4	60	125
EP131S: OrQf l oat ScrroQf æ			
Trnsros/ rat	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS krisbane, NATA accreditation no. 825, site no. 818 (Chemistry / kiology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP241435m**	Page	: 1 of 3
Client	: **n ARINE ANt MREDF WATER REDEARCF LASORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 16-Apr-2025
Order number	: 0017381	Date Analysis Commenced	: 17-Apr-2025
C-O-C number	: ----	Issue Date	: 24-Apr-2025
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP1m1: STEHN BQC Lo0 84X(4556									
EP2505948-001	IH-Mid	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2505948-011	LI-West	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP131: Or9) go0g Coi pougds BDoluble6 BQC Lo0 84227(56									
EP2505948-001	IH-Mid	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP1m1: STEHN BQCLo0: 84X(4556								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	98.3	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	99.5	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	101	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	100	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	99.2	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	106	77.0	118
EP131: Or9) go0g Coi pougds BDoluble6 BQCLo0: 84227(56								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	89.6	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP1m1: STEHN BQCLo0: 84X(4556							
EP2505948-002	KB-Bay 1	EP080: Benzene	71-43-2	20 µg/L	105	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	103	73.5	126
EP131: Or9) go0g Coi pougds BDoluble6 BQCLo0: 84227(56							
EP2505948-001	IH-Mid	EP090S: Tributyltin	56573-85-4	147 ngSn/L	79.6	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2414357**	Page	: 1 of 5
Client	: **0 ARM E AI N DREFS WAHER REFEARCS TAL ORAHORB**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Pro3ect	: Mj CS5-1S	Date j amples Receive2	: 16-Apr-S4Sd
j ite	: ----	Issue Date	: S5-Apr-S4Sd
j ampler	: ----	No. of samples receive2	: 1S
Or2er number	: 441B081	No. of samples analyse2	: 1S

Hhis report is automatically Yenerated gy the ATF TM F throuYh interpretation obthe ATF Quality Control Report and several Quality Assurance parameters measured gy ATFf Hhis automated reportinY hiYhliYhts any non.conformances- facilitates faster and more accurate data validation and is desiYned to assist internal e, pert and e, ternal Auditor reviewf 0 any components obthis report contrigute to the overall NQO assessment and reportinY for Yuideline compliancef

Qrief metho2 summaries an2 references are also provi2e2 to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagge2 in the (uality Control)(CkReport.

- **I O 0 ethod L lank value outliers occurf**
- **I O Nuplicate outliers occurf**
- **I O Tagoratory Control outliers occurf**
- **I O 0 atri, Fpike outliers occurf**
- **Dor all reYular sample matrices- where applicagle to the methodoloYy- I O surroYate recovery outliers occurf**

Outliers : Analysis Holding Time Compliance

- **I O Analysis SoldinY Hime Outliers e, istf**

Outliers : Frequency of Quality Control Samples

- **Quality Control Fample Drexuency Outliers e, ist . please see followinY paYes for full detailsf**

Outliers : Frequency of Quality Control Samples

MatriQ: **WAHER**

(uality Control j ample Type		Count		Rate)K k		(uality Control j pecification
Analytical Metho2s	Metho2	(C	Regular	Actual	EQpecte2	
Laboratory Duplicates)D%Pk						
Organotin Compoun2s)j olublek	EP494j	1	1S	8.00	14.44	NEPM S410 Q0 U ALj (C j tan2ar2

Analysis Holding Time Compliance

If samples are i2entifie2 belo; as having been analyse2 or eGracte2 outsi2e of recommen2e2 hol2ing timeswthis shoul2 be taFen into consi2eration ; hen interpreting results.

This report summariqes eGraction 7 preparation an2 analysis times an2 compares each ; ith ALj recommen2e2 hol2ing times)referencing %j EPA j W 856w APYAw Aj an2 NEPMk base2 on the sample container provi2e2. Dates reporte2 represent first 2ate of eGraction or analysis an2 preclu2e subse/ uent 2ilutions an2 reruns. A listing of breaches)if anykis provi2e2 herein.

Yol2ing time for leachate metho2s)e.g. TCLPk vary accor2ing to the analytes reporte2. Assessment compares the leach 2ate ; ith the shortest analyte hol2ing time for the e/ uivalent soil metho2. These are: organics 15 2aysw mercury S8 2ays U other metals 184 2ays. A recor2e2 breach 2oes not guarantee a breach for all non-volatile parameters.

Yol2ing times for ***VOC in soils*** vary accor2ing to analytes of interest. &inyl Chlori2e an2 j tyrene hol2ing time is B 2aysV others 15 2ays. A recor2e2 breach 2oes not guarantee a breach for all &OC analytes an2 shoul2 be verifie2 in case the reporte2 breach is a false positive or &inyl Chlori2e an2 j tyrene are not Fey analytes of interest7concern.

MatriQ: **WAHER** Evaluation: × , Yol2ing time breach V✓ , Within hol2ing time.

Method / *Container / Client Sample ID(s)*		***Sample Date***	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP171: LHEql								
Amger 8OC 8ial . Fulburic Acid XEP171V								
IY-Mi2w	zQ-Qay 1w	**(9.Apr.2124**	**( ).Apr.2124**	04-Apr-S4Sd	✓	**( ).Apr.2124**	04-Apr-S4Sd	✓
zQ-Qay Sw	zQ-Qay 0w							
zQ-Qay 5w	zQ-Qeachw							
zQ-j W 1w	zQ-j W Sw							
LI-Harw	LI-Mi2w							
LI-Westw	Duplicate							
EP131: OrYanotin Compounds XFolugleV								
Amger Glass Lottle . Unpreserved XEP131FV								
IY-Mi2w	zQ-Qay 1w	**(9.Apr.2124**	**22.Apr.2124**	S0-Apr-S4Sd	✓	**26.Apr.2124**	41-Jun-S4Sd	✓
zQ-Qay Sw	zQ-Qay 0w							
zQ-Qay 5								
Amger Glass Lottle . Unpreserved XEP131FV								
zQ-Qeachw	zQ-j W 1w	**(9.Apr.2124**	**22.Apr.2124**	S0-Apr-S4Sd	✓	**25.Apr.2124**	41-Jun-S4Sd	✓
zQ-j W Sw	LI-Harw							
LI-Mi2w	LI-Westw							
Duplicate								

Quality Control Parameter Frequency Compliance

The follo; ing report summarises the fre/ uency of laboratory (C samples analyse2 ; ithin the analytical lot)skin ; hich the submitte2 sample)sk; as); erekprocesse2. Actual rate shoul2 be greater than or e/ ual to the eQpecte2 rate. A listing of breaches is provi2e2 in the j ummary of Outliers.

MatriG: **WAHER**

Evaluation: ×, (uality Control fre/ uency not ; ithin specification V✓, (uality Control fre/ uency ; ithin specification.

(uality Control j ample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates)D%Pk							
Organotin Compoun2s)j olublek	EP494j	1	1S	**7f66**	**(1f11**	✗	NEPM S410 Q0 U ALj (C j tan2ar2
TRY &olatiles7QTE=	EP484	S	S4	**(1f11**	**(1f11**	✓	NEPM S410 Q0 U ALj (C j tan2ar2
Laboratory Control j amples)LCj k							
Organotin Compoun2s)j olublek	EP494j	1	1S	**7f66**	**4f11**	✓	NEPM S410 Q0 U ALj (C j tan2ar2
TRY &olatiles7QTE=	EP484	1	S4	**4f11**	**4f11**	✓	NEPM S410 Q0 U ALj (C j tan2ar2
Metho2 QlanFs)MQk							
Organotin Compoun2s)j olublek	EP494j	1	1S	**7f66**	**4f11**	✓	NEPM S410 Q0 U ALj (C j tan2ar2
TRY &olatiles7QTE=	EP484	1	S4	**4f11**	**4f11**	✓	NEPM S410 Q0 U ALj (C j tan2ar2
MatriGj piFes)Mj k							
Organotin Compoun2s)j olublek	EP494j	1	1S	**7f66**	**4f11**	✓	NEPM S410 Q0 U ALj (C j tan2ar2
TRY &olatiles7QTE=	EP484	1	S4	**4f11**	**4f11**	✓	NEPM S410 Q0 U ALj (C j tan2ar2

Brief Method Summaries

The analytical proce2ures use2 by the Environmental Division have been 2evelope2 from establishe2 internationally recogniqe2 proce2ures such as those publishe2 by the %j EPAwAPYAwAj an2 NEPM. In house 2evelope2 proce2ures are employe2 in the absence of 2ocumente2 stan2ar2s or by client re/ uest. The follo; ing report provi2es brief 2escriptions of the analytical proce2ures employe2 for results reporte2 in the Certificate of Analysis. j ources from ; hich ALj metho2s have been 2evelope2 are provi2e2 ; ithin the Metho2 Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
TRY &olatiles7QTE=	EP484	WATER	In house: Reference2 to %j EPA j W 856 - 8S64 Water samples are 2irectly purge2 prior to analysis by Capillary XC7Mj an2 / uantification is by comparison against an establishe2 d point calibration curve. Alternativelywa sample is e/ uilibrate2 in a hea2space vial an2 a portion of the hea2space 2etermine2 by XCMj analysis. This metho2 is compliant ; ith the (C re/ uirements of NEPM j che2ule Q)0k
Organotin Compoun2s)j olublek	EP494i	WATER	In house: Reference2 to %j EPA j W 856 - 8SB4 j ample eGracts are analyse2 by XC7Mj couple2 ; ith high volume in3ection an2 / uantification is by comparison against an establishe2 d point calibration curve. This metho2 is compliant ; ith NEPM j che2ule Q)0k

Preparation Methods	Method	Matrix	Method Descriptions
&olatiles Water Preparation	ORX16-W	WATER	A d mL ali/ uot or d mL of a 2ilute2 sample is a22e2 to a 54 mL &OC vial for purging.
Organotin j ample Preparation	ORX05	WATER	In house. A specifie2 volume of sample is spiFe2 ; ith surrogatewaci2ifie2 an2 vacuum filtere2. Reagents an2 solvent are a22e2 an2 the miGture tumble2. The butyltin compoun2s is 2erivitisate2weGracte2 an2 the subtitution reaction complete2. The eGract is transferre2 to a separatory funnel an2 further eGracte2 t; o times ; ith petroleum ether. The resultant eGracts are combine2 an2 concentrate2 for analysis.

Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 9/05/2025
Date Received: 30/04/2025
Our Reference: MSC25-9
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit			<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date			6/05/2025	6/05/2025	6/05/2025	7/05/2025	7/05/2025	7/05/2025	7/05/2025	2/05/2025
File			25050601	25050601	25050601	25050701	25050701	25050701	25050701	25050203
IH-Mid	30/04/2025	Marine	42	8	14	26	220	1.7	1.2	7
KB-Bay 1	30/04/2025	Marine	5	5	3	15	120	1.1	0.4	1
KB-Bay 2	30/04/2025	Marine	7	4	2	16	140	1.1	0.4	2
KB-Bay 3	30/04/2025	Marine	5	3	2	18	140	1.5	0.5	3
KB-Bay 4	30/04/2025	Marine	34	8	10	19	160	1.7	0.6	2
KB-Beach	30/04/2025	Marine	30	8	10	20	180	1.7	0.8	3
KB-SW 1	30/04/2025	Marine	5	5	4	19	160	1.9	0.6	2
KB SW 2	30/04/2025	Marine	7	4	5	18	170	1.5	0.6	3
LI-Far	30/04/2025	Marine	<3	4	<2	42	310	6.9	2.0	12
LI-Mid	30/04/2025	Marine	<3	3	<2	32	260	5.7	1.9	7
LI-West	30/04/2025	Marine	22	4	9	20	170	2.6	0.9	4
Duplicate	30/04/2025	Marine	4	4	<2	30	240	5.4	1.7	6

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 9/05/2025

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Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 9/05/2025
Date Received: 30/04/2025
Our Reference: MSC25-9
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit			**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date			**7/05/2025**	**7/05/2025**	**7/05/2025**	**7/05/2025**	**7/05/2025**	**2/05/2025**
File			**25050701**	**25050701**	**25050701**	**25050701**	**25050701**	**25050202**
IH-Mid	30/04/2025	Marine	<0.3	0.9	<1	<0.1	<0.1	<0.0001
KB-Bay 1	30/04/2025	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-Bay 2	30/04/2025	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-Bay 3	30/04/2025	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-Bay 4	30/04/2025	Marine	<0.3	0.5	<1	<0.1	<0.1	<0.0001
KB-Beach	30/04/2025	Marine	<0.3	0.7	<1	<0.1	<0.1	<0.0001
KB-SW 1	30/04/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB SW 2	30/04/2025	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
LI-Far	30/04/2025	Marine	<0.3	0.8	<1	<0.1	<0.1	<0.0001
LI-Mid	30/04/2025	Marine	<0.3	0.8	<1	<0.1	<0.1	<0.0001
LI-West	30/04/2025	Marine	<0.3	0.5	<1	<0.1	<0.1	<0.0001
Duplicate	30/04/2025	Marine	<0.3	0.6	<1	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 9/05/2025

This document may not be reproduced except in full.

CERTIFICATE OF ANALYSIS

Work Order	: **EP2418737**	Page	: 1 of 6
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 30-Apr-2025 14:00
Order number	: PO-0017381	Date Analysis Commenced	: 02-May-2025
C-O-C number	: ----	Issue Date	: 07-May-2025 10:59
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: WATER 0Matrix: WATER5			Sample ID	IH-Mid	KB-Bay 3	KB-Bay 2	KB-Bay)	KB-Bay (
			Sampling date / time	30-Apr-2025 00:00	30-Apr-2025 00:00	30-Apr-2025 00:00	30-Apr-2025 00:00	30-Apr-2025 00:00
Compound	CAS Number	LOR	Unit	EP2418737-113	EP2418737-112	EP2418737-11)	EP2418737-11(	EP2418737-114
				Result	Result	Result	Result	Result
EP1X1: BTEz N								
Ben&ene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylben&ene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- 9 para-z ylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-z ylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total z ylenes	----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEz	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP1V1: Organotin Compounds 0Soluble5								
Tributyltin	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP1X1S: TPH065BTEz Surrogates								
3.2-Dichloroethane-D(	17060-07-0	2	%	32)	3) 1	324	32V	3) (
Toluene-DX	2037-26-5	2	%	V7.8	V4.X	V7.3	V4.1	31X
(-Bromofluoroben&ene	460-00-4	2	%	31)	317	312	31(	332
EP1V1S: Organotin Surrogate								
Tripropyltin	----	5	%	V) .7	XV.X	33)	X(.3	V) .3

Analytical Results

Sub-Matrix: WATER 0Matrix: WATER5			Sample ID	KB-Beach	KB-SW 3	KB SW 2	LI-Far	LI-Mid
			Sampling date / time	30-Apr-2025 00:00	30-Apr-2025 00:00	30-Apr-2025 00:00	30-Apr-2025 00:00	30-Apr-2025 00:00
Compound	CAS Number	LOR	Unit	EP2418737-118	EP2418737-117	EP2418737-11X	EP2418737-11V	EP2418737-131
				Result	Result	Result	Result	Result
EP1X1: BTEz N								
Ben&ene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylben&ene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- 9 para-z ylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-z ylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total z ylenes	----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEz	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP1V1: Organotin Compounds 0Soluble5								
Tributyltin	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP1X1S: TPH06 5BTEz Surrogates								
3.2-Dichloroethane-D(	17060-07-0	2	%	32V	3) X	32X	3) 7	3) V
Toluene-DX	2037-26-5	2	%	V) .(	312	V8.V	313	VX.4
(-Bromofluoroben&ene	460-00-4	2	%	31)	31X	314	31X	317
EP1V1S: Organotin Surrogate								
Tripropyltin	----	5	%	X4.4	7V.8	7X.X	8X.4	73.X

Analytical Results

Sub-Matrix: WATER 0Matrix: WATER5			Sample ID	LI-West	Duplicate	----	----	----
			Sampling date / time	30-Apr-2025 00:00	30-Apr-2025 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP2418737-133	EP2418737-132	--------	--------	--------
				Result	Result	----	----	----
EP1X1: BTEz N								
Ben&ene	71-43-2	1	µg/L	<1	<1	----	----	----
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----
Ethylben&ene	100-41-4	2	µg/L	<2	<2	----	----	----
meta- 9 para-z ylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----
ortho-z ylene	95-47-6	2	µg/L	<2	<2	----	----	----
^ Total z ylenes	----	2	µg/L	<2	<2	----	----	----
^ Sum of BTEz	----	1	µg/L	<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	----	----	----
EP1V1: Organotin Compounds 0Soluble5								
Tributyltin	56573-85-4	2	ngSn/L	<2	<2	----	----	----
EP1X1S: TPH065BTEz Surrogates								
3.2-Dichloroethane-D(	17060-07-0	2	%	3) (	3(1	----	----	----
Toluene-DX	2037-26-5	2	%	VV.(	V4.4	----	----	----
(-Bromofluoroben&ene	460-00-4	2	%	318	318	----	----	----
EP1V1S: Organotin Surrogate								
Tripropyltin	----	5	%	7X.(	82.8	----	----	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP1X1S: TPH(C6-C10)/BTEX Surrogates			
3.2-Dichloroethane-D(	17060-07-0	61	141
Toluene-DX	2037-26-5	73	126
(-Bromofluoroben&ene	460-00-4	60	125
EP1V1S: Organotin Surrogate			
Tripropyltin	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP2506717**	Page	: 1 of 3
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 30-Apr-2025
Order number	: PO-0017381	Date Analysis Commenced	: 02-May-2025
C-O-C number	: ----	Issue Date	: 07-May-2025
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 6547016)									
EP2506570-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<0.001 mg/L	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<0.005 mg/L	<5	0.0	No Limit
EP2506717-007	KB-SW 1	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP090: Organotin Compounds (Soluble) (QC Lot: 6546620)									
EP2506717-001	IH-Mid	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 6547016)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	107	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	102	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	100	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	101	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	102	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	98.8	77.0	118
EP090: Organotin Compounds (Soluble) (QCLot: 6546620)								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	80.2	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 6547016)							
EP2506716-001	Anonymous	EP080: Benzene	71-43-2	20 µg/L	111	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	110	73.5	126
EP090: Organotin Compounds (Soluble) (QCLot: 6546620)							
EP2506717-001	IH-Mid	EP090S: Tributyltin	56573-85-4	147 ngSn/L	104	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2506717**	Page	: 1 of 5
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Pro3ect	: Mj CS5-1S	Date j amples Receive2	: 04-Apr-S4Sd
j ite	: ----	Issue Date	: 4N-May-S4Sd
j ampler	: ----	. oBof samples receive2	: 1S
Or2er number	: PO-441N081	. oBof samples analyse2	: 1S

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

Qrief metho2 summaries an2 references are also provi2e2 to assist in traceabilityB

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagge2 in the (uality Control)(CkReportB

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Frequency of Quality Control Samples

MatriQ: **WATER**

(uality Control j ample Type		Count		Rate)K k		(uality Control j pecification
Analytical Metho2s	Metho2	(C	Regular	Actual	EQpecte2	
Laboratory Duplicates)D%Pk						
Organotin Compoun2s)j olublek	EP494j	1	19	dE56	14B44	. EPM S410 Q0 U ALj (C j tan2ar2

Analysis Holding Time Compliance

If samples are i2entifie2 belo; as having been analyse2 or eGracte2 outsi2e of recommen2e2 hol2ing timeswthis shoul2 be taFen into consi2eration ; hen interpreting resultsB

This report summariqes eGraction 7 preparation an2 analysis times an2 compares each ; ith ALj recommen2e2 hol2ing times)referencing %j EPA j W 856w APYAw Aj an2 . EPMk base2 on the sample container provi2e2B Dates reporte2 represent first 2ate of eGraction or analysis an2 preclu2e subse/ uent 2ilutions an2 rerunsBA listing of breaches)if anykis provi2e2 hereinB

Yol2ing time for leachate metho2s)eBgB TCLPk vary accor2ing to the analytes reporte2B Assessment compares the leach 2ate ; ith the shortest analyte hol2ing time for the e/ uivalent soil metho2B These are: organics 15 2aysw mercury S8 2ays U other metals 184 2aysB A recor2e2 breach 2oes not guarantee a breach for all non-volatile parametersB

Yol2ing times for ***VOC in soils*** vary accor2ing to analytes of interestB &inyl Chlori2e an2 j tyrene hol2ing time is N2aysV others 15 2aysB A recor2e2 breach 2oes not guarantee a breach for all &OC analytes an2 shoul2 be verifie2 in case the reporte2 breach is a false positive or &inyl Chlori2e an2 j tyrene are not Fey analytes of interest7concernB

MatriQ: **WATER**

Evaluation: × , Yol2ing time breach V✓ , Within hol2ing timeE

Method / *Container* / Client Sample ID(s)		*Sample Date*	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
IY-Mi2w	z Q-Qay 1w	**30-Apr-2025**	**02-May-2025**	15-May-S4Sd	✓	**03-May-2025**	15-May-S4Sd	✓
z Q-Qay Sw	z Q-Qay 0w							
z Q-Qay 5w	z Q-Qeachw							
z Q-j W 1w	z Q j W Sw							
LI-Harw	LI-Mi2w							
LI-Westw	Duplicate							
EP090: Organotin Compounds (Soluble)								
Amber Glass Bottle - Unpreserved (EP090S)								
IY-Mi2w	z Q-Qay 1w	**30-Apr-2025**	**02-May-2025**	4N-May-S4Sd	✓	**06-May-2025**	11-Jun-S4Sd	✓
z Q-Qay Sw	z Q-Qay 0w							
z Q-Qay 5w	z Q-Qeachw							
z Q-j W 1w	z Q j W Sw							
LI-Harw	LI-Mi2w							
LI-Westw	Duplicate							

Quality Control Parameter Frequency Compliance

The follo; ing report summarises the fre/ uency of laboratory (C samples analyse2 ; ithin the analytical lot)skin ; hich the submitte2 sample)sk; as); erekprocesse2BActual rate shoul2 be greater than or e/ ual to the eQpecte2 rateBA listing of breaches is provi2e2 in the j ummary of OutliersB

MatriG: **WATER**

Evaluation: ×, (uality Control fre/ uency not ; ithin specification V✓, (uality Control fre/ uency ; ithin specification E

(uality Control j ample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates)D%Pk							
Organotin Compoun2s)j olublek	EP494j	1	19	**5.26**	**10.00**	×	. EPM S410 Q0 U ALj (C j tan2ar2
TRY &olatiles7QTE=	EP484	S	1N	**11.76**	**10.00**	✓	. EPM S410 Q0 U ALj (C j tan2ar2
Laboratory Control j amples)LCj k							
Organotin Compoun2s)j olublek	EP494j	1	19	**5.26**	**5.00**	✓	. EPM S410 Q0 U ALj (C j tan2ar2
TRY &olatiles7QTE=	EP484	1	1N	**5.88**	**5.00**	✓	. EPM S410 Q0 U ALj (C j tan2ar2
Metho2 QlanFs)MQk							
Organotin Compoun2s)j olublek	EP494j	1	19	**5.26**	**5.00**	✓	. EPM S410 Q0 U ALj (C j tan2ar2
TRY &olatiles7QTE=	EP484	1	1N	**5.88**	**5.00**	✓	. EPM S410 Q0 U ALj (C j tan2ar2
MatriGj piFes)Mj k							
Organotin Compoun2s)j olublek	EP494j	1	19	**5.26**	**5.00**	✓	. EPM S410 Q0 U ALj (C j tan2ar2
TRY &olatiles7QTE=	EP484	1	1N	**5.88**	**5.00**	✓	. EPM S410 Q0 U ALj (C j tan2ar2

Brief Method Summaries

The analytical proce2ures use2 by the Environmental Division have been 2evelope2 from establishe2 internationally recogniqe2 proce2ures such as those publishe2 by the %j EPAwAPYAwAj an2 . EPMBIn house 2evelope2 proce2ures are employe2 in the absence of 2ocumente2 stan2ar2s or by client re/ uestBThe follo; ing report provi2es brief 2escriptions of the analytical proce2ures employe2 for results reporte2 in the Certificate of AnalysisBj ources from ; hich ALj metho2s have been 2evelope2 are provi2e2 ; ithin the Metho2 DescriptionsB

Analytical Methods	Method	Matrix	Method Descriptions
TRY &olatiles7QTE=	EP484	WATER	In house: Reference2 to %j EPA j W 856 - 8S64 Water samples are 2irectly purge2 prior to analysis by Capillary XC7Mj an2 / uantification is by comparison against an establishe2 d point calibration curveBAlternativelywa sample is e/ uilibrate2 in a hea2space vial an2 a portion of the hea2space 2etermine2 by XCMj analysisB This metho2 is compliant ; ith the (C re/ uirements of . EPM j che2ule Q)0k
Organotin Compoun2s)j olublek	EP494i	WATER	In house: Reference2 to %j EPA j W 856 - 8SN4 j ample eGracts are analyse2 by XC7Mj couple2 ; ith high volume in3ection an2 / uantification is by comparison against an establishe2 d point calibration curveBThis metho2 is compliant ; ith . EPM j che2ule Q)0k

Preparation Methods	Method	Matrix	Method Descriptions
&olatiles Water Preparation	ORX16-W	WATER	A d mL ali/ uot or d mL of a 2ilute2 sample is a22e2 to a 54 mL &OC vial for purgingB
Organotin j ample Preparation	ORX05	WATER	In houseB A specifie2 volume of sample is spiFe2 ; ith surrogatewaci2ifie2 an2 vacuum filtere2B Reagents an2 solvent are a22e2 an2 the miGture tumble2B The butyltin compoun2s is 2erivitisate2weGtracte2 an2 the subtitution reaction complete2B The eGtract is transferre2 to a separatory funnel an2 further eGtracte2 t; o times ; ith petroleum etherB The resultant eGtracts are combine2 an2 concentrate2 for analysisB

Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 23/05/2025
Date Received: 13/05/2025
Our Reference: MSC25-10
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit			<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date			15/05/2025	15/05/2025	15/05/2025	14/05/2025	14/05/2025	15/05/2025	15/05/2025	15/05/2025
File			25051501	25051501	25051501	25051402	25051402-2301	25051501	25051501	250515
IH-Mid	13/05/2025	Marine	28	8	8	21	190	2.1	0.3	2
KB-Bay 1	13/05/2025	Marine	12	5	3	17	160	1.3	0.4	2
KB-Bay 2	13/05/2025	Marine	23	7	4	18	160	1.7	0.2	2
KB-Bay 3	13/05/2025	Marine	17	7	3	18	160	1.4	0.3	2
KB-Bay 4	13/05/2025	Marine	14	5	2	17	160	1.7	0.2	3
KB-Beach	13/05/2025	Marine	18	8	4	18	150	1.6	<0.2	2
KB-SW 1	13/05/2025	Marine	13	7	3	19	170	2.1	0.3	2
KB SW 2	13/05/2025	Marine	18	8	3	21	180	1.6	0.2	2
LI-Far	13/05/2025	Marine	<3	4	<2	36	300	7.8	1.5	8
LI-Mid	13/05/2025	Marine	<3	4	<2	32	260	8.5	1.4	7
LI-West	13/05/2025	Marine	7	5	4	22	190	3.2	0.7	4
Duplicate	13/05/2025	Marine	14	5	3	18	150	1.7	0.2	1

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 23/05/2025

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Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 23/05/2025
Date Received: 13/05/2025
Our Reference: MSC25-10
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit			**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date			**15/05/2025**	**15/05/2025**	**15/05/2025**	**15/05/2025**	**15/05/2025**	**16/05/2025**
File			**25051501**	**25051501**	**25051501**	**25051501**	**25051501**	**25051602**
IH-Mid	13/05/2025	Marine	<0.3	1.1	1	<0.1	<0.1	<0.0001
KB-Bay 1	13/05/2025	Marine	<0.3	0.5	<1	<0.1	<0.1	<0.0001
KB-Bay 2	13/05/2025	Marine	0.4	0.6	<1	<0.1	<0.1	<0.0001
KB-Bay 3	13/05/2025	Marine	0.4	0.9	<1	<0.1	<0.1	<0.0001
KB-Bay 4	13/05/2025	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-Beach	13/05/2025	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-SW 1	13/05/2025	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB SW 2	13/05/2025	Marine	<0.3	0.5	<1	<0.1	<0.1	<0.0001
LI-Far	13/05/2025	Marine	<0.3	1.0	<1	<0.1	<0.1	<0.0001
LI-Mid	13/05/2025	Marine	<0.3	1.2	1	<0.1	<0.1	<0.0001
LI-West	13/05/2025	Marine	<0.3	0.5	<1	<0.1	<0.1	<0.0001
Duplicate	13/05/2025	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 23/05/2025

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CERTIFICATE OF ANALYSIS

Work Order	: **EP2418473**	Page	: 1 of 6
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC25-10	Date Samples Received	: 13-May-2025 14:45
Order number	: PO-0017381	Date Analysis Commenced	: 16-May-2025
C-O-C number	: ----	Issue Date	: 21-May-2025 16:42
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: WATER 0Matrix: WATER5				Sample ID	IH-Mid	KB-Bay 7	KB-Bay 2	KB-Bay)	KB-Bay (
				Sampling date / time	13-May-2025 00:00	13-May-2025 00:00	13-May-2025 00:00	13-May-2025 00:00	13-May-2025 00:00
Compound	CAS Number	LOR	Unit		EP2418473-117	EP2418473-112	EP2418473-11)	EP2418473-11(	EP2418473-114
					Result	Result	Result	Result	Result
EP131: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ **Total Xylenes**	----	2	µg/L		<2	<2	<2	<2	<2
^ **Sum of BTEX**	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP191: Organotin Compounds 0Soluble5									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP131S: TPH0V5BTEX Surrogates									
7.2-Dichloroethane-D(	17060-07-0	2	%		**71)**	**99.9**	**717**	**93.(**	**717**
Toluene-D3	2037-26-5	2	%		**718**	**71(**	**71(**	**712**	**71(**
(-Bromofluorobenzene	460-00-4	2	%		**718**	**717**	**711**	**71(**	**719**
EP191S: Organotin Surrogate									
Tripropyltin	----	5	%		**82.9**	**39.4**	**) 9.3**	**61.7**	**86.(**

Analytical Results

Sub-Matrix: WATER 0Matrix: WATER5			Sample ID	KB-Beach	KB-SW 7	KB SW 2	LI-Far	LI-Mid
			Sampling date / time	13-May-2025 00:00	13-May-2025 00:00	13-May-2025 00:00	13-May-2025 00:00	13-May-2025 00:00
Compound	CAS Number	LOR	Unit	EP2418473-116	EP2418473-118	EP2418473-113	EP2418473-119	EP2418473-171
				Result	Result	Result	Result	Result
EP131: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ **Total Xylenes**	----	2	µg/L	<2	<2	<2	<2	<2
^ **Sum of BTEX**	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP191: Organotin Compounds 0Soluble5								
Tributyltin	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP131S: TPH0V5BTEX Surrogates								
7.2-Dichloroethane-D(	17060-07-0	2	%	**712**	**711**	**71(**	**93.9**	**71)**
Toluene-D3	2037-26-5	2	%	**71(**	**716**	**71)**	**711**	**712**
(-Bromofluorobenzene	460-00-4	2	%	**71(**	**716**	**99.)**	**71(**	**711.1**
EP191S: Organotin Surrogate								
Tripropyltin	----	5	%	**) 8.9**	**86.2**	**6(.1**	**) 7.6**	**713**

Analytical Results

Sub-Matrix: WATER 0Matrix: WATER5				Sample ID	LI-West	Duplicate	----	----	----
				Sampling date / time	13-May-2025 00:00	13-May-2025 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2418473-177	EP2418473-172	--------	--------	--------
					Result	Result	----	----	----
EP131: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ **Total Xylenes**	----	2	µg/L		<2	<2	----	----	----
^ **Sum of BTEX**	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP191: Organotin Compounds 0Soluble5									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	----	----	----
EP131S: TPH0V5BTEX Surrogates									
7.2-Dichloroethane-D(	17060-07-0	2	%		**99.2**	**98.9**	----	----	----
Toluene-D3	2037-26-5	2	%		**717**	**712**	----	----	----
(-Bromofluorobenzene	460-00-4	2	%		**71(**	**717**	----	----	----
EP191S: Organotin Surrogate									
Tripropyltin	----	5	%		**86.7**	**(3.3**	----	----	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP131S: TPH(V)/BTEX Surrogates			
7.2-Dichloroethane-D(	17060-07-0	61	141
Toluene-D3	2037-26-5	73	126
(-Bromofluorobenzene	460-00-4	60	125
EP191S: Organotin Surrogate			
Tripropyltin	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP2507518**	Page	: 1 of 3
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC25-10	Date Samples Received	: 13-May-2025
Order number	: PO-0017381	Date Analysis Commenced	: 16-May-2025
C-O-C number	: ----	Issue Date	: 21-May-2025
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 6576330)									
EP2507518-001	IH-Mid	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2507518-011	LI-West	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP090: Organotin Compounds (Soluble) (QC Lot: 6586296)									
EP2507518-001	IH-Mid	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 6576330)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	103	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	105	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	103	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	104	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	103	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	98.5	77.0	118
EP090: Organotin Compounds (Soluble) (QCLot: 6586296)								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	98.8	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 6576330)							
EP2507518-002	KB-Bay 1	EP080: Benzene	71-43-2	20 µg/L	91.6	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	94.9	73.5	126
EP090: Organotin Compounds (Soluble) (QCLot: 6586296)							
EP2507518-001	IH-Mid	EP090S: Tributyltin	56573-85-4	147 ngSn/L	99.4	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2506571**	Page	: 1 of 5
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Project	: Mj CS2-14	Date j amples Received	: 10-May-S4S2
j ite	: ----	Issue Date	: S1-May-S4S2
j ampler	: ----	No. of samples received	: 1S
Order number	: PO-441B081	No. of samples analysed	: 1S

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

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

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the (uality Control)(CkReport.

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Frequency of Quality Control Samples

MatriQ: **WATER**

(uality Control j ample Type		Count		Rate)K k		(uality Control j pecification
Analytical Methods	Method	(C	Regular	Actual	EQpected	
Laboratory Duplicates)D%Pk						
Organotin Compounds)j olublek	EP494j	1	1S	8.00	14.44	NEPM S410 Q0 U ALj (C j tandard

Analysis Holding Time Compliance

If samples are identified belo; as having been analysed or eGracted outside of recommended holding timeswthis should be taFen into consideration ; hen interpreting results.

This report summariqes eGraction 7 preparation and analysis times and compares each ; ith ALj recommended holding times)referencing %j EPA j W 856w APYAw Aj and NEPMk based on the sample container provided. Dates reported represent first date of eGraction or analysis and preclude subse/ uent dilutions and reruns. A listing of breaches)if anykis provided herein.

Yolding time for leachate methods)e.g. TCLPk vary according to the analytes reported. Assessment compares the leach date ; ith the shortest analyte holding time for the e/ uivalent soil method. These are: organics 15 daysw mercury S8 days U other metals 184 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Yolding times for ***VOC in soils*** vary according to analytes of interest. &inyl Chloride and j tyrene holding time is B daysV others 15 days. A recorded breach does not guarantee a breach for all &OC analytes and should be verified in case the reported breach is a false positive or &inyl Chloride and j tyrene are not Fey analytes of interest7concern.

MatriQ: **WATER** Evaluation: × , Yolding time breach V✓ , Within holding time.

Method / *Container / Client Sample ID(s)*		***Sample Date***	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP010: BTE8N								
Amber XOC Xial - Sulfuric Acid \EP010(								
IY-Midw	z Q-Qay 1w	**73-May-2025**	**7) -May-2025**	SB-May-S4S2	✓	**76-May-2025**	SB-May-S4S2	✓
z Q-Qay Sw	z Q-Qay 0w							
z Q-Qay 5w	z Q-Qeachw							
z Q-j W 1w	z Q j W Sw							
LI-Harw	LI-Midw							
LI-Westw	Duplicate							
EP090: Organotin Compounds \Soluble(								
Amber Glass Bottle - Unpreserved \EP090S(								
IY-Midw	z Q-Qay 1w	**73-May-2025**	**20-May-2025**	S4-May-S4S2	✓	**27-May-2025**	S9-Jun-S4S2	✓
z Q-Qay Sw	z Q-Qay 0w							
z Q-Qay 5w	z Q-Qeachw							
z Q-j W 1w	z Q j W Sw							
LI-Harw	LI-Midw							
LI-Westw	Duplicate							

Quality Control Parameter Frequency Compliance

The follo; ing report summarises the fre/ uency of laboratory (C samples analysed ; ithin the analytical lot)skin ; hich the submitted sample)sk; as); erekprocessed. Actual rate should be greater than or e/ ual to the eQpected rate. A listing of breaches is provided in the j ummary of Outliers.

MatriG: **WATER**

Evaluation: × , (uality Control fre/ uency not ; ithin specification V✓ , (uality Control fre/ uency ; ithin specification.

(uality Control j ample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates)D%Pk							
Organotin Compounds)j olublek	EP494j	1	1S	**1.33**	**70.00**	✗	NEPM S410 Q0 U ALj (C j tandard
TRY &olatiles7QTE=	EP484	S	S4	**70.00**	**70.00**	✓	NEPM S410 Q0 U ALj (C j tandard
Laboratory Control j amples)LCj k							
Organotin Compounds)j olublek	EP494j	1	1S	**1.33**	**5.00**	✓	NEPM S410 Q0 U ALj (C j tandard
TRY &olatiles7QTE=	EP484	1	S4	**5.00**	**5.00**	✓	NEPM S410 Q0 U ALj (C j tandard
Method QlanFs)MQk							
Organotin Compounds)j olublek	EP494j	1	1S	**1.33**	**5.00**	✓	NEPM S410 Q0 U ALj (C j tandard
TRY &olatiles7QTE=	EP484	1	S4	**5.00**	**5.00**	✓	NEPM S410 Q0 U ALj (C j tandard
MatriGj piFes)Mj k							
Organotin Compounds)j olublek	EP494j	1	1S	**1.33**	**5.00**	✓	NEPM S410 Q0 U ALj (C j tandard
TRY &olatiles7QTE=	EP484	1	S4	**5.00**	**5.00**	✓	NEPM S410 Q0 U ALj (C j tandard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recogniqed procedures such as those published by the %j EPAwAPYAwAj and NEPM. In house developed procedures are employed in the absence of documented standards or by client re/ uest. The follo; ing report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. j ources from ; hich ALj methods have been developed are provided ; ithin the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
TRY &olatiles7QTE=	EP484	WATER	In house: Referenced to %j EPA j W 856 - 8S64 Water samples are directly purged prior to analysis by Capillary XC7Mj and / uantification is by comparison against an established 2 point calibration curve. Alternativelywa sample is e/ uilibrated in a headspace vial and a portion of the headspace determined by XCMj analysis. This method is compliant ; ith the (C re/ uirements of NEPM j chedule Q)0k
Organotin Compounds)j olublek	EP494i	WATER	In house: Referenced to %j EPA j W 856 - 8SB4 j ample eGracts are analysed by XC7Mj coupled ; ith high volume in3ection and / uantification is by comparison against an established 2 point calibration curve. This method is compliant ; ith NEPM j chedule Q)0k

Preparation Methods	Method	Matrix	Method Descriptions
&olatiles Water Preparation	ORX16-W	WATER	A 2 mL ali/ uot or 2 mL of a diluted sample is added to a 54 mL &OC vial for purging.
Organotin j ample Preparation	ORX05	WATER	In house. A specified volume of sample is spiFed ; ith surrogatewacidified and vacuum filtered. Reagents and solvent are added and the miGure tumbled. The butyltin compounds is derivitisatedweGracted and the subtitution reaction completed. The eGract is transferred to a separatory funnel and further eGracted t; o times ; ith petroleum ether. The resultant eGracts are combined and concentrated for analysis.

Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 6/06/2025
Date Received: 28/05/2025
Our Reference: MSC25-12
Your Reference: MSA343-12

METHOD SAMPLE CODE	Sampling Date	Sample Type	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit			<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date			29/05/2025	29/05/2025	29/05/2025	30/05/2025	30/05/2025	29/05/2025	29/05/2025	29/05/2025
File			25052901	25052901	25052901	25053002	25053002	25052902	25052902	250529
IH-Mid	28/05/2025	Marine	6	3	3	21	160	5.7	0.7	3
KB-Bay 1	28/05/2025	Marine	<3	4	<2	15	100	1.1	0.3	1
KB-Bay 2	28/05/2025	Marine	<3	2	<2	22	150	4.1	0.8	4
KB-Bay 3	28/05/2025	Marine	<3	3	<2	15	120	2.1	0.4	3
KB-Bay 4	28/05/2025	Marine	<3	3	2	22	160	6.6	1.1	4
KB-Beach	28/05/2025	Marine	<3	4	3	22	160	6.8	1.0	4
KB-SW 1	28/05/2025	Marine	25	4	6	22	150	6.3	1.2	4
KB SW 2	28/05/2025	Marine	<3	4	<2	23	170	7.3	1.0	5
LI-Far	28/05/2025	Marine	25	4	7	28	220	4.1	1.3	6
LI-Mid	28/05/2025	Marine	<3	4	<2	25	180	4.9	0.9	5
LI-West	28/05/2025	Marine	<3	3	<2	25	170	5.5	1.2	7
Duplicate	28/05/2025	Marine	<3	3	<2	24	170	5.8	1.2	6

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 6/06/2025

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Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 6/06/2025
Date Received: 28/05/2025
Our Reference: MSC25-12
Your Reference: MSA343-12

METHOD SAMPLE CODE	Sampling Date	Sample Type	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit			**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date			**4/06/2025**	**4/06/2025**	**4/06/2025**	**4/06/2025**	**4/06/2025**	**4/06/2025**
File			**25060401**	**25060401**	**25060401**	**25060401**	**25060401**	**25060401**
IH-Mid	28/05/2025	Marine	<0.3	0.6	1	<0.1	<0.1	<0.0001
KB-Bay 1	28/05/2025	Marine	<0.3	0.2	<1	<0.1	<0.1	<0.0001
KB-Bay 2	28/05/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 3	28/05/2025	Marine	<0.3	0.2	<1	<0.1	<0.1	<0.0001
KB-Bay 4	28/05/2025	Marine	<0.3	0.5	<1	<0.1	<0.1	<0.0001
KB-Beach	28/05/2025	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-SW 1	28/05/2025	Marine	<0.3	0.5	1	<0.1	<0.1	<0.0001
KB SW 2	28/05/2025	Marine	<0.3	0.5	<1	<0.1	<0.1	<0.0001
LI-Far	28/05/2025	Marine	<0.3	0.8	1	<0.1	<0.1	<0.0001
LI-Mid	28/05/2025	Marine	<0.3	0.8	2	<0.1	<0.1	<0.0001
LI-West	28/05/2025	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
Duplicate	28/05/2025	Marine	<0.3	0.5	1	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 6/06/2025

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CERTIFICATE OF ANALYSIS

Work Order	: **EP2413M83**	Page	: 1 of 6
Client	: **DARINE ANH FRESBWATER RESEARCB LAi ORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 28-May-2025 14:15
Order number	: PO-0017381	Date Analysis Commenced	: 29-May-2025
C-O-C number	: ----	Issue Date	: 06-Jun-2025 12:19
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Addtrtoal f tarorp lrtoa herrtaean ro rstw rehorn btff ue rogad ta rse roffobtac wehlrlre lrrlQsp eanw: y gl ftn Coarrof Rehorn/ y Aw C Cop hftlaQe Awwewwp ean ro lwwtwn btns y gl ftn Re. teb lad Sl p hfe ReQethnNortrtQ rtoa^

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: DARINE WATER 5Matrix: WATER8			Sample ID	IB(Dtd	- i (i l , 0	- i (i l , 2	- i (i l ,)	- i (i l , M
			Sampling date / time	28-May-2025 00:00	28-May-2025 00:00	28-May-2025 00:00	28-May-2025 00:00	28-May-2025 00:00
Compound	CAS Number	LOR	Unit	EP2413M33(110	EP2413M33(112	EP2413M33(11)	EP2413M33(11M	EP2413M33(114
				Result	Result	Result	Result	Result
EP131: i TEXN								
i eazeae	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Tofgeae	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ens, fueazeae	100-41-4	2	µg/L	<2	<2	<2	<2	<2
p erl (& hl rl (X, feae	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ornso(X, feae	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Torl f X, feaew	----	2	µg/L	<2	<2	<2	<2	<2
^ Sgp orri TEX	----	1	µg/L	<1	<1	<1	<1	<1
Nl hsrsl feae	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP191: Orcl aorta Cop hogadw5Sofgufe8								
Trtugn frta	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP131S: TPB5V8i TEX Sgrrocl rew								
0^2(HtQsforoensl ae(HM	17060-07-0	2	%	013	001	01M	019	001
Tofgeae(H3	2037-26-5	2	%	01M	011	99^7	93^2	93^7
Mi rop orfgoroueazeae	460-00-4	2	%	002	000	013	016	014
EP191S: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	66^M	3M^)	32^)	012	3M^3

Analytical Results

Sub-Matrix: DARINE WATER 5Matrix: WATER8			Sample ID	- i (i el Qs	- i (SW 0	- i SW 2	Lf(Fl r	Lf(D td
			Sampling date / time	28-May-2025 00:00	28-May-2025 00:00	28-May-2025 00:00	28-May-2025 00:00	28-May-2025 00:00
Compound	CAS Number	LOR	Unit	EP2413M33(117	EP2413M33(116	EP2413M33(113	EP2413M33(119	EP2413M33(101
				Result	Result	Result	Result	Result
EP131: i TEXN								
i eazeae	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Tofgeae	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ens, fueazeae	100-41-4	2	µg/L	<2	<2	<2	<2	<2
p erl (& hl rl (X, feae	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ornso(X, feae	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Torl f X, feaew	----	2	µg/L	<2	<2	<2	<2	<2
^ Sgp orri TEX	----	1	µg/L	<1	<1	<1	<1	<1
Nl hsrsl feae	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP191: Orcl aorta Cop hogadw5Sofgufe8								
Trtugn frta	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP131S: TPB5V8i TEX Sgrrocl rew								
0^2(HtQsforoensl ae(HM	17060-07-0	2	%	002	006	010	002	01)
Tofgeae(H3	2037-26-5	2	%	012	99^3	99^6	01M	93^0
Mi rop orfgoroueazeae	460-00-4	2	%	002	013	016	019	01M
EP191S: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	37^6	97^)	94^M	67^3	90^2

Analytical Results

Sub-Matrix: DARINE WATER 5Matrix: WATER8			Sample ID	Lf(Wewn	HghftQl re	((((	((((	((((
			Sampling date / time	28-May-2025 00:00	28-May-2025 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP2413M83(100	EP2413M83(102	((((((((	((((((((	((((((((
				Result	Result	----	----	----
EP131: i TEXN								
i eazeae	71-43-2	1	µg/L	<1	<1	((((	((((	((((
Tofgeae	108-88-3	2	µg/L	<2	<2	((((	((((	((((
Ens, fueazeae	100-41-4	2	µg/L	<2	<2	((((	((((	((((
p erl (& hl rl (X, feae	108-38-3 106-42-3	2	µg/L	<2	<2	((((	((((	((((
ornso(X, feae	95-47-6	2	µg/L	<2	<2	((((	((((	((((
^ Torl f X, feaew	----	2	µg/L	<2	<2	((((	((((	((((
^ Sgp orri TEX	----	1	µg/L	<1	<1	((((	((((	((((
Nl hsrnsl feae	91-20-3	5	µg/L	<5	<5	((((	((((	((((
EP191: Orcl aorta Cop hogadw5Sofgufe8								
Trtugn frta	56573-85-4	2	ngSn/L	<2	<2	((((	((((	((((
EP131S: TPB5V8i TEX Sgrrocl rew								
0^2(HtQsforoensl ae(HM	17060-07-0	2	%	00)	02)	((((	((((	((((
Tofgeae(H3	2037-26-5	2	%	9M3	96^)	((((	((((	((((
Mi rop orfgoroueazeae	460-00-4	2	%	014	013	((((	((((	((((
EP191S: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	00)	9M7	((((	((((	((((

Surrogate Control Limits

Sub-Matrix: DARINE WATER		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP131S: TPB5V8i TEX Sgrrocl rew			
0'2(HtQsforoensl ae(HM	17060-07-0	61	141
Tofgeae(H3	2037-26-5	73	126
Mi rop onfgoroueazeae	460-00-4	60	125
EP191S: Orcl aorta Sgrrocl re			
Trthroh, frta	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP2416566**	Page	: 1 of 3
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 28-May-2025
Order number	: PO-0017381	Date Analysis Commenced	: 29-May-2025
C-O-C number	: ----	Issue Date	: 06-Jun-2025
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP161: BTEXN (QC Lot: 1522)									
EP2508421-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2508488-003	KB-Bay 2	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP191: Organotin Compounds (Soluble) (QC Lot: 1265t2)									
EP2508488-001	IH-Mid	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP161: BTE0N 8QCLoX ((t t 522)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	102	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	107	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	108	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	107	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	109	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	104	77.0	118
EP191: OrganoXn Compounds 8Soluble) 8QCLoX ((265t 2)								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	79.6	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP161: BTE0N 8QCLoX ((t t 522)							
EP2508424-030	Anonymous	EP080: Benzene	71-43-2	20 µg/L	103	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	109	73.5	126
EP191: OrganoXn Compounds 8Soluble) 8QCLoX ((265t 2)							
EP2508488-001	IH-Mid	EP090S: Tributyltin	56573-85-4	147 ngSn/L	78.6	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2508488**	Page	: 1 of 5
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Project	: MSC24-12	Date Samples Received	: 28-May-2025
Site	: ----	Issue Date	: 06-Jun-2025
Sampler	: ----	No. of samples received	: 12
Order number	: PO-001B381	No. of samples analysed	: 12

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

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

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the (uality Control)(CkReport.

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Analysis Holding Time Compliance

MatriQ **WATER**

Method / Container / Client Sample ID)sk		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EP090: Organotin Compounds (Soluble)							
Amber Glass Bottle - Unpreserved							
IY-MidK	%Q-Qay 1K	05-Jun-2025	04-Jun-2025	**1**	----	----	----
%Q-Qay 2K	%Q-Qay 3K						
%Q-Qay 4K	%Q-QeachK						
%Q-SW 1K	%Q SW 2K						
LI-HarK	LI-Mid						
Amber Glass Bottle - Unpreserved							
LI-WestK	Duplicate	05-Jun-2025	04-Jun-2025	**1**	----	----	----

Outliers : Frequency of Quality Control Samples

MatriQ **WATER**

(uality Control Sample Type		Count		Rate)U k		(uality Control Specification
Analytical Methods	Method	(C	Regular	Actual	EQpected	
Laboratory Duplicates)D&Pk						
Organotin Compounds)Solublek	EP090S	1	12	8.33	10.00	NEPM 2013 Q3 V ALS (C Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or eGracted outside of recommended holding timesKthis should be taFen into consideration when interpreting results.

This report summari, es eGraction / preparation and analysis times and compares each with ALS recommended holding times)referencing &SEPA SW 846K APYAK AS and NEPMk based on the sample container provided. Dates reported represent first date of eGraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches)if anykis provided herein.

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

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

MatriQ **WATER**

Evaluation: × z Yolding time breach ; ✓ z Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
IY-MidK	%Q-Qay 1K	**28-May-2025**	**29-May-2025**	11-Jun-2025	✓	**29-May-2025**	11-Jun-2025	✓
%Q-Qay 2K	%Q-Qay 3K							
%Q-Qay 4K	%Q-QeachK							
%Q-SW 1K	%Q SW 2K							
LI-HarK	LI-MidK							
LI-WestK	Duplicate							

MatriQ **WATER**

Evaluation: × z Yolding time breach ; ✓ z Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP090: Organotin Compounds (Soluble)								
Amber Glass Bottle - Unpreserved (EP090S)								
IY-MidK	%Q-Qay 1K	**28-May-2025**	**05-Jun-2025**	04-Jun-2025	×	**05-Jun-2025**	15-Jul-2025	✓
%Q-Qay 2K	%Q-Qay 3K							
%Q-Qay 4K	%Q-QeachK							
%Q-SW 1K	%Q SW 2K							
LI-HarK	LI-Mid							
Amber Glass Bottle - Unpreserved (EP090S)								
LI-WestK	Duplicate	**28-May-2025**	**05-Jun-2025**	04-Jun-2025	×	**06-Jun-2025**	15-Jul-2025	✓

Quality Control Parameter Frequency Compliance

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

MatriQ: **WATER** Evaluation: × z (uality Control frequency not within specification ; ✓ z (uality Control frequency within specification.

(uality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates)D&Pk							
Organotin Compounds)Solublek	EP090S	1	12	**8.33**	**10.00**	×	NEPM 2013 Q3 V ALS (C Standard
TRY 7olatiles/QTE=	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 Q3 V ALS (C Standard
Laboratory Control Samples)LCSk							
Organotin Compounds)Solublek	EP090S	1	12	**8.33**	**5.00**	✓	NEPM 2013 Q3 V ALS (C Standard
TRY 7olatiles/QTE=	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 Q3 V ALS (C Standard
Method QlanFs)MQk							
Organotin Compounds)Solublek	EP090S	1	12	**8.33**	**5.00**	✓	NEPM 2013 Q3 V ALS (C Standard
TRY 7olatiles/QTE=	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 Q3 V ALS (C Standard
MatriGSpiFes)MSk							
Organotin Compounds)Solublek	EP090S	1	12	**8.33**	**5.00**	✓	NEPM 2013 Q3 V ALS (C Standard
TRY 7olatiles/QTE=	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 Q3 V ALS (C Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
TRY 7olatiles/QTE=	EP080	WATER	In house: Referenced to &SEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary XC/MS and quantification is by comparison against an established 5 point calibration curve. AlternativelyKa sample is equilibrated in a headspace vial and a portion of the headspace determined by XCMS analysis. This method is compliant with the (C requirements of NEPM Schedule Q)3k
Organotin Compounds)Solublek	EP090S	WATER	In house: Referenced to &SEPA SW 846 - 82B0 Sample eGracts are analysed by XC/MS coupled with high volume injection and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule Q)3k

Preparation Methods	Method	Matrix	Method Descriptions
7olatiles Water Preparation	ORX16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL 7OC vial for purging.
Organotin Sample Preparation	ORX34	WATER	In house. A specified volume of sample is spiFed with surrogateKacidified and vacuum filtered. Reagents and solvent are added and the miGure tumbled. The butyltin compounds is derivitisatedKeGracted and the subtitution reaction completed. The eGract is transferred to a separatory funnel and further eGracted two times with petroleum ether. The resultant eGracts are combined and concentrated for analysis.

Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 25/06/2025
Date Received: 12/06/2025
Our Reference: MSC24-13
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit			<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date			16/06/2025	16/06/2025	16/06/2025	20/06/2025	20/06/2025	18/06/2025	18/06/2025	12/06/2025
File			25061601	25061601	25061601	25062002	25062002	25061802	25061802	250612
IH-Mid	12/06/2025	Marine	32	7	11	20	180	1.4	0.7	5
KB-Bay 1	12/06/2025	Marine	9	5	5	19	170	1.6	1.0	8
KB-Bay 2	12/06/2025	Marine	17	7	11	21	190	1.5	0.9	9
KB-Bay 3	12/06/2025	Marine	20	5	9	24	200	1.7	1.1	12
KB-Bay 4	12/06/2025	Marine	19	7	10	24	200	1.9	0.9	12
KB-Beach	12/06/2025	Marine	23	6	10	23	200	2.0	1.3	12
KB-SW 1	12/06/2025	Marine	18	7	10	29	220	2.2	1.8	16
KB SW 2	12/06/2025	Marine	23	7	10	26	240	2.1	1.3	16
LI-Far	12/06/2025	Marine	<3	4	<2	31	270	8.5	1.0	5
LI-Mid	12/06/2025	Marine	<3	4	3	22	210	4.4	0.9	4
LI-West	12/06/2025	Marine	5	5	6	20	200	2.8	0.9	4
Duplicate	12/06/2025	Marine	19	7	12	29	220	2.5	2.2	19

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 25/06/2025

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Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 25/06/2025
Date Received: 12/06/2025
Our Reference: MSC24-13
Your Reference: MSA343

METHOD SAMPLE CODE	Sampling Date	Sample Type	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit			**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date			**20/06/2025**	**20/06/2025**	**20/06/2025**	**20/06/2025**	**20/06/2025**	**20/06/2025**
File			**25062001**	**25062001**	**25062001**	**25062001**	**25062001**	**25062001**
IH-Mid	12/06/2025	Marine	<0.3	0.4	1	<0.1	<0.1	<0.0001
KB-Bay 1	12/06/2025	Marine	<0.3	0.2	<1	<0.1	<0.1	<0.0001
KB-Bay 2	12/06/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 3	12/06/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 4	12/06/2025	Marine	<0.3	0.3	1	<0.1	<0.1	<0.0001
KB-Beach	12/06/2025	Marine	<0.3	0.3	1	<0.1	<0.1	<0.0001
KB-SW 1	12/06/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB SW 2	12/06/2025	Marine	<0.3	0.3	1	<0.1	<0.1	<0.0001
LI-Far	12/06/2025	Marine	0.4	0.7	2	<0.1	<0.1	<0.0001
LI-Mid	12/06/2025	Marine	<0.3	0.7	2	<0.1	<0.1	<0.0001
LI-West	12/06/2025	Marine	<0.3	1.3	2	<0.1	<0.1	<0.0001
Duplicate	12/06/2025	Marine	<0.3	0.3	2	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 25/06/2025

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CERTIFICATE OF ANALYSIS

Work Order	: **EP2413MfD**	Page	: 1 of 6
Client	: **HARINE ANB FRESi WATER RESEARCi LAt ORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: + [redacted]
Project	: MSC25-12	Date Samples Received	: 13-Jun-2025 14:40
Order number	: PO-0017381	Date Analysis Commenced	: 16-Jun-2025
C-O-C number	: ----	Issue Date	: 23-Jun-2025 10:18
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Addraol fm ri porh faol serai el a ao awrb resora u mm ge poc l d ri awe pomou ri Q besfrfæ fæfywh el ab: , cf ma/ Col arom Resora v , A., C Coh smfl ye Abbebbh el a ao fbbrba u raw , cf ma/ Re^reu f l d Sfh sra ReyersaNoapyfaol K

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	krisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: HARINE WATER
5Matrix: WATER8

Compound	CAS Number	LOR	Unit	Sample ID	li)Hrd	(t)t f/ 0	(t)t f/ 2	(t)t f/ D	(t)t f/ M
				Sampling date / time	12-Jun-2025 00:00	12-Jun-2025 00:00	12-Jun-2025 00:00	12-Jun-2025 00:00	12-Jun-2025 00:00
					EP2413MID)110	EP2413MID)112	EP2413MID)11D	EP2413MID)11M	EP2413MID)114
					Result	Result	Result	Result	Result
EP1X1: t TEz N									
t el &el e	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Tomel e	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Eaw/rgel &el e	100-41-4	2	µg/L		<2	<2	<2	<2	<2
h eaf) 9 sf rf)z / ral e	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
orawo)z / ral e	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Toaf nz / ral eb	----	2	µg/L		<2	<2	<2	<2	<2
^ Sch opt TEz	----	1	µg/L		<1	<1	<1	<1	<1
Nf swawf ral e	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP131: OrQf l oal Coh socl db 5Sorngra8									
Trrgca/ ral	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP1X1S: TPi 5V8t TEz ScrroQf æb									
0K2)Bryworoeawf l e)BM	17060-07-0	2	%		3XK1	34K4	014	010	01M
Tomel e)BX	2037-26-5	2	%		010	010	011	012	33K7
Mjt roh opnorogel &el e	460-00-4	2	%		3DKM	30KO	3DK8	3DK2	3DKO
EP131S: OrQf l oal ScrroQf æ									
Trrsros / ral	----	5	%		44K4	47KX	46K8	4MK8	61K7

Analytical Results

Sub-Matrix: HARINE WATER
5Matrix: WATER8

			Sample ID	(t)t ef yw	(t)SW 0	(t SW 2	Lr)Ff r	Lr)H rd
			Sampling date / time	12-Jun-2025 00:00	12-Jun-2025 00:00	12-Jun-2025 00:00	12-Jun-2025 00:00	12-Jun-2025 00:00
Compound	CAS Number	LOR	Unit	EP2413MID)116	EP2413MID)117	EP2413MID)11X	EP2413MID)113	EP2413MID)101
				Result	Result	Result	Result	Result
EP1X1: t TEz N								
t el &el e	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Tomel e	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Eaw/rgel &el e	100-41-4	2	µg/L	<2	<2	<2	<2	<2
h eaf) 9 sf rf)z / ral e	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
orawo)z / ral e	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Toaf nz / ral eb	----	2	µg/L	<2	<2	<2	<2	<2
^ Sch opt TEz	----	1	µg/L	<1	<1	<1	<1	<1
Nf swawf ral e	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP131: OrQf l oal Coh socl db 5Sorngra8								
Trrgca/ ral	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP1X1S: TPi 5V8t TEz ScrroQf æb								
0K2)Bryworoeawf l e)BM	17060-07-0	2	%	007	37K2	013	33KM	011
Tomel e)BX	2037-26-5	2	%	010	010	33K2	37KM	33KK
Mjt roh opnorogel &el e	460-00-4	2	%	31K2	3DKM	3DK8	31KK	32K1
EP131S: OrQf l oal ScrroQf æ								
Trrsros / ral	----	5	%	60KK	47K7	73KK	64KM	6XKD

Analytical Results

Sub-Matrix: HARINE WATER 5Matrix: WATER8			Sample ID	Lr)Weba	Bcsmyfæ	))))	))))	))))
			Sampling date / time	12-Jun-2025 00:00	12-Jun-2025 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP2413MID)100	EP2413MID)102	))))))))	))))))))	))))))))
				Result	Result	----	----	----
EP1X1: t TEz N								
t el &el e	71-43-2	1	µg/L	<1	<1	))))	))))	))))
Tomel e	108-88-3	2	µg/L	<2	<2	))))	))))	))))
Eaw/rgel &el e	100-41-4	2	µg/L	<2	<2	))))	))))	))))
h eaf)9 sf rf)z/ral e	108-38-3 106-42-3	2	µg/L	<2	<2	))))	))))	))))
orawo)z/ral e	95-47-6	2	µg/L	<2	<2	))))	))))	))))
^ Toafmz/ral eb	----	2	µg/L	<2	<2	))))	))))	))))
^ Sch opt TEz	----	1	µg/L	<1	<1	))))	))))	))))
Nf swawf ral e	91-20-3	5	µg/L	<5	<5	))))	))))	))))
EP131: OrQf l oal Coh socl db 5Sorngra8								
Trrgca/ral	56573-85-4	2	ngSn/L	<2	<2	))))	))))	))))
EP1X1S: TPi 5V8t TEz ScrroQf æb								
0l2)Brywroroeawf l e)BM	17060-07-0	2	%	001	016	))))	))))	))))
Tomel e)BX	2037-26-5	2	%	012	3XK8	))))	))))	))))
Mjt roh opnorogel &el e	460-00-4	2	%	32K	31K8	))))	))))	))))
EP131S: OrQf l oal ScrroQf æ								
Trrsros/ral	----	5	%	7DM	X3K0	))))	))))	))))

Surrogate Control Limits

Sub-Matrix: HARINE WATER		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP1X1S: TPi 5V8t TEz ScrroQf æb			
0l2)Brywroroeawf l e)BM	17060-07-0	61	141
Tomel e)BX	2037-26-5	73	126
Mjt roh opnoorogel &el e	460-00-4	60	125
EP131S: OrQf l oat ScrroQf æ			
Trnsros/ rat	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS krisbane, NATA accreditation no. 825, site no. 818 (Chemistry / kiology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: EP2413MID	Page	: 1 of 3
Client	: F ARINE ANS HREB0 WATER REBEARC0 LA8 ORATORY	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC25-12	Date Samples Received	: 13-Jun-2025
Order number	: PO-0017381	Date Analysis Commenced	: 16-Jun-2025
C-O-C number	: ----	Issue Date	: 23-Jun-2025
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP1X1: 8 TE(N tQC Lo6)) 414X9g									
EP2509386-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2509403-005	KB-Bay 4	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP131: Orani o6in Cop uosi dI tBobs 5leg tQC Lo6)) 43411g									
EM2510482-006	Anonymous	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP1X1: 8TE(N tQCLo6)) 414X9g								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	106	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	110	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	107	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	108	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	108	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	99.7	77.0	118
EP131: Orani o6n Cop uosi dl tBots5leg tQCLo6)) 43411g								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	74.0	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP1X1: 8TE(N tQCLo6)) 414X9g							
EP2509386-002	Anonymous	EP080: Benzene	71-43-2	20 µg/L	119	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	106	73.5	126
EP131: Orani o6n Cop uosi dl tBots5leg tQCLo6)) 43411g							
EP2509403-001	IH-Mid	EP090S: Tributyltin	56573-85-4	147 ngSn/L	61.0	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2509403**	Page	: 1 of 5
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Project	: Mj CS2-1S	Date j amples Received	: 10-Jun-S4S2
j ite	: ----	Issue Date	: S0-Jun-S4S2
j ampler	: ----	No. of samples received	: 1S
Order number	: PO-441B081	No. of samples analysed	: 1S

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

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

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the (uality Control)(CkReport.

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Frequency of Quality Control Samples

MatriQ: **WATER**

(uality Control j ample Type		Count		Rate)K k		(uality Control j pecification
Analytical Methods	Method	(C	Regular	Actual	EQpected	
Laboratory Duplicates)D%Pk						
Organotin Compounds)j olublek	EP494j	1	12	6.6B	14.44	NEPM S410 Q0 U ALj (C j tandard

Analysis Holding Time Compliance

If samples are identified belo; as having been analysed or eGracted outside of recommended holding timeswthis should be taFen into consideration ; hen interpreting results.

This report summariqes eGraction 7 preparation and analysis times and compares each ; ith ALj recommended holding times)referencing %j EPA j W 856w APYAw Aj and NEPMk based on the sample container provided. Dates reported represent first date of eGraction or analysis and preclude subse/ uent dilutions and reruns. A listing of breaches)if anykis provided herein.

Yolding time for leachate methods)e.g. TCLPk vary according to the analytes reported. Assessment compares the leach date ; ith the shortest analyte holding time for the e/ uivalent soil method. These are: organics 15 daysw mercury S8 days U other metals 184 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Yolding times for ***VOC in soils*** vary according to analytes of interest. &inyl Chloride and j tyrene holding time is B daysV others 15 days. A recorded breach does not guarantee a breach for all &OC analytes and should be verified in case the reported breach is a false positive or &inyl Chloride and j tyrene are not Fey analytes of interest7concern.

MatriQ: **WATER** Evaluation: × , Yolding time breach V✓ , Within holding time.

Method / ***Container*** / Client Sample ID(s)		***Sample Date***	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
IY-Midw	z Q-Qay 1w	**12-Jun-2025**	**16-Jun-2025**	S6-Jun-S4S2	✓	**17-Jun-2025**	S6-Jun-S4S2	✓
z Q-Qay Sw	z Q-Qay 0w							
z Q-Qay 5w	z Q-Qeachw							
z Q-j W 1w	z Q j W Sw							
LI-Harw	LI-Midw							
LI-Westw	Duplicate							
EP090: Organotin Compounds (Soluble)								
Amber Glass Bottle - Unpreserved (EP090S)								
IY-Midw	z Q-Qay 1w	**12-Jun-2025**	**19-Jun-2025**	19-Jun-S4S2	✓	**20-Jun-2025**	S9-Jul-S4S2	✓
z Q-Qay Sw	z Q-Qay 0w							
z Q-Qay 5w	LI-Harw							
LI-Midw	LI-West							
Amber Glass Bottle - Unpreserved (EP090S)								
z Q-Qeachw	z Q-j W 1w	**12-Jun-2025**	**19-Jun-2025**	19-Jun-S4S2	✓	**21-Jun-2025**	S9-Jul-S4S2	✓
z Q j W Sw	Duplicate							

Quality Control Parameter Frequency Compliance

The follo; ing report summarises the fre/ uency of laboratory (C samples analysed ; ithin the analytical lot)skin ; hich the submitted sample)sk; as); erekprocessed. Actual rate should be greater than or e/ ual to the eQpected rate. A listing of breaches is provided in the j ummary of Outliers.

MatriG: **WATER**

Evaluation: × , (uality Control fre/ uency not ; ithin specification V✓ , (uality Control fre/ uency ; ithin specification.

(uality Control j ample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates)D%Pk							
Organotin Compounds)j olublek	EP494j	1	12	**6.67**	**10.00**	✗	NEPM S410 Q0 U ALj (C j tandard
TRY &olatiles7QTE=	EP484	S	18	**11.11**	**10.00**	✓	NEPM S410 Q0 U ALj (C j tandard
Laboratory Control j amples)LCj k							
Organotin Compounds)j olublek	EP494j	1	12	**6.67**	**5.00**	✓	NEPM S410 Q0 U ALj (C j tandard
TRY &olatiles7QTE=	EP484	1	18	**5.56**	**5.00**	✓	NEPM S410 Q0 U ALj (C j tandard
Method QlanFs)MQk							
Organotin Compounds)j olublek	EP494j	1	12	**6.67**	**5.00**	✓	NEPM S410 Q0 U ALj (C j tandard
TRY &olatiles7QTE=	EP484	1	18	**5.56**	**5.00**	✓	NEPM S410 Q0 U ALj (C j tandard
MatriGj piFes)Mj k							
Organotin Compounds)j olublek	EP494j	1	12	**6.67**	**5.00**	✓	NEPM S410 Q0 U ALj (C j tandard
TRY &olatiles7QTE=	EP484	1	18	**5.56**	**5.00**	✓	NEPM S410 Q0 U ALj (C j tandard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recogniqed procedures such as those published by the %j EPAwAPYAwAj and NEPM. In house developed procedures are employed in the absence of documented standards or by client re/ uest. The follo; ing report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. j ources from ; hich ALj methods have been developed are provided ; ithin the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
TRY &olatiles7QTE=	EP484	WATER	In house: Referenced to %j EPA j W 856 - 8S64 Water samples are directly purged prior to analysis by Capillary XC7Mj and / uantification is by comparison against an established 2 point calibration curve. Alternativelywa sample is e/ uilibrated in a headspace vial and a portion of the headspace determined by XCMj analysis. This method is compliant ; ith the (C re/ uirements of NEPM j chedule Q)0k
Organotin Compounds)j olublek	EP494i	WATER	In house: Referenced to %j EPA j W 856 - 8SB4 j ample eGracts are analysed by XC7Mj coupled ; ith high volume in3ection and / uantification is by comparison against an established 2 point calibration curve. This method is compliant ; ith NEPM j chedule Q)0k

Preparation Methods	Method	Matrix	Method Descriptions
&olatiles Water Preparation	ORX16-W	WATER	A 2 mL ali/ uot or 2 mL of a diluted sample is added to a 54 mL &OC vial for purging.
Organotin j ample Preparation	ORX05	WATER	In house. A specified volume of sample is spiFed ; ith surrogatewacidified and vacuum filtered. Reagents and solvent are added and the miGure tumbled. The butyltin compounds is derivitisatedweGracted and the subtitution reaction completed. The eGract is transferred to a separatory funnel and further eGracted t; o times ; ith petroleum ether. The resultant eGracts are combined and concentrated for analysis.

Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 8/07/2025
Date Received: 25/06/2025
Our Reference: MSC25-14
Your Reference: MSA343-12

METHOD SAMPLE CODE	Sampling Date	Sample Type	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit			<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date			3/07/2025	3/07/2025	3/07/2025	2/07/2025	2/07/2025	2/07/2025	2/07/2025	26/06/2025
File			25070301	25070301	25070301	25070201	25070201	25070201	25070201	250626
IH-Mid	25/06/2025	Marine	20	6	18	19	180	1.2	0.5	4
KB-Bay 1	25/06/2025	Marine	7	6	20	19	180	2.3	0.4	3
KB-Bay 2	25/06/2025	Marine	12	6	20	18	180	1.6	0.4	2
KB-Bay 3	25/06/2025	Marine	6	4	17	19	180	2.3	0.4	2
KB-Bay 4	25/06/2025	Marine	5	6	21	20	220	3.6	0.3	3
KB-Beach	25/06/2025	Marine	6	4	16	22	210	4.2	0.5	3
KB-SW 1	25/06/2025	Marine	11	5	18	25	240	4.5	0.7	5
KB SW 2	25/06/2025	Marine	8	5	17	20	200	3.5	0.4	3
LI-Far	25/06/2025	Marine	<3	4	<2	26	240	4.2	0.6	4
LI-Mid	25/06/2025	Marine	<3	3	<2	34	370	15	1.4	4
LI-West	25/06/2025	Marine	<3	4	7	19	240	2.5	0.6	2
Duplicate	25/06/2025	Marine	6	4	17	17	170	2.0	0.5	3

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 8/07/2025

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Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 8/07/2025
Date Received: 25/06/2025
Our Reference: MSC25-14
Your Reference: MSA343-12

METHOD SAMPLE CODE	Sampling Date	Sample Type	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit			**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date			**30/06/2025**	**30/06/2025**	**30/06/2025**	**30/06/2025**	**30/06/2025**	**1/07/2025**
File			**25063001**	**25063001**	**25063001**	**25063001**	**25063001**	**25070101**
IH-Mid	25/06/2025	Marine	<0.3	0.5	1	<0.1	<0.1	<0.0001
KB-Bay 1	25/06/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 2	25/06/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 3	25/06/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Bay 4	25/06/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Beach	25/06/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-SW 1	25/06/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB SW 2	25/06/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
LI-Far	25/06/2025	Marine	<0.3	0.5	1	<0.1	<0.1	<0.0001
LI-Mid	25/06/2025	Marine	<0.3	0.7	1	<0.1	<0.1	<0.0001
LI-West	25/06/2025	Marine	<0.3	1.1	2	<0.1	<0.1	<0.0001
Duplicate	25/06/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 8/07/2025

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CERTIFICATE OF ANALYSIS

Work Order	: **EP24131MB**	Page	: 1 of 6
Client	: **DARINE ANH FRESBWATER RESEARCB LAi ORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: +[redacted]	Telephone	: [redacted]
Project	: MSC25-12	Date Samples Received	: 25-Jun-2025 14:30
Order number	: PO-0017381	Date Analysis Commenced	: 01-Jul-2025
C-O-C number	: ----	Issue Date	: 04-Jul-2025 13:05
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Addtrtoal f tarorp lrtoa herrtaean ro rstw rehorn btff ue rogad ta rse roffobtac wehlrlre lrrlQsp eanw: y gl ftn Coarrof Rehorn/ y Aw C Cop hftlaQe Awwewwp ean ro lwwtwn btns y gl ftn Re. teb lad Sl p hfe ReQethnNortrtQ rtoa^

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	krisbane Organics, Stafford, QLD
[redacted]	Senior Chemist - Organics	krisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: WATER
5Matrix: WATER8

Compound	CAS Number	LOR	Unit	Sample ID: IB(Dtd	- i (i l , 1	- i (i l , 2	- i (i l , 0	- i (i l ,)
			Sampling date / time	25-Jun-2025 00:00	25-Jun-2025 00:00	25-Jun-2025 00:00	25-Jun-2025 00:00	25-Jun-2025 00:00
				EP24131M3(331	EP24131M3(332	EP24131M3(330	EP24131M3(33)	EP24131M3(334
				Result	Result	Result	Result	Result
EP3X3: i TEz N								
i ea&eae	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Tofgeae	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ens, fuea&eae	100-41-4	2	µg/L	<2	<2	<2	<2	<2
p erl (9 hl rl (z , feae	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ornso(z , feae	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Torl f z , feaew	----	2	µg/L	<2	<2	<2	<2	<2
^ Sgp orri TEz	----	1	µg/L	<1	<1	<1	<1	<1
Nl hsrnsl feae	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP3M3: Orcl aorta Cop hogadw5Sofgufe8								
Trtugn frta	56573-85-4	2	ngSn/L	<2	<2	<2	<2	<2
EP3X3S: TPB5V8i TEz Sgrrocl rew								
1^2(HtQsforoensl ae(H)	17060-07-0	2	%	117	112	121	11)	MI^7
Tofgeae(HX	2037-26-5	2	%	134	13M	130	13X	121
) (i rop orfgorouea&eae	460-00-4	2	%	13M	M0^)	136	110	12)
EP3M3S: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	) 2^2	X0^)	117	13X	130

Analytical Results

Sub-Matrix: WATER
5Matrix: WATER8

Compound	CAS Number	LOR	Unit	Sample ID	- i (i el Qs	- i (SW 1	- i (SW 2	LI(Fl r	LI(D td
				Sampling date / time	25-Jun-2025 00:00	25-Jun-2025 00:00	25-Jun-2025 00:00	25-Jun-2025 00:00	25-Jun-2025 00:00
					EP24131M3(337	EP24131M3(336	EP24131M3(33X	EP24131M3(33M	EP24131M3(313
					Result	Result	Result	Result	Result
EP3X3: i TEz N									
i ea&eae	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Tofgeae	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ens, fuea&eae	100-41-4	2	µg/L		<2	<2	<2	<2	<2
p erl (9 hl rl (z , feae	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ornso(z , feae	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Torl f z , feaew	----	2	µg/L		<2	<2	<2	<2	<2
^ Sgp orri TEz	----	1	µg/L		<1	<1	<1	<1	<1
Nl hsrnsl feae	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP3M3: Orcl aorta Cop hogadw5Sofgufe8									
Trtugn frta	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP3X3S: TPB5V8i TEz Sgrrocl rew									
1^2(HtQsforoensl ae(H)	17060-07-0	2	%		13X	MK^7	111	112	M) ^0
Tofgeae(HX	2037-26-5	2	%		M7^X	13)	13X	137	111
) (i rop orfgorouea&eae	460-00-4	2	%		13M	123	11)	111	123
EP3M3S: Orcl aorta Sgrrocl re									
Trthroh, frta	----	5	%		6X^2	6X^M	X3^2	70^1	77^)

Analytical Results

Sub-Matrix: WATER
5Matrix: WATER8

			Sample ID	LI(Wewn	HghftQl re	((((	((((	((((
			Sampling date / time	25-Jun-2025 00:00	25-Jun-2025 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EP24131M3(311	EP24131M3(312	((((((((	((((((((	((((((((
				Result	Result	----	----	----
EP3X3: i TEz N								
i ea&eae	71-43-2	1	µg/L	<1	<1	((((	((((	((((
Tofgeae	108-88-3	2	µg/L	<2	<2	((((	((((	((((
Ens, fuea&eae	100-41-4	2	µg/L	<2	<2	((((	((((	((((
p erl (9 hl rl (z, feae	108-38-3 106-42-3	2	µg/L	<2	<2	((((	((((	((((
ornso(z, feae	95-47-6	2	µg/L	<2	<2	((((	((((	((((
^ Torl f z, feaew	----	2	µg/L	<2	<2	((((	((((	((((
^ Sgp orri TEz	----	1	µg/L	<1	<1	((((	((((	((((
Nl hsrnsl feae	91-20-3	5	µg/L	<5	<5	((((	((((	((((
EP3M3: Orcl aorta Cop hogadw5Sofgufe8								
Trtugn frta	56573-85-4	2	ngSn/L	<2	<2	((((	((((	((((
EP3X3S: TPB5V8i TEz Sgrrocl rew								
1^2(HtQsforoensl ae(H)	17060-07-0	2	%	112	113	((((	((((	((((
Tofgeae(HX	2037-26-5	2	%	123	120	((((	((((	((((
) (i rop orfgorouea&eae	460-00-4	2	%	113	12)	((((	((((	((((
EP3M3S: Orcl aorta Sgrrocl re								
Trthroh, frta	----	5	%	7) ^1	) 0^X	((((	((((	((((

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP3X3S: TPB5V8i TEz Sgrrocl rew			
1'2(HtQsforoensl ae(H)	17060-07-0	61	141
Tofgeae(HX	2037-26-5	73	126
) (i rop onfgorouea&eae	460-00-4	60	125
EP3M8S: Orcl aorta Sgrrocl re			
Trthroh, frta	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS krisbane, NATA accreditation no. 825, site no. 818 (Chemistry / kiology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP2416156**	Page	: 1 of 3
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC25-12	Date Samples Received	: 25-Jun-2025
Order number	: PO-0017381	Date Analysis Commenced	: 01-Jul-2025
C-O-C number	: ----	Issue Date	: 04-Jul-2025
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP606: BTE8N XQC Lo(: t t 0t t 15)									
EP2510190-001	IH-Mid	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2510190-011	LI-West	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP656: Or9gao(ra Coi mopadu XSospl se) XQC Lo(: t t 00b66)									
EP2510190-001	IH-Mid	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP606: BTE8N XQCLo(: tt 0tt 15)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	92.5	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	103	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	93.2	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	97.5	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	103	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	101	77.0	118
EP656: Or9gao(ra Coi mopadu XSospl se) XQCLo(: tt 00b66)								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	101	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP606: BTE8N XQCLo(: tt 0tt 15)							
EP2510190-002	KB-Bay 1	EP080: Benzene	71-43-2	20 µg/L	116	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	105	73.5	126
EP656: Or9gao(ra Coi mopadu XSospl se) XQCLo(: tt 00b66)							
EP2510190-001	IH-Mid	EP090S: Tributyltin	56573-85-4	147 ngSn/L	98.1	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2510190**	Page	: 1 of 5
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Project	: Mj CS2-1S	Date j amples Received	: S2-Jun-S4S2
j ite	: ----	Issue Date	: 45-Jul-S4S2
j ampler	: ----	No. of samples received	: 1S
Order number	: PO-441B081	No. of samples analysed	: 1S

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

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

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the (uality Control)(CkReport.

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Frequency of Quality Control Samples

MatriQ: **WATER**

(uality Control j ample Type		Count		Rate)K k		(uality Control j pecification
Analytical Methods	Method	(C	Regular	Actual	EQpected	
Laboratory Duplicates)D%Pk						
Organotin Compounds)j olublek	EP494j	1	10	B.69	14.44	NEPM S410 Q0 U ALj (C j tandard

Analysis Holding Time Compliance

If samples are identified belo; as having been analysed or eGracted outside of recommended holding timeswthis should be taFen into consideration ; hen interpreting results.

This report summariqes eGraction 7 preparation and analysis times and compares each ; ith ALj recommended holding times)referencing %j EPA j W 856w APYAw Aj and NEPMk based on the sample container provided. Dates reported represent first date of eGraction or analysis and preclude subse/ uent dilutions and reruns. A listing of breaches)if anykis provided herein.

Yolding time for leachate methods)e.g. TCLPk vary according to the analytes reported. Assessment compares the leach date ; ith the shortest analyte holding time for the e/ uivalent soil method. These are: organics 15 daysw mercury S8 days U other metals 184 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Yolding times for ***VOC in soils*** vary according to analytes of interest. &inyl Chloride and j tyrene holding time is B daysV others 15 days. A recorded breach does not guarantee a breach for all &OC analytes and should be verified in case the reported breach is a false positive or &inyl Chloride and j tyrene are not Fey analytes of interest7concern.

MatriQ: **WATER** Evaluation: × , Yolding time breach V✓ , Within holding time.

Method / *Container* / Client Sample ID(s)		*Sample Date*	*Extraction / Preparation*			*Analysis*		
			Date extracted	Due for extraction	Evaluation	*Date analysed*	Due for analysis	Evaluation
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
IY-Midw	z Q-Qay 1w	**25-Jun-2025**	**01-Jul-2025**	49-Jul-S4S2	✓	**02-Jul-2025**	49-Jul-S4S2	✓
z Q-Qay Sw	z Q-Qay 0w							
z Q-Qay 5w	z Q-Qeachw							
z Q-j W 1w	z Q-j W Sw							
LI-Harw	LI-Midw							
LI-Westw	Duplicate							
EP090: Organotin Compounds (Soluble)								
Amber Glass Bottle - Unpreserved (EP090S)								
IY-Midw	z Q-Qay 1w	**25-Jun-2025**	**02-Jul-2025**	4S-Jul-S4S2	✓	**02-Jul-2025**	11-Aug-S4S2	✓
z Q-Qay Sw	z Q-Qay 0w							
z Q-Qay 5w	z Q-Qeachw							
z Q-j W 1w	z Q-j W Sw							
LI-Harw	LI-Midw							
LI-Westw	Duplicate							

Quality Control Parameter Frequency Compliance

The follo; ing report summarises the fre/ uency of laboratory (C samples analysed ; ithin the analytical lot)skin ; hich the submitted sample)sk; as); erekprocessed. Actual rate should be greater than or e/ ual to the eQpected rate. A listing of breaches is provided in the j ummary of Outliers.

MatriG: **WATER**

Evaluation: × , (uality Control fre/ uency not ; ithin specification V✓ , (uality Control fre/ uency ; ithin specification.

(uality Control j ample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates)D%Pk							
Organotin Compounds)j olublek	EP494j	1	10	**7.69**	**10.00**	✗	NEPM S410 Q0 U ALj (C j tandard
TRY &olatiles7QTE=	EP484	S	S4	**10.00**	**10.00**	✓	NEPM S410 Q0 U ALj (C j tandard
Laboratory Control j amples)LCj k							
Organotin Compounds)j olublek	EP494j	1	10	**7.69**	**5.00**	✓	NEPM S410 Q0 U ALj (C j tandard
TRY &olatiles7QTE=	EP484	1	S4	**5.00**	**5.00**	✓	NEPM S410 Q0 U ALj (C j tandard
Method QlanFs)MQk							
Organotin Compounds)j olublek	EP494j	1	10	**7.69**	**5.00**	✓	NEPM S410 Q0 U ALj (C j tandard
TRY &olatiles7QTE=	EP484	1	S4	**5.00**	**5.00**	✓	NEPM S410 Q0 U ALj (C j tandard
MatriGj piFes)Mj k							
Organotin Compounds)j olublek	EP494j	1	10	**7.69**	**5.00**	✓	NEPM S410 Q0 U ALj (C j tandard
TRY &olatiles7QTE=	EP484	1	S4	**5.00**	**5.00**	✓	NEPM S410 Q0 U ALj (C j tandard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recogniqed procedures such as those published by the %j EPAwAPYAwAj and NEPM. In house developed procedures are employed in the absence of documented standards or by client re/ uest. The follo; ing report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. j ources from ; hich ALj methods have been developed are provided ; ithin the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
TRY &olatiles7QTE=	EP484	WATER	In house: Referenced to %j EPA j W 856 - 8S64 Water samples are directly purged prior to analysis by Capillary XC7Mj and / uantification is by comparison against an established 2 point calibration curve. Alternativelywa sample is e/ uilibrated in a headspace vial and a portion of the headspace determined by XCMj analysis. This method is compliant ; ith the (C re/ uirements of NEPM j chedule Q)0k
Organotin Compounds)j olublek	EP494i	WATER	In house: Referenced to %j EPA j W 856 - 8SB4 j ample eGracts are analysed by XC7Mj coupled ; ith high volume in3ection and / uantification is by comparison against an established 2 point calibration curve. This method is compliant ; ith NEPM j chedule Q)0k

Preparation Methods	Method	Matrix	Method Descriptions
&olatiles Water Preparation	ORX16-W	WATER	A 2 mL ali/ uot or 2 mL of a diluted sample is added to a 54 mL &OC vial for purging.
Organotin j ample Preparation	ORX05	WATER	In house. A specified volume of sample is spiFed ; ith surrogatewacidified and vacuum filtered. Reagents and solvent are added and the miGure tumbled. The butyltin compounds is derivitisatedweGracted and the subtitution reaction completed. The eGract is transferred to a separatory funnel and further eGracted t; o times ; ith petroleum ether. The resultant eGracts are combined and concentrated for analysis.

Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 22/07/2025
Date Received: 8/07/2025
Our Reference: MSC25-15
Your Reference: MSA343-12

METHOD SAMPLE CODE	Sampling Date	Sample Type	2000 AMMONIA µg.N/L	4100 ORTHO-P µg.P/L	2100 NO3+NO2 µg.N/L	4700 TOTAL-P µg.P/L	2700 TOTAL-N µg.N/L	3000 CHLOROPHYLL'a' µg/L	3000 PHAEOPHYTIN'a' µg/L	2540D TSS mg/L
Reporting Limit			<3	<2	<2	<5	<50	<0.1	<0.2	<1
Analysis Date			16/07/2025	16/07/2025	21/07/2025	18/07/2025	18/07/2025	10/07/2025	10/07/2025	9/07/2025
File			25071601	25071601	25072101	25071801	25071801	25071002	25071002	250709
IH-Mid	8/07/2025	Marine	23	7	17	17	160	1.3	0.5	3
KB-Bay 1	8/07/2025	Marine	16	6	18	18	180	1.2	0.8	8
KB-Bay 2	8/07/2025	Marine	16	6	16	18	170	1.5	0.6	5
KB-Bay 3	8/07/2025	Marine	14	5	17	17	160	1.5	0.5	4
KB-Bay 4	8/07/2025	Marine	18	6	18	19	170	1.4	0.6	7
KB-Beach	8/07/2025	Marine	17	6	15	19	160	1.3	0.8	7
KB-SW 1	8/07/2025	Marine	22	6	23	24	220	1.7	1.2	12
KB SW 2	8/07/2025	Marine	20	7	30	18	190	1.0	0.6	5
LI-Far	8/07/2025	Marine	15	5	86	28	350	6.3	0.4	2
LI-Mid	8/07/2025	Marine	28	7	130	20	320	2.6	0.5	2
LI-West	8/07/2025	Marine	30	7	130	22	390	0.9	0.3	2
Duplicate	8/07/2025	Marine	25	6	130	21	370	1.0	0.2	2

Note: For results for compliance purposes uncertainity of measurement (MU) will sometimes affect the interpretation whether the result passes or fails the compliance limit.
Tables for measurement uncertainity are available online at www.mafrl.murdoch.edu.au

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 22/07/2025

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Marine and Freshwater Research Laboratory
Tel: 08 93602907 Address: 90 South St, Murdoch, WA, 6150

Accreditation Number: 10603
Accredited for compliance with ISO/IEC 17025 - Testing.

Murdoch University

WATER QUALITY DATA

Contact: [redacted]
Customer: MScience
Address: 3/24 Crocker Drive, Malaga, WA 6090

Date of Issue: 22/07/2025
Date Received: 8/07/2025
Our Reference: MSC25-15
Your Reference: MSA343-12

METHOD SAMPLE CODE	Sampling Date	Sample Type	MS001 Filtered Ni µg/L	MS001 Filtered Cu µg/L	MS001 Filtered Zn µg/L	MS001 Filtered Cd µg/L	MS001 Filtered Pb µg/L	ICP006 Hg mg/L
Reporting Limit			**<0.3**	**<0.2**	**<1**	**<0.1**	**<0.1**	**<0.0001**
Analysis Date			**14/07/2025**	**14/07/2025**	**14/07/2025**	**14/07/2025**	**14/07/2025**	**15/07/2025**
File			**25071401**	**25071401**	**25071401**	**25071401**	**25071401**	**25071501**
IH-Mid	8/07/2025	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-Bay 1	8/07/2025	Marine	<0.3	0.3	1	<0.1	<0.1	<0.0001
KB-Bay 2	8/07/2025	Marine	<0.3	0.2	<1	<0.1	<0.1	<0.0001
KB-Bay 3	8/07/2025	Marine	<0.3	0.4	<1	<0.1	<0.1	<0.0001
KB-Bay 4	8/07/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-Beach	8/07/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB-SW 1	8/07/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
KB SW 2	8/07/2025	Marine	<0.3	0.3	<1	<0.1	<0.1	<0.0001
LI-Far	8/07/2025	Marine	<0.3	0.7	3	<0.1	<0.1	<0.0001
LI-Mid	8/07/2025	Marine	<0.3	0.8	3	<0.1	<0.1	<0.0001
LI-West	8/07/2025	Marine	<0.3	0.9	3	<0.1	<0.1	<0.0001
Duplicate	8/07/2025	Marine	<0.3	0.9	3	<0.1	<0.1	<0.0001

The results only apply to the sample as received and to the sample tested.
Spare test items will be held for two months unless otherwise requested.

Signatory: [redacted]
Date: 22/07/2025

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CERTIFICATE OF ANALYSIS

Work Order	: **EP2418732**	Page	: 1 of 6
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC25-12	Date Samples Received	: 08-Jul-2025 14:45
Order number	: PO-0017381	Date Analysis Commenced	: 11-Jul-2025
C-O-C number	: ----	Issue Date	: 17-Jul-2025 16:19
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	krisbane Organics, Stafford, QLD

General Comments

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

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

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

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

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

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

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

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.

Analytical Results

Sub-Matrix: **MARINE WATER**
0Matrix: **WATER5**

Compound	CAS Number	LOR	Unit	Sample ID	IH-Mid	KB-Bay 1	KB-Bay 2	KB-Bay)	KB-Bay (
				Sampling date / time	08-Jul-2025 00:00	08-Jul-2025 00:00	08-Jul-2025 00:00	08-Jul-2025 00:00	08-Jul-2025 00:00
					EP2418732-881	EP2418732-882	EP2418732-88)	EP2418732-88(	EP2418732-884
					Result	Result	Result	Result	Result
EP8X8: BTEz N									
Ben&ene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylben&ene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- 9 para-z ylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-z ylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ **Total z ylenes**	----	2	µg/L		<2	<2	<2	<2	<2
^ **Sum of BTEz**	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP878: Organotin Compounds 0Soluble5									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP8X8S: TPH0V5BTEz Surrogates									
1.2-Dichloroethane-D(	17060-07-0	2	%		**1(8**	**1) (**	**1) 4**	**1) 3**	**11(**
Toluene-DX	2037-26-5	2	%		**118**	**18X**	**118**	**187**	**73.1**
(-Bromofluoroben&ene	460-00-4	2	%		**11X**	**114**	**117**	**114**	**186**
EP878S: Organotin Surrogate									
Tripropyltin	----	5	%		**34.)**	**4(.3**	**4(.6**	**47.X**	**73.3**

Analytical Results

Sub-Matrix: **MARINE WATER**
0Matrix: **WATER5**

Compound	CAS Number	LOR	Unit	Sample ID	KB-Beach	KB-SW 1	KB-SW 2	LI-Far	LI-Mid
				Sampling date / time	08-Jul-2025 00:00	08-Jul-2025 00:00	08-Jul-2025 00:00	08-Jul-2025 00:00	08-Jul-2025 00:00
					EP2418732-886	EP2418732-883	EP2418732-88X	EP2418732-887	EP2418732-818
					Result	Result	Result	Result	Result
EP8X8: BTEz N									
Ben&ene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylben&ene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- 9 para-z ylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-z ylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ **Total z ylenes**	----	2	µg/L		<2	<2	<2	<2	<2
^ **Sum of BTEz**	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP878: Organotin Compounds 0Soluble5									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	<2	<2	<2
EP8X8S: TPH0V5BTEz Surrogates									
1.2-Dichloroethane-D(	17060-07-0	2	%		**1) 7**	**1(8**	**11)**	**1(8**	**1) 4**
Toluene-DX	2037-26-5	2	%		**187**	**118**	**73.4**	**118**	**187**
(-Bromofluoroben&ene	460-00-4	2	%		**113**	**114**	**18(**	**116**	**116**
EP878S: Organotin Surrogate									
Tripropyltin	----	5	%		**X(.3**	**71.7**	**X4.8**	**X(.(**	**X2.X**

Analytical Results

Sub-Matrix: MARINE WATER 0Matrix: WATER5				Sample ID	LI-West	Duplicate	----	----	----
				Sampling date / time	08-Jul-2025 00:00	08-Jul-2025 00:00	----	----	----
Compound	CAS Number	LOR	Unit		EP2418732-811	EP2418732-812	--------	--------	--------
					Result	Result	----	----	----
EP8X8: BTEz N									
Ben&ene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylben&ene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- 9 para-z ylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-z ylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ Total z ylenes	----	2	µg/L		<2	<2	----	----	----
^ Sum of BTEz	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP878: Organotin Compounds 0Soluble5									
Tributyltin	56573-85-4	2	ngSn/L		<2	<2	----	----	----
EP8X8S: TPH0V5BTEz Surrogates									
1.2-Dichloroethane-D(	17060-07-0	2	%		1(8	114	----	----	----
Toluene-DX	2037-26-5	2	%		183	7X.4	----	----	----
(-Bromofluoroben&ene	460-00-4	2	%		116	18(	----	----	----
EP878S: Organotin Surrogate									
Tripropyltin	----	5	%		X8.6	48.(	----	----	----

Surrogate Control Limits

Sub-Matrix: **MARINE WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP8X8S: TPH0/5BTEz Surrogates			
1.2-Dichloroethane-D(	17060-07-0	61	141
Toluene-DX	2037-26-5	73	126
(-Bromofluoroben&ene	460-00-4	60	125
EP878S: Organotin Surrogate			
Tripropyltin	----	24	116

Inter-Laboratory Testing

Analysis conducted by ALS krisbane, NATA accreditation no. 825, site no. 818 (Chemistry / kiology).

(WATER) EP090: Organotin Compounds (Soluble)

(WATER) EP090S: Organotin Surrogate

QUALITY CONTROL REPORT

Work Order	: **EP2507182**	Page	: 1 of 3
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Contact	: Customer Services EP
Address	: C/- MURDOCH UNIVERSITY, SOUTH STREET MURDOCH WA, AUSTRALIA 6150	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: [redacted]	Telephone	: [redacted]
Project	: MSC25-12	Date Samples Received	: 08-Jul-2025
Order number	: PO-0017381	Date Analysis Commenced	: 11-Jul-2025
C-O-C number	: ----	Issue Date	: 17-Jul-2025
Sampler	: ----		
Site	: ----		
Quote number	: EP24MARFRE0003_V2		
No. of samples received	: 12		
No. of samples analysed	: 12		

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

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
[redacted]	Organic Supervisor	Perth Organics, Wangara, WA
[redacted]	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD

General Comments

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

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

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

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP7X7: BTE(N tQC Lo6 3802153)									
EP2510972-001	IH-Mid	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP2510972-011	LI-West	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP717: Or9gao6a Coi mopadu tSospl se) tQC Lo6 3805X1b)									
EP2510972-001	IH-Mid	EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	<2	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP7X7: BTE(N tQCLo6 3802153)								
EP080: Benzene	71-43-2	1	µg/L	<1	20 µg/L	100	84.1	114
EP080: Toluene	108-88-3	2	µg/L	<2	20 µg/L	105	81.0	115
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	20 µg/L	104	84.4	113
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	40 µg/L	104	84.3	114
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	20 µg/L	105	86.5	111
EP080: Naphthalene	91-20-3	5	µg/L	<5	5 µg/L	110	77.0	118
EP717: Or9gao6a Coi mopadu tSospl se) tQCLo6 3805X1b)								
EP090S: Tributyltin	56573-85-4	2	ngSn/L	<2	147 ngSn/L	110	30.7	134

Matrix Spike (MS) Report

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP7X7: BTE(N tQCLo6 3802153)							
EP2510972-002	KB-Bay 1	EP080: Benzene	71-43-2	20 µg/L	108	77.0	122
		EP080: Toluene	108-88-3	20 µg/L	109	73.5	126
EP717: Or9gao6a Coi mopadu tSospl se) tQCLo6 3805X1b)							
EP2510972-001	IH-Mid	EP090S: Tributyltin	56573-85-4	147 ngSn/L	82.1	20.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EP2510972**	Page	: 1 of 5
Client	: **MARINE AND FRESHWATER RESEARCH LABORATORY**	Laboratory	: Environmental Division Perth
Contact	: [redacted]	Telephone	: [redacted]
Project	: Mj CS2-1S	Date j amples Received	: 48-Jul-S4S2
j ite	: ----	Issue Date	: 1N-Jul-S4S2
j ampler	: ----	. oBof samples received	: 1S
Order number	: PO-441N081	. oBof samples analysed	: 1S

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

Qrief method summaries and references are also provided to assist in traceabilityB

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the (uality Control)(CkReportB

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Frequency of Quality Control Samples

MatriQ: **WATER**

(uality Control j ample Type		Count		Rate)K k		(uality Control j pecification
Analytical Methods	Method	(C	Regular	Actual	EQpected	
Laboratory Duplicates)D%Pk						
Organotin Compounds)j olublek	EP494j	1	1N	2B88	14B44	. EPM S410 Q0 U ALj (C j tandard

Analysis Holding Time Compliance

If samples are identified belo; as having been analysed or eGracted outside of recommended holding timeswthis should be taFen into consideration ; hen interpreting resultsB

This report summariqes eGraction 7 preparation and analysis times and compares each ; ith ALj recommended holding times)referencing %j EPA j W 856w APYAw Aj and . EPMk based on the sample container providedB Dates reported represent first date of eGraction or analysis and preclude subse/ uent dilutions and rerunsBA listing of breaches)if anykis provided hereinB

Yolding time for leachate methods)eBgB TCLPk vary according to the analytes reportedB Assessment compares the leach date ; ith the shortest analyte holding time for the e/ uivalent soil methodB These are: organics 15 daysw mercury S8 days U other metals 184 daysB A recorded breach does not guarantee a breach for all non-volatile parametersB

Yolding times for ***VOC in soils*** vary according to analytes of interestB &inyl Chloride and j tyrene holding time is NdaysV others 15 daysB A recorded breach does not guarantee a breach for all &OC analytes and should be verified in case the reported breach is a false positive or &inyl Chloride and j tyrene are not Fey analytes of interest7concernB

MatriQ: **WATER** Evaluation: × , Yolding time breach V✓ , Within holding timeE

Method / ***Container*** / *Client Sample ID(s)*		***Sample Date***	*Extraction / Preparation*			*Analysis*		
			Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
IY-Midw	z Q-Qay 1	**08-Jul-2025**	**11-Jul-2025**	SS-Jul-S4S2	✓	**11-Jul-2025**	SS-Jul-S4S2	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
z Q-Qay Sw	z Q-Qay 0w	**08-Jul-2025**	**11-Jul-2025**	SS-Jul-S4S2	✓	**12-Jul-2025**	SS-Jul-S4S2	✓
z Q-Qay 5w	z Q-Qeachw							
z Q-j W 1w	z Q-j W Sw							
LI-Harw	LI-Midw							
LI-Westw	Duplicate							
EP090: Organotin Compounds (Soluble)								
Amber Glass Bottle - Unpreserved (EP090S)								
Duplicate		**08-Jul-2025**	**15-Jul-2025**	12-Jul-S4S2	✓	**16-Jul-2025**	S5-Aug-S4S2	✓
Amber Glass Bottle - Unpreserved (EP090S)								
IY-Midw	z Q-Qay 1w	**08-Jul-2025**	**15-Jul-2025**	12-Jul-S4S2	✓	**17-Jul-2025**	S5-Aug-S4S2	✓
z Q-Qay Sw	z Q-Qay 0w							
z Q-Qay 5w	z Q-Qeachw							
z Q-j W 1w	z Q-j W Sw							
LI-Harw	LI-Midw							
LI-West								

Quality Control Parameter Frequency Compliance

The follo; ing report summarises the fre/ uency of laboratory (C samples analysed ; ithin the analytical lot)skin ; hich the submitted sample)sk; as); erekprocessedBActual rate should be greater than or e/ ual to the eQpected rateBA listing of breaches is provided in the j ummary of OutliersB

MatriG: **WATER**

Evaluation: ×, (uality Control fre/ uency not ; ithin specification V✓, (uality Control fre/ uency ; ithin specification E

(uality Control j ample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates)D%Pk							
Organotin Compounds)j olublek	EP494j	1	1N	**5.88**	**10.00**	×	. EPM S410 Q0 U ALj (C j tandard
TRY &olatiles7QTE=	EP484	S	1N	**11.76**	**10.00**	✓	. EPM S410 Q0 U ALj (C j tandard
Laboratory Control j amples)LCj k							
Organotin Compounds)j olublek	EP494j	1	1N	**5.88**	**5.00**	✓	. EPM S410 Q0 U ALj (C j tandard
TRY &olatiles7QTE=	EP484	1	1N	**5.88**	**5.00**	✓	. EPM S410 Q0 U ALj (C j tandard
Method QlanFs)MQk							
Organotin Compounds)j olublek	EP494j	1	1N	**5.88**	**5.00**	✓	. EPM S410 Q0 U ALj (C j tandard
TRY &olatiles7QTE=	EP484	1	1N	**5.88**	**5.00**	✓	. EPM S410 Q0 U ALj (C j tandard
MatriGj piFes)Mj k							
Organotin Compounds)j olublek	EP494j	1	1N	**5.88**	**5.00**	✓	. EPM S410 Q0 U ALj (C j tandard
TRY &olatiles7QTE=	EP484	1	1N	**5.88**	**5.00**	✓	. EPM S410 Q0 U ALj (C j tandard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recogniqed procedures such as those published by the %j EPAwAPYAwAj and . EPMBIn house developed procedures are employed in the absence of documented standards or by client re/ uestBThe follo; ing report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of AnalysisBj ources from ; hich ALj methods have been developed are provided ; ithin the Method DescriptionsB

Analytical Methods	Method	Matrix	Method Descriptions
TRY &olatiles7QTE=	EP484	WATER	In house: Referenced to %j EPA j W 856 - 8S64 Water samples are directly purged prior to analysis by Capillary XC7Mj and / uantification is by comparison against an established 2 point calibration curveBAlternativelywa sample is e/ uilibrated in a headspace vial and a portion of the headspace determined by XCMj analysisB This method is compliant ; ith the (C re/ uirements of . EPM j chedule Q)0k
Organotin Compounds)j olublek	EP494i	WATER	In house: Referenced to %j EPA j W 856 - 8SN4 j ample eGracts are analysed by XC7Mj coupled ; ith high volume in3ection and / uantification is by comparison against an established 2 point calibration curveBThis method is compliant ; ith . EPM j chedule Q)0k

Preparation Methods	Method	Matrix	Method Descriptions
&olatiles Water Preparation	ORX16-W	WATER	A 2 mL ali/ uot or 2 mL of a diluted sample is added to a 54 mL &OC vial for purgingB
Organotin j ample Preparation	ORX05	WATER	In houseB A specified volume of sample is spiFed ; ith surrogatewacidified and vacuum filteredB Reagents and solvent are added and the miGure tumbledB The butyltin compounds is derivitisatedweGracted and the subtitution reaction completedB The eGract is transferred to a separatory funnel and further eGracted t; o times ; ith petroleum etherB The resultant eGracts are combined and concentrated for analysisB

Appendix D: DTMI Memo – MCMMP

Government of **Western Australia**
Department of **Transport**

Internal Memorandum

TO: Maritime Environmental Services

Cc:

DATE: 16/09/25

FROM: [redacted] **FILE NO:** A22810932

CBH Derived Proposal - Marine Construction Monitoring and Management Plan

The Casuarina Boat Harbour was declared a Derived Proposal on 31 July 2024 via a Section 45B Notice issued under Ministerial Statement 1226 (MS1226).

Conditions B1-3 and B2-4 of MS1226 stipulates construction is undertaken in accordance the Marine Construction Monitoring and Management Plan (MCMMP Rev4, RPS 2024) with the purpose of ensuring the environmental factor environmental objectives in condition B1-1 and B2-1 are achieved. The MCMMP details an outcome and objective-based monitoring and management framework to manage and mitigate potential impacts to marine environmental quality, and benthic communities and habitats.

Construction commenced on 15 August 2024 and is currently ongoing. The two main activities have comprised:

1. Dredging, undertaken from 15 August to 17 November 2024.
2. Breakwater construction, undertaken from October 2024 to present.

Table 1 includes the monitoring actions stipulated in the MCMMP for Phase 1 construction and comments on their implementation during the dredging and breakwater construction (Casuarina Boat Harbour only).

Government of **Western Australia**
Department of **Transport**

Table 1 - MCMMP Monitoring Activities - Construction Phase 1 (Casuarina Boat Harbour only)

Management target	Monitoring Activity - Construction Phase 1	Comment
No dredging / breakwater construction to occur outside of the future proposal indicative disturbance area and no dredging to occur during summer months (December to March) when seagrass cover is predicted to be highest.	Navigation equipment (on dredge) inspection and testing. Daily dredge logs. Weekly survey reports. Breakwater layout assessment.	Dredging was undertaken from 15 August to 17 November 2024. Daily and weekly dredge logs were submitted to DTMI for all vessels for the duration of dredging activities. Navigation data provided as requested, to verify vessel transit tracks. Progress survey provided and verified by DTMI cartographic team. As-constructed survey data of dredge area and breakwater footprint provided and verified by DTMI. As-constructed survey data submitted to Australian Hydrographic Office and DCCEEW as per Sea Dumping Permit SD2022-4034. DTMI hydrographic survey of dredge area and breakwater footprint (construction in progress) undertaken in July 2025 and presented in Appendix A.
Reduce and manage the risk to local amenity values from the construction of the future derived proposals.	City of Bunbury approved noise and vibration plan. Any noise or vibration related complaints to be registered as an environmental incident, triggering review of work processes and corrective action.	Not applicable for development in DTMI tenure. Noise and vibration managed in accordance with DTMI *Specification – Preliminaries*. No noise or vibration complaints received to date. Complaints register maintained and managed by SWDC for the project.
	Any access related complaints to be registered as an environmental incident, triggering review of work processes and corrective action.	No access related complaints received to date. DTMI project staff based full time on site actively monitored all public interfaces. Complaints register maintained and managed by SWDC for the project.
	Dust levels to be observed during early construction works inspections to ascertain requirement for dust mitigation measures.	Visual monitoring for dust ongoing by contractor and DTMI project staff. Active dust management in dry weather undertaken daily by watering for dust suppression. On one occasion (20/01/25) Southern Ports Authority noted elevation in dust levels in their sensor at the dust monitoring station on Jetty Road. This was the only occasion noted. Dust suppression was

Management target	Monitoring Activity - Construction Phase 1	Comment
	Any dust related complaints to be registered as an environmental incident, triggering review of work processes and corrective action.	increased on site and no further incidents, comments or complaints were received. Complaints register maintained and managed by SWDC for the project.
Ecosystem health – water quality	Dredge plume observations / sketches. Aerial imagery / drone image capture / remote imagery units.	Daily dredge plume observations/sketches and/or aerial photographs taken and submitted to DTMI for duration of dredging and in-water breakwater construction. Fortnightly aerial imagery captured, and submitted to DTMI. Timelapse camera positioned to photograph the construction site for duration of work.
Ecosystem health – water quality – seagrass – toxicants in water	Water quality monitoring.	Water quality monitoring undertaken for the duration of dredging and breakwater construction activities to date. Fortnightly reports submitted to DTMI for each monitoring campaign. Refer: – Appendix B – MEQBCH Baseline Summary Report, and – Appendix C – KBMS CBH Phase 1 MCMMP Water Quality Annual Report 2024-25. DTMI's TBW Technical Group representative reports to TBW Technical Group during scheduled project control meetings to provide updates.
Ecosystem health – seagrass	Seagrass and macroalgae extent and composition assessed using towed video transects during construction where threshold is exceeded and after construction (if required).	Towed video transects were undertaken in May 2024, prior to commencement of construction in August 2024. Refer Appendix B – MEQBCH Baseline Summary Report. No EQS exceedances occurred during construction to trigger an interim video transect.

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Department of **Transport**

Example daily dredge log

ROHDE NIELSEN A/S
DREDGING-RECLAMATION-UDDYBNING-SANDPUMPNING
NYHAVN 20 DK 1051 KØBENHAVN K
Phone: [redacted]
E-mail: [redacted]

Modi R
Daily report

Date: 30/08/2024

Project: ry Waterfront Stage 3 (WALI Project no.: 24-3021 Captain: [redacted]

Daily total			2.17	###	3.13	0.00	0.27	0.00	1.38	0.00	5.42	0.00	0.00	0.00	0.00	2035			
From	To	Load no.	Sailtime 1 (Empty)	Loading time	Sailtime 2 (Loaded)	Coupling/uncoupling	Discharging/dumping	Sailing between projects	Delay, (Cleaning of draghead, removal of stones)	Delay, (Lack of barges, awaiting pipeline)	Delay, (Breakdown, repair, planned maintenance, dock etc)	Delay, weather	Standby, ordered stop (Traffic, client, project man.)	Standby, crew change, fuel etc	Laid up	M³	Unloading method	Pipe Lenght	Remarks
00:00	05:25										5.42								Standby due to heavy weather
05:25	06:04				0.65														
06:04	06:10			0.10															
06:10	06:20								0.17										Draghead clean
06:20	07:55			1.58															
07:55	08:05								0.17										Draghead clean
08:05	08:25			0.33															
08:25	08:36								0.18										Draghead clean
08:36	09:25			0.82															
09:25	10:50				1.42														
10:50	11:00	34					0.17									1005	K		Dump area D
11:00	12:24		1.40																
12:24	13:40			1.27															
13:40	13:49								0.15										Draghead clean
13:49	18:00			4.18															
18:00	18:58				0.97														
18:58	19:04	35					0.10									1030	K		Dump area E
19:04	19:50		0.77																
19:50	20:15			0.42															
20:15	20:44								0.48										Pump Clean
20:44	21:05			0.35															
21:05	21:15								0.17										Draghead clean
21:15	23:14			1.98															
23:14	23:18								0.07										Draghead clean
23:18	23:54			0.60															
23:54	00:00				0.10														

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Department of **Transport**

Example weekly dredge report

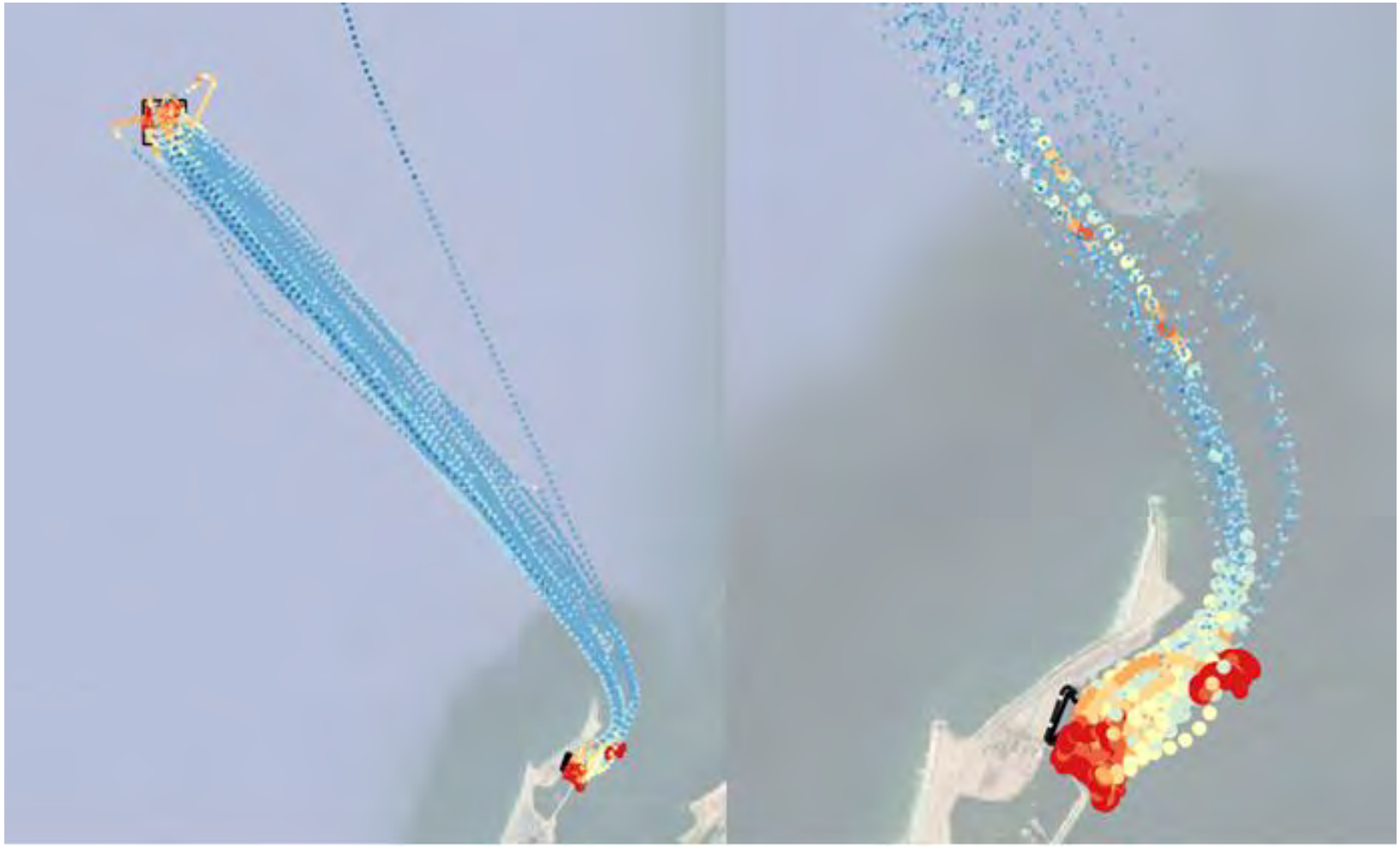
	WEEKLY REPORT			**Project**	Bunbury Waterfront Stage 3 Breakwater Construction	**Project No**	24.3021
				Client	WA Limestone and Italia Stone Group Joint Venture	**Location**	Bunbury, WA
	19/08/24	to	25/08/24	**Doc No**	24.3021_WPR_ModiR_20240819_20240825	**Vessel**	TSHD Modi R

Summary of Daily Activities		**Additional Comments**
Monday	Weather conditions unsuitable for dumping; recommence dredging at 0155	Marine fauna related stop work: 19, 20/08 Other marine fauna related observations: 19, 22/08 Refer to daily MSO log for further details
Tuesday	Continue dredging; downtime 1030 - 0000 due to repairs to hydraulic manifold	
Wednesday	Downtime due to repairs 0000 - 1738; recommence dredging 1817	
Thursday	Continue dredging	
Friday	Continue dredging	
Saturday	Continue dredging; standby due to poor weather conditions 0700 - 0000	
Sunday	Standby due to poor weather conditions 0000 - 0621; sail to spoil ground 0621; recommence works	

Load Details

Description	Unit	19/08/24	20/08/24	21/08/24	22/08/24	23/08/24	24/08/24	25/08/24	Weekly Total	Project Total
No. of loads completed	-	2	2	-	4	3	-	3	14	23
Sailtime (Empty)	hrs	2.77	2.17	0.65	4.02	3.00	0.40	3.23	16.23	35.60
Loading	hrs	12.23	4.60	4.70	12.30	14.68	4.00	9.67	62.18	100.77
Sailtime (Loaded)	hrs	2.38	2.28	0.37	5.52	3.78	0.67	3.60	18.60	30.73
Discharging/Dumping	hrs	0.18	0.18	-	0.33	0.27	-	0.28	1.25	2.03
Delay; obstruction	hrs	3.70	1.02	0.65	1.83	2.27	1.93	0.87	12.27	21.07
Delay; technical	hrs	1.97	13.50	17.63	-	-	-	-	33.10	33.10
Delay; weather	hrs	-	-	-	-	-	17.00	6.35	23.35	39.45
Delay; client, traffic, MSO, etc	hrs	0.77	0.25	-	-	-	-	-	1.02	1.25
Delay; other	hrs	-	-	-	-	-	-	-	-	-
Delay; other project	hrs	-	-	-	-	-	-	-	-	-
Volume	m3	2,108	2,062	-	4,151	3,055	-	3,045	14,421	24,199
TDS		2,108	2,062	-	4,151	3,055	-	3,045	14,421	23,886

Example vessel transit tracks



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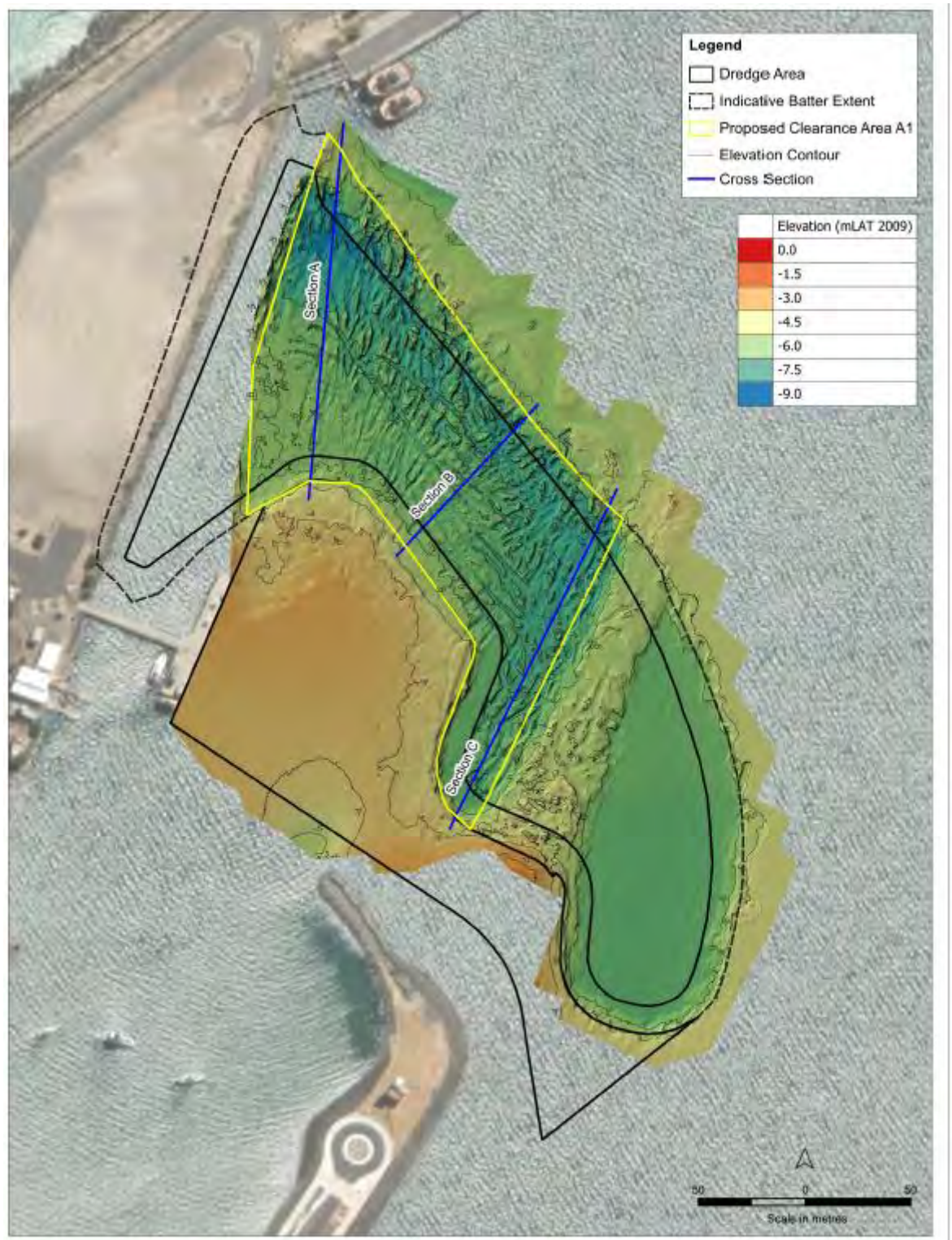
Department of **Transport**

Example progress survey (dredging)



Project Name	Bunbury Stage 3 Breakwater Construction	**Horizontal Grid**	GDA2020 UTM50
Client	WALISG JV	**Vertical Datum**	LAT 2009
Project Number	24.3021	**Imagery**	ESRI World Imagery
Drawing Title	09.09.24 Progress Survey	**Drawn By**	ALPO
Date	09.09.2024		

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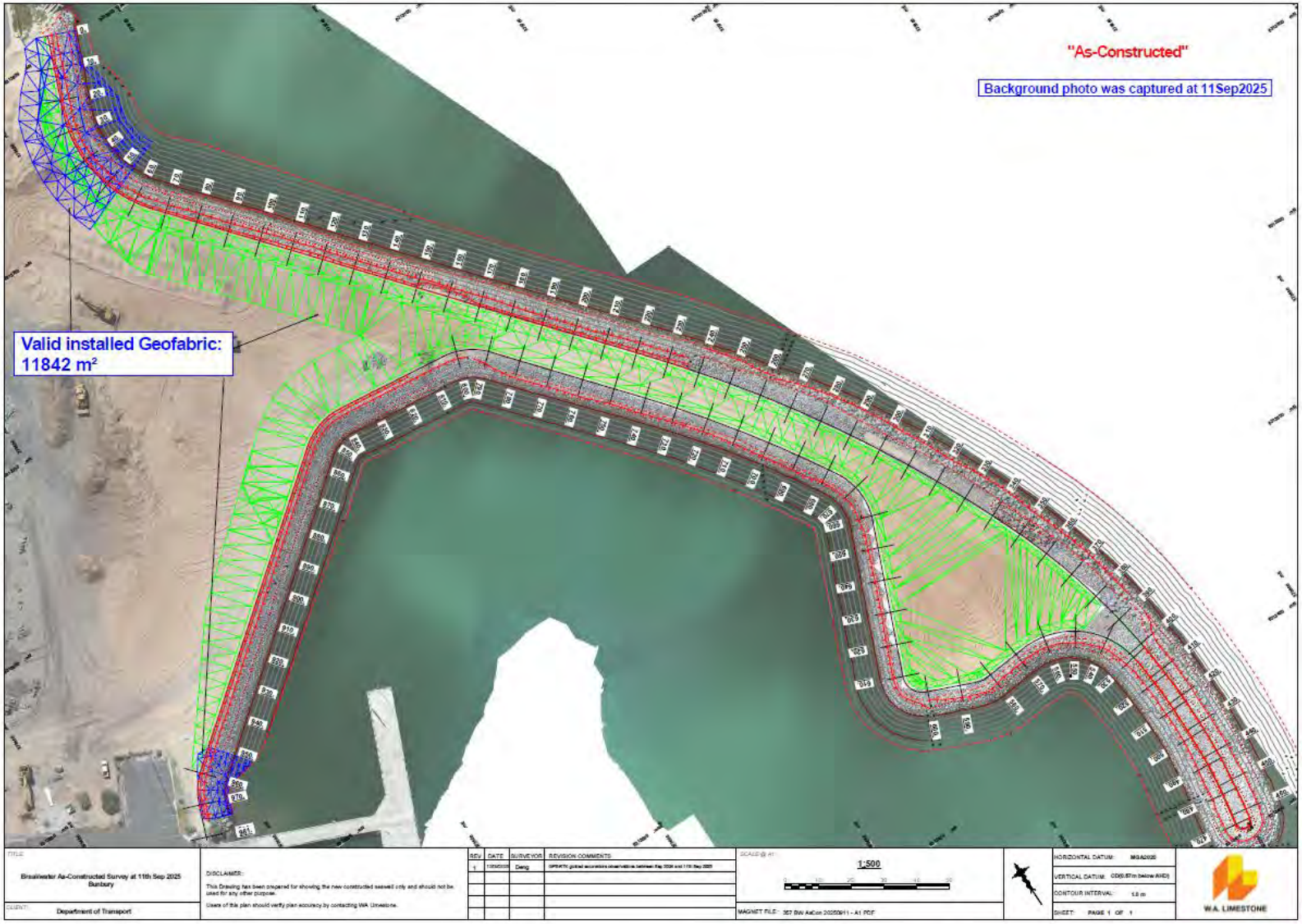
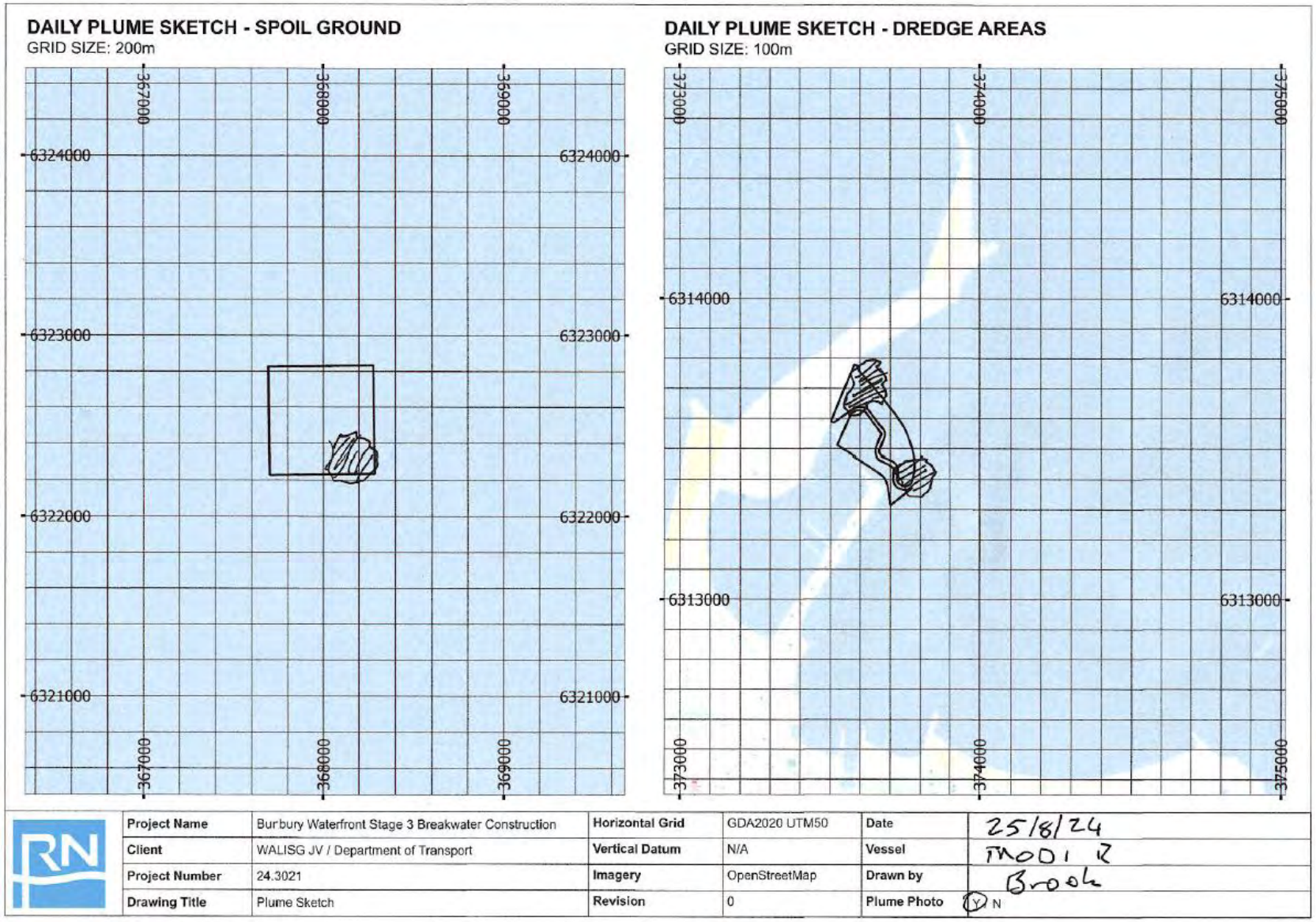
Example progress survey (breakwater construction)



Example daily plume sketch (dredging 25/08/2025)



Example daily plume photograph (breakwater construction 28/02/2025)

Appendix E: DTMI Memo – MFMP

Government of **Western Australia**
Department of **Transport**

Memorandum

TO: Maritime Environmental Services

Cc:

DATE: 16/09/25

FROM: [redacted] **FILE NO:** A22791276

CBH Derived Proposal - Marine Fauna Management Plan

The Casuarina Boat Harbour was declared a Derived Proposal on 31 July 2024 via a Section 45B Notice issued under Ministerial Statement 1226 (MS1226).

Conditions B4-2 of MS1226 stipulates construction is undertaken in accordance with the Marine Fauna Management Plan (MFMP) (RPS, Rev 3, 2024) with the purpose of ensuring the environmental factor environmental objectives in condition B4-1 are achieved. The MFMP details an objective-based monitoring and management framework to manage and mitigate potential impacts to marine fauna.

In addition, an Avifauna Management Plan (AMP) (RPS, Rev 0a, 2024) was prepared for the Koombana Precinct to implement management measures to protect the birdlife in and around the Casuarina Boat Harbour area of development.

Construction commenced on 15 August 2024 and is currently ongoing. The two main activities have comprised:

1. Dredging, undertaken from 15 August to 17 November 2024.
2. Breakwater construction, undertaken from October 2024 to present.

Table 1 includes the monitoring actions stipulated in the MFMP for the construction phase and comments on their implementation during the dredging and breakwater construction.

Sections 1 to 3 present further details on the key construction activity of marine fauna monitoring.

Government of **Western Australia**
Department of **Transport**

Table 1 - MFMP Monitoring Activities - Construction Phase 1

Management target	Monitoring Activity - Construction Phase 1	Comment
Avoid loss/degradation to marine habitats where possible Minimise area of habitat (including seagrass) permanently lost/modified	Implement MCMMP (RPS 2023) during construction DBCA monitors fairy tern nesting habitat annually during nesting and as per AMP (RPS 2023a)	A pre-construction tow survey was completed to evaluate the benthic communities and habitats. No surveys were required during construction as water quality trigger criteria were not exceeded. A post-construction survey is planned to be completed. During the Fairy Tern nesting season, project staff from DTMI and SWDC assisted DBCA with regular monitoring the colony. No sediment maintenance was undertaken at McKenna Point sand trap during the Fairy Tern nesting period.
Minimise risk of injury to cetaceans, pinnipeds, marine turtles and little penguins by ensuring animals are out of the mitigation zone prior to the start of piling	Not required, no piling undertaken to date.	-
Minimise risk of injury or mortality of cetaceans, pinnipeds, marine turtles and seabirds and migratory shorebirds arising from vessel strike	Visual monitoring will be undertaken by a suitably trained MFO on-board each vessel from a high observation platform or bridge using the naked-eye and binoculars As per AMP (RPS 2023a)	No incident occurred during the works to date. Refer Section 2 for monitoring details and records.
Minimise risk of injury or mortality to cetaceans, pinnipeds, marine turtles and little penguins attributable to entanglement with lines	Construction vessels to maintain watch for debris when transiting	A dedicated Marine Fauna Observer (MFO) was onboard each dredging vessel during the works. The MFO was positioned on the bridge and a visual survey was undertaken every 30 minutes. Marine fauna monitors from the Dolphin Discovery Centre (DDC) were engaged to undertake MFO activities for the duration of in-water breakwater construction. The marine construction workers were trained as described in Section 1 Marine Fauna Training. No vessel strike, entanglement, entrainment, injury or any other incident involving marina fauna occurred as a result of the dredging works or breakwater construction.

Management target	Monitoring Activity - Construction Phase 1	Comment
		Approximately 10 tonnes of waste was removed from the environment of Koombana Bay during the dredging operations. Waste recovered by dredge vessels included ropes, chains, tyres, bricks and debris (timber and iron) from the old timber jetty. Waste was brought onshore and disposed of to appropriate facilities.
Minimise risk of injury or mortality to cetaceans, pinnipeds, marine turtles and little penguins through entrainment in dredge head or excavator bucket, during construction or maintenance	Visual monitoring will be undertaken by a suitably qualified and experienced MFO from a stationary platform in close proximity to the dredging / excavation activity (i.e. construction vessel) ensuring that all directions of the exclusion zone can be observed from the platform. Dredge hopper and onshore disposal areas to be monitored for marine fauna.	No incident occurred during the works to date. Refer Sections 2 and 3, below for monitoring details and records.
No new recorded IMS established in Koombana Bay during the construction phase	Vessel or equipment inspections Biofouling record book Compliance with risk assessment protocols for non-trading vessels	The only vessel to mobilise to site from outside the region was the Edi tug vessel, which mobilised to Bunbury from Australia's east coast. An invasive marine assessment was undertaken and provided to DTMI prior to arriving in Western Australian waters. The assessor was satisfied the Edi did not pose any risk of IMS.
Minimise risks to marine fauna from pollution incidents	Monitoring will be carried out in response to a pollution incident and be agreed with the Department of Water and Environmental Regulation (DWER) / DBCA as appropriate.	No incidents occurred during the dredging or breakwater construction (to date). Two potential incidents were reported by members of the public on 16/10/24 and 6/12/24. These were investigated immediately by DTMI project staff. In both cases there was no spill occurring at the site, the likely source of the report was turbidity from the rock tipping. Spill kits have been maintained on site for the duration of the works.
Minimise the increase in artificial light spill to the marine environment over the current levels	In accordance with MCMMP (RPS 2023) during construction In accordance with AMP (RPS 2023a) during construction	Dredging was undertaken at night between August and November 2024 with only operational lighting. No other new light sources have been placed at the site to date, excepting navigation aids.

Management target	Monitoring Activity - Construction Phase 1	Comment
Avoid disruption/disturbance to nesting seabirds and shorebirds	In accordance with MCMMP (RPS 2023) during construction In accordance with AMP (RPS 2023a) during construction	Nesting silver gulls removed at the commencement of the works under a Fauna Take License issued by DBCA. No other interactions with nesting seabirds on the site.
Minimise impacts to recreationally fished stocks due an increased number of vessels utilising Koombana Bay	No monitoring actions during construction	-
Minimise risk of impacts to marine fauna associated with human activities	In accordance with MCMMP (RPS 2023) during construction In accordance with AMP (RPS 2023a) during construction	As per MCMMP and AMP

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1. Marine Fauna Training

Marine Fauna Monitoring during dredging was undertaken by dedicated Marine Fauna Observers (MFO) on board the Modi R, Edi and Echidna.

RN Dredging implements an internal training module which covers the observation and identification of key target marine fauna species for the region. Each of the crew members conducting observations during the works had experience completing this role for other projects in Western Australian Waters, including in Bunbury for Southern Ports Authority.

While WA Limestone and Italia Stone Group JV staff did not directly undertake marine fauna monitoring, all operators participated in a training session on 4 November 2024 run by the Dolphin Discovery Centre (DDC).

Marine fauna monitors from the DDC were engaged to undertake MFO activities for the duration of in-water breakwater construction. DDC monitors are trained internally.

2. Marine Fauna Monitoring during Dredging

Dredging works were undertaken between 15 August and 17 November by the Modi R (trailer suction hopper dredge) and Echidna (back-hoe dredge barge), supported by the Edi tug vessel.

Marine fauna monitoring was undertaken by a dedicated MFO on board each vessel during the works. The MFO was positioned on the bridge of each vessel to provide best visibility and immediate communication with the vessel Master. Visual survey was undertaken every 30 minutes or as required.

Daily observation logs were maintained throughout the works, examples below. These logs were provided daily to DTMI for review together with weekly summary reports.

Dolphins were observed on a regular basis both in Koombana Bay and at the offshore disposal site. Whales were occasionally observed during transit to the offshore disposal site. On these occasions, management actions comprised:

- During dredging
    - Monitoring if fauna were observed within the observation zone.
    - Stop work if fauna were observed within the exclusion zone, until they departed the area.
- During transit to the offshore disposal site
    - Slow down to 6 knots if fauna sighted within 300m.
    - Change course to avoid the fauna.

No vessel strike, entanglement, entrainment, injury or any other incident involving marina fauna occurred as a result of the dredging works.

Government of **Western Australia**
Department of **Transport**

Marine Species Observation Log

Date	13/10/2024
Location	Bunbury, AUS
Vessel	Modi R
MSOs	

Log page number	1	of	1

Time	Activity (pre-start / dredging / transit / dumping / standby / etc)	Location		Type (visual survey / marine fauna in monitoring zone /	Response / Comments (reduced speed / stop dredging / relocate dredge / etc)	Marine Species Information			Incident Report	
		Location				Type	Qty	Distance (metres)	Y/N	Ref #
00:00-00:30	Dredge	Dredge area A		V/S						
00:30-00:50	Dredge	Dredge area A		V/S						
00:50-01:30	Transit to dump area	Transit		V/S						
01:30-02:00	Dumped at spoil ground			V/S						
02:00-02:30	Transit to dredge area			V/S						
02:30-03:00	Dredge	Dredge area A		V/S						
03:00-03:30	Dredge	Dredge area A		V/S						
03:30-04:00	Dredge	Dredge area A		V/S						
04:00-04:30	Transit to dump area			V/S						
04:30-05:00	Transit to dump area			V/S						
05:00-05:30	Dumped at spoil ground			V/S						
05:30-06:00	Transit to dredge area			V/S						
06:00-06:30	Dredge	Dredge area A		V/S						
06:30-07:00	Dredge	Dredge area A		V/S						
07:00-07:30	Transit to spoil ground			V/S						
07:30-08:00	Transit to spoil ground			V/S						
08:00-08:30	Dumped at spoil ground			V/S	Whale outside zone	Whale	1	350	N	
08:30-09:00	Transit to dredge area			V/S						
09:00-09:30	Dredge	Dredge area A		V/S						
09:30-10:00	Dredge	Dredge area A		V/S						
10:00-10:30	Dredge	Dredge area A		V/S	Dolphin outside exclusion zone	Dolphin	1	150	N	
10:30-11:00	Dredge	Dredge area A		V/S						
11:00-11:30	Transit to spoil ground			V/S						
11:30-12:00	Dredge	Dredge area A		V/S						
12:00-12:30	Dumped at spoil ground			V/S						
12:30-13:00	Dredge	Dredge area A		V/S						
13:00-13:30	Dredge	Dredge area A		V/S						
13:30-14:00	Dredge	Dredge area A		V/S						
14:00-14:30	Dredge	Dredge area A		V/S						
14:30-15:00	Dredge	Dredge area A		V/S						
15:00-15:30	Transit to spoil ground			V/S	Whale outside zone	Whale	1	200	N	
15:30-16:00	Transit to spoil ground			V/S						
16:00-16:30	Dumped at spoil ground			V/S						
16:30-17:00	Transit to dredge area			V/S	Whale outside zone	Whale	1	500	N	
17:00-17:30	Dredge	Dredge area A		V/S						
17:30-18:00	Dredge	Dredge area A		V/S						
18:00-18:30	Dredge	Dredge area A		V/S						
18:30-19:00	Dredge	Dredge area A		V/S						
19:00-19:30	Transit to spoil ground			V/S						
19:30-20:00	Dumped at spoil ground			V/S						

Marine Species Observation Log

Date	5/10/2024
Location	Port of Bunbury
Vessel	EDI/Echidna
MSOs	

Log page number	1	of	1

Time	Activity (pre-start / dredging / transit / dumping / standby / etc)	Location	Type (visual survey / marine fauna in monitoring zone / strike / etc)	Response / Comments (reduced speed / stop dredging / relocate dredge / etc)	Marine Species Information			Incident Report	
					Type	Qty	Distance (metres)	Y/N	Ref #
00:00	Crew change- Loading barge	Area A	VS						
00:30	Loading Barge	Area A	VS						
01:00	Loading Barge	Area A	VS						
01:30	Loading Barge	Area A	VS						
02:00	Loading Barge	Area A	VS						
02:30	Loading Barge	Area A	VS						
03:00	Loading Barge	Area A	VS						
03:30	Transit	To spoil grounds	VS						
04:00	Transit	To spoil grounds	VS						
04:30	Dumping	Spoil ground	VS						
05:00	Transit	From spoil ground	VS						
05:30	Transit	From spoil ground	VS						
06:00	Loading Barge	Area A	VS						
06:30	Loading Barge	Area A	VS						
07:00	Loading Barge	Area A	VS						
07:30	Loading Barge	Area A	VS						
08:00	Loading Barge	Area A	VS						
08:30	Loading Barge	Area A	VS						
09:00	Transit	To spoil grounds	VS						
09:30	Transit	To spoil grounds	VS						
10:00	Dumping	Spoil ground	VS						
10:30	Transit	From spoil ground	VS						
11:00	Transit	From spoil ground	VS						
11:30	Vessel Delay	Area A	VS	Echidna stopped dredging 11:20 - 11:50	Dolphin	1	70	Nil	Nil
12:00	Crew change- Loading barge	Area A	VS						
12:30	loading	Area A	VS						
13:00	loading	Area A	VS						
13:30	Vessel Delay	Area A	VS	stopped dredging 1330 - 1400	Dolphin	1	50	Nil	Nil
14:00	loading	Area A	VS						
14:20	loading	Area A	VS						
15:00	loadin	Area A	VS						
15:33	loading	Area A	VS						
16:00	Vessel Delay	Area A	VS						
16:30	Vessel Delay	Area A	VS						
17:00	Vessel Delay	Area A	VS						
17:30	Vessel Delay	Area A	VS						
18:00	Vessel Delay	Area A	VS						
18:30	Vessel Delay	Area A	VS						
19:00	Vessel Delay	Area A	VS						
19:30	Vessel Delay	Area A	VS						
20:00	loading	Area A	VS						
20:30	loading	Area A	VS						
21:00	Loading	Area A	VS						
21:30	Transit	To spoil grounds	VS						
22:00	Dumping	duming	VS						
22:30	Transit	From spoil ground	VS						
23:00	Transit	From spoil ground	VS						

Government of **Western Australia**
Department of **Transport**

3. Monitoring during Breakwater Construction

After completion of the dredging and demobilization of the dredge vessels, marine fauna monitoring was undertaken by staff from the Dolphin Discovery Centre.

DDC monitors observed the construction activities at the CBH breakwater site from 19 November 2024 to the completion of in-water works on 25 June 2025.

A monitor from the DDC was positioned on the end of Jetty Road every day during working hours, using a combination of visual observation and drone survey to identify marine fauna within the observation and exclusion zones.

The monitor had radio communications at all times with the JV plant operators and this communication was observed by DTMI to be comprehensive and proactive on both sides throughout the works.

Daily observation logs were maintained and submitted to DTMI for review. A typical example is included below.

Over the summer months in particular, a large number of dolphins were present in Koombana Bay and management actions were implemented at high frequency, comprising:

- Monitoring if the dolphins were observed within the observation zone.
- Stop work if dolphins were observed within the exclusion zone, until they departed the area.

No strike, entanglement, entrainment, injury or any other incident involving marina fauna occurred as a result of the breakwater construction.

Government of **Western Australia**
Department of **Transport**

Bunbury Dolphin Discovery Centre
MFO Daily Observation Sheets

Survey Information		Weather Details (Start of Shift)	
Date	24/2/2025	**Type**	Mostly Clear
MMO 1	[redacted]	**Wind Dir'n**	E
MMO 2		**Wind Speed (km/h)**	15-25
Time Start	7.00am	**Dolphins Sighted?**	Yes
Time End	5.00pm	**Mitigation Actions?**	Yes

Dolphin Sighting Information

Time	Distance from Works	Point of Works Status	Mitigation Action	Dolphin Numbers	Dolphin Behaviour	Dolphin Identification?
7.40-8.20 am	OZ - E	GO	Stand By	3 Adults	Foraging	Not Possible
9.38-9.46 am	EZ	GO	Stand Down	3+ Adults	Feeding	Not Possible
9.46-9.49 am	OZ - N	GO	Stand By	3+ Adults	Feeding	Not Possible
9.49-9.53 am	EZ	NO	N/A	3+ Adults	Feeding	Not Possible
11.30-11.50 am	OZ - N	GO	Stand By	3+ Adults	Foraging	Not Possible
12.00 noon – 12.10 pm	EZ	GO	Stand Down	4+ Adults	Foraging	Not Possible
12.10-12.15 pm	OZ- E	GO	Stand By	4+ Adults	Foraging	Not Possible
12.15-12.17 pm	EZ	GO	Stand Down	4+ Adults	Foraging	Not Possible
1.20-2.00 pm	OZ- N	GO	Stand By	2+ Adults	Milling & Feeding	Not Possible
2.00-2.01 pm	EZ	NO	NA	2+ Adults	Milling & Feeding	Not Possible

Bunbury Dolphin Discovery Centre
MFO Daily Observation Sheets

2.20-2.40 pm	OZ - E	GO	Stand By	7+ Adults + 1 Neonate	Feeding & Milling	Not Possible
2.40-2.55 pm	OZ - N	GO	Stand by	7+ Adults + 1 Neonate	Feeding & Milling	Not Possible
2.55-3.00 pm	EZ	GO	Stand Down	7+ Adults + 1 Neonate	Feeding & Milling	Not Possible
3.00-3.15 pm	OZ - S	GO	Stand By	7+ Adults + 1 Neonate	Feeding & Milling	Not Possible
3.55 pm	OZ - E	GO	Stand By	5+ Adults	Travelling	Not Possible

Distance from Works: EZ – Exclusion Zone (within 50m), **OZ** – Observation Zone (50m-150m), **N** – North, **S** - South, **E** - East

Point of Works Status: NO – No Operation, **GO** – General Operations, **O** - Other

Mitigation Action: NA – No Action, **SB** – Stand By, **SD** – Shut Down

Dolphin Behaviour: DI – Diving, **F** – Feeding/foraging, **M** – Milling, **R** – Resting, **T** – Travelling, **BR** – Breaching,

Notes – Very quiet day, no dolphins sighted within observation or exclusion zones.

Appendix F: SWDC Report

MEMO

TO: Compliance Branch, Department of Water and Environmental Regulation
FROM: Project Manager, Transforming Bunbury's Waterfront (TBW)

Cc: Director Infrastructure and Lands, South West Development Commission (SWDC)
DATE: 26 September 2025

SUBJECT: Compliance status activity update for *Ministerial Statement 1226*

The South West Development Commission (SWDC), as the proponent for the Koombana Bay Marine Structures (KBMS) Strategic Proposal approved under *Ministerial Statement 1226* (MS 1226), submitted a Compliance Assessment Plan (CAP) that was approved by the Department of Water and Environmental Regulation (DWER) on 29 July 2025.

The Department of Transport and Major Infrastructure (DTMI) is managing the implementation of the Derived Proposal for Casuarina Boat Harbour and has reported against the conditions that apply to that project separately in the Compliance Assessment Report (CAR) based on their CAP.

The proponents of the two other future proposals listed in MS 1226 — Koombana Bay Sailing Club (KBSC) Marina and Dolphin Discovery Centre (DDC) Finger Jetty — have not yet referred their proposals to the Environmental Protection Authority (EPA), and had the EPA declare them as derived proposals. The SWDC has been liaising with a representative from Priority Management regarding funding to support the KBSC in progressing its future proposal for a marina (at their site on Koombana Bay), including facilitating recent discussions on finding a pathway to achieving environmental approval for the marina proposal (e.g. further marina design, and environmental modelling & evaluation work). SWDC has also met with the new Chief Executive Officer of the DDC, as well as their board of management, to outline the background of the Finger Jetty proposal and discuss a potential implementation pathway.

SWDC provides the following compliance status activity to cover the current reporting period from the published date of the MS 1226 on 2 July 2024 through until 26 September 2025.

I. *Condition B5-1 Environmental Performance Report* (*EPR*) – *Conditions and Procedure*: the EPRs are not due until post-construction phase and SWDC will prepare when required.
II. *Conditions B5-2 EPR – Conditions and Procedure*: the EPRs are not due until post-construction phase and SWDC, with the support of DTMI, will implement contingency actions if required at the time.

III. *Condition B5-3 EPR – Conditions and Procedure*: the SWDC, as proponent of the Strategic Proposal, coordinates communication, information and data sharing between DTMI, future proposal proponents and other stakeholders through its role outlined in the management framework within the *KBMS Management Policy*. The SWDC has overseen the environmental aspects of the KBMS within an integrated management framework, primarily as chair of the Technical Group (Environment). Technical Group (TG) meetings have been held on a monthly basis but are now moving to bi–monthly scheduling with informal reporting and meetings occurring as required (e.g. progress meetings with DTMI, where the operational phase monitoring and management actions and/or approaches can be discussed). The TG reports to the Transforming Bunbury's Waterfront (TBW) Steering Committee on their actions, to support the timely progress and achievement of deliverables and milestones.

IV. *Condition B5-4 Procedure*: the SWDC has ensured that communication and complaints procedures in relation to impacts from the derived proposals are in place. The TBW Contact and Complaints Process has been in operation since the implementation of the Casuarina Boat Harbour derived proposal. The document outlines the process for customer contacts and complaints in relation to the TBW project to ensure all are handled efficiently and effectively. The process helps address community concerns relating to adverse impacts on the environment, whether actual or perceived, during Stage 3. Customer complaints and the responses are tracked by SWDC. A summary of complaints is provided below:

- In 2024 there were four public complaints registered covering topics including the readiness of the quarry to handle increased operations and bushfire readiness, speed of contractor trucks and dredge disposal location.
- In 2025 there were four public complaints registered covering topics including rocks dropping from trucks, speed of contractor trucks and truck movement in early morning.
- Three other incidents were reported to DTMI staff relating to dust levels on Jetty Road and a potential spill at the site (which was determined to be construction related turbidity from rock tipping and was not significant).

All incidents/potential incidents were documented and responded to in a timely manner. Where the complaint could be substantiated action was taken to address the issue and feedback provided to the community member. The TG meetings also review all complaints and responses. Further information can be provided on request.

Appendix G: SWDC and DTMI Signed Declarations

Statement of Compliance

1. Proposal and Proponent Details

Proposal Title	*KOOMBANA BAY MARINE STRUCTURES*
Statement Number	*1226*
Proponent Name	*South West Development Commission*
Proponent's Australian Company Number *(where relevant)*	NA

2. Statement of Compliance Details

Reporting Period	*2/07/24* to *18/09/25*

Implementation phase(s) during reporting period (please tick ✓ relevant phase(s))							
Pre-construction		Construction	✔	Operation		Decommissioning	

Audit Table for Statement addressed in this Statement of Compliance is provided at Attachment:	
Audit table included within report and SWDC Report at Appendix E	

Were all implementation conditions and/or procedures of the Statement complied with within the reporting period? (please tick ✓ the appropriate box)			
No (please proceed to Section 3)		Yes (please proceed to Section 4)	✔

3. Details of Non-compliance(s) and/or Potential Non-compliance(s)

The information required Section 3 must be provided for each non-compliance or potential non-compliance identified during the reporting period covered by this Statement of Compliance.

Non-compliance/potential non-compliance 3-1

Which implementation condition or procedure was non-compliant or potentially non-compliant?
N/A
Was the implementation condition or procedure non-compliant or potentially non-compliant?
N/A
On what date(s) did the non-compliance or potential non-compliance occur (if applicable)?
N/A

Was this non-compliance or potential non-compliance reported to the Chief Executive Officer, DWER?	
☐ Yes ☐ Reported to DWER verbally Date _____ ☐ Reported to DWER in writing Date _____	√No

What are the details of the non-compliance or potential non-compliance and where relevant, the extent of and impacts associated with the non-compliance or potential non-compliance?
N/A
What is the precise location where the non-compliance or potential non-compliance occurred (if applicable)? (please provide this information as a map or GIS co-ordinates)
N/A
What was the cause(s) of the non-compliance or potential non-compliance?
N/A
What remedial and/or corrective action(s), if any, were taken or are proposed to be taken in response to the non-compliance or potential non-compliance?
N/A
What measures, if any, were in place to prevent the non-compliance or potential non-compliance before it occurred? What, if any, amendments have been made to those measures to prevent re-occurrence?
N/A
Please provide information/documentation collected and recorded in relation to this implementation condition or procedure: • in the reporting period addressed in this Statement of Compliance; and • as outlined in the approved Compliance Assessment Plan for the Statement addressed in this Statement of Compliance. (the above information may be provided as an attachment to this Statement of Compliance)

For additional non-compliance or potential non-compliance, please duplicate this page as required.

Each page (including Attachment 2) must be initialed by the person who signs Section 4 of this Statement of Compliance.
INITIALS: KN

4. Proponent Declaration

I, [redacted] Project Manager

declare that I am authorised on behalf of South West Development Commission

(being the person responsible for the proposal) to submit this form and that the information contained in this form is true and not misleading.

Signature:.... [redacted] ..... Date:.....30/9/2025

Please note that:

- it is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give or cause to be given information that to his knowledge is false or misleading in a material particular; and
- the Chief Executive Officer of the DWER has powers under section 47(2) of the *Environmental Protection Act 1986* to require reports and information about implementation of the proposal to which the statement relates and compliance with the implementation conditions.

5. Submission of Statement of Compliance

One hard copy and one electronic copy (preferably PDF on CD or thumb drive) of the Statement of Compliance are required to be submitted to the Chief Executive Officer, DWER, marked to the attention of Manager, Compliance (Ministerial Statements).

Please note, the DWER has adopted a procedure of providing written acknowledgment of receipt of all Statements of Compliance submitted by the proponent, however, the DWER does not approve Statements of Compliance.

6. Contact Information

Queries regarding Statements of Compliance, or other issues of compliance relevant to a Statement may be directed to Compliance (Ministerial Statements), DWER:

Manager, Compliance (Ministerial Statements)

Department of Water and Environmental Regulation

Postal Address:	Locked Bag 10 EAST PERTH WA 6892
Phone:	(08) 6364 700
Email:	compliance@dwer.wa.gov.au

7. Post Assessment Guidelines and Forms

Post assessment documents can be found at www.epa.wa.gov.au

ATTACHMENT 1

Table 1 Compliance Status Terms

Compliance Status Terms	Abbrev	Definition	Notes
Compliant	C	Implementation of the proposal has been carried out in accordance with the requirements of the audit element.	This term applies to audit elements with: • ongoing requirements that have been met during the reporting period; and • requirements with a finite period of application that have been met during the reporting period, but whose status has not yet been classified as 'completed'.
Completed	CLD	A requirement with a finite period of application has been satisfactorily completed.	This term may only be used where: • audit elements have a finite period of application (e.g. construction activities, development of a document); • the action has been satisfactorily completed; and • the DWER has provided written acceptance of 'completed' status for the audit element.
Not required at this stage	NR	The requirements of the audit element were not triggered during the reporting period.	This should be consistent with the 'Phase' column of the audit table.
Potentially Non-compliant	PNC	Possible or likely failure to meet the requirements of the audit element.	This term may apply where during the reporting period the proponent has identified a potential non-compliance and has not yet finalized its investigations to determine whether non-compliance has occurred.
Non-compliant	NC	Implementation of the proposal has not been carried out in accordance with the requirements of the audit element.	This term applies where the requirements of the audit element are not "complete" have not been met during the reporting period.
In Process	IP	Where an audit element requires a management or monitoring plan be submitted to the DWER or another government agency for approval, that submission has been made and no further information or changes have been requested by the DWER or the other government agency and assessment by the DWER or other government agency for approval is still pending.	**The term 'In Process' may not be used for any purpose other than that stated in the Definition Column.** The term 'In Process' may not be used to describe the compliance status of an implementation condition and/or procedure that requires implementation throughout the life of the project (e.g. implementation of a management plan).

Statement of Compliance

1. Proposal and Proponent Details

Proposal Title	*KOOMBANA BAY MARINE STRUCTURES, Casuarina Boat Harbour derived proposal*
Statement Number	*1226 (Implementation conditions A1, B1-1, B1-2, B1-3, B2-1, B2-2, B3-1, B3-2, B4-1, B4-2, B4-3, B4-4, C2-1, C2-2, C2-3, C2-4, C2-5, C2-6, C3-1, C3-2, C5-1, C5-2, D1, D2, D3, D4, D5 and D6)*
Proponent Name	*Department for Transport and Major Infrastructure*
Proponent's Australian Company Number *(where relevant)*	NA

2. Statement of Compliance Details

Reporting Period	*2/07/24* to *18/09/25*

Implementation phase(s) during reporting period (please tick ✓ relevant phase(s))							
Pre-construction		Construction	✔	Operation		Decommissioning	

Audit Table for Statement addressed in this Statement of Compliance is provided at Attachment:	
Audit table attached.	

Were all implementation conditions and/or procedures of the Statement complied with within the reporting period? (please tick ✓ the appropriate box)			
No (please proceed to Section 3)		Yes (please proceed to Section 4)	✔

☐ No

3. Details of Non-compliance(s) and/or Potential Non-compliance(s)

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Was this non-compliance or potential non-compliance reported to the Chief Executive Officer, DWER?	
☐ Yes ☐ Reported to DWER verbally Date _____ ☐ Reported to DWER in writing Date _____	√ No

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What remedial and/or corrective action(s), if any, were taken or are proposed to be taken in response to the non-compliance or potential non-compliance?
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For additional non-compliance or potential non-compliance, please duplicate this page as required.

Each page (including Attachment 2) must be initialed by the person who signs Section 4 of this Statement of Compliance.
INITIALS: __MB____

4. Proponent Declaration

I, [redacted], A/Director Maritime Assets

declare that I am authorised on behalf of Department of Transport and Major Infrastructure *(being the person responsible for the proposal)* to submit this form and that the information contained in this form is true and not misleading.

Signature:. [redacted] ..... Date:.....30/09/25.....

Please note that:

- it is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give or cause to be given information that to his knowledge is false or misleading in a material particular; and
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In Process	IP	Where an audit element requires a management or monitoring plan be submitted to the DWER or another government agency for approval, that submission has been made and no further information or changes have been requested by the DWER or the other government agency and assessment by the DWER or other government agency for approval is still pending.	**The term 'In Process' may not be used for any purpose other than that stated in the Definition Column.** The term 'In Process' may not be used to describe the compliance status of an implementation condition and/or procedure that requires implementation throughout the life of the project (e.g. implementation of a management plan).