

Waste Discharge Licence 174-16

Monitoring Report

1 May 2024 to 30 April 2025

MCARTHUR RIVER MINE

McArthur River Mining Pty Ltd

DOCUMENT PROPERTIES

Date	27/08/2025
Department	Environment
Prepared by	McArthur River Mining Pty Ltd
Licence Expiry Date	25 May 2025 (WDL 174-16)

Executive Summary

McArthur River Mining Pty Ltd (MRM) is the operator of the McArthur River Mine (the Mine), which is an open pit zinc, lead and silver mining operation in the Northern Territory (NT) located approximately 700 kilometres (km) south-east of Darwin, and approximately 45 km southwest of the township of Borroloola. MRM is also the operator of the Bing Bong Loading Facility (BBLF), which is located on the Gulf of Carpentaria approximately 95 km north-northeast of the Mine.

This Monitoring Report has been submitted for the period 1 May 2024 to 30 April 2025 (the reporting period) to satisfy conditions of MRM's Waste Discharge Licence (WDL). Two versions of the WDL were in effect during the reporting period, these were WDL 174-15 (commenced 27 March 2024) and WDL 174-16 (commenced 17 November 2024). These WDLs provided conditional approval for the release of water at specified locations at the Mine and the BBLF. WDL 174-16 (the WDL) was an amendment to WDL 174-15 and was in effect for most of the 2024/25 wet season. This version of the WDL retained the authorised discharge points and extended the allowable timeframe for use of a temporary discharge point previously added to WDL 174-15 in response to the impacts of Ex-Tropical Cyclone (Ex-TC) Megan.

In accordance with Variation of Authorisation Deemed Mining Licence DML0059-01 (the DML), MRM was also authorised during the reporting period to undertake conditional releases of water, including at the Water Management Dam (TSF WMD) into Little Barney Creek, via the WMD Release Point.

Strict environmental conditions and a comprehensive monitoring schedule (including water, sediment and biota) continued to remain in place during the reporting period to protect the beneficial uses and community values of the McArthur River and Gulf of Carpentaria marine waters. The following compliance points were in place during the reporting period:

- SW11 - appropriately located downstream of the operations to identify any potential for impact on the McArthur River downstream of the Mine.
- BBDDP - located downstream of the Dredge Spoil Emplacement Area (DSEA) at the BBLF in the Gulf of Carpentaria.

Site-specific Trigger Values (SSTVs) are listed in the WDL for SW11 and BBDDP to protect the beneficial uses and community values of the downstream environments. During the reporting period, the SSTVs were compared to the water quality monitoring results at SW11 and BBDDP. Any results beyond the SSTVs at the compliance points were investigated to determine the contributing factors and potential environmental risk.

WRM Water & Environment Pty Ltd (WRM) was commissioned by MRM to assess site surface water monitoring data (WRM, 2025a) and mine derived loads (WRM, 2025b) for the reporting period and to inform this WDL monitoring report.

Climate Influences at the Mine

The McArthur River catchment experiences a monsoonal climate regime, which is strongly seasonal with distinct wet and dry seasons. Climatic conditions are known to significantly influence the natural environment in the vicinity of the Mine, in particular the McArthur River and its tributaries. Approximately 661 mm of rainfall was recorded at the Mine over the 2024/25 reporting period, which is below the average (721 mm). The majority of rainfall occurred over the wet season months between November and April.

During the reporting period, natural flow in the McArthur River at the SW11 compliance point persisted throughout the dry season, mainly due to the record catchment rainfall and runoff received in the previous reporting period from Ex-TC Megan.

Climate Influences at the Bing Bong Loading Facility

The BBLF experiences a monsoonal climate regime similar to the Mine, which is strongly seasonal with distinct wet and dry seasons. Approximately 741 mm of rainfall was recorded at the BBLF over the 2024/25 reporting period, which was much lower than average (902 mm).

During the reporting period, the compliance monitoring point BBDDP experienced cease to flow or dry conditions for all the scheduled sampling events.

Water Treatment and Managed Releases

During the reporting period, water generated at the Mine was treated with hydrated lime in the South-Eastern Perimeter Runoff Dam (NOEF SEPROD) and Southern Perimeter Runoff Dam (NOEF SPROD). The dams were periodically filled with various sources of mine water for lime treatment. A total of 10,758 tonnes (t) of hydrated lime was used between both dams during the reporting period.

In NOEF SPROD, approximately 7,883 t of hydrated lime was used to treat approximately 1,310 megalitres (ML) of water during the reporting period. In NOEF SEPROD, approximately 2,875 t of hydrated lime was used to treat approximately 4,340 ML of water during the reporting period.

All treated water was either transferred to the TSF WMD for storage and potential release under conditions of the WDL and DML, blended back into the mine water circuit for concentrator water supply or secondary treatment, or directly released to the receiving environment in accordance with the temporary release conditions outlined in the WDL.

During the reporting period, approximately 1,129.5 ML of water was released to the McArthur River. The following is an approximate breakdown of the total managed releases from each point and source storage:

- 226.5 ML via the Mine Levee Discharge Point (MLDP) from Pond 2 (OP P2);
- 303.1 ML via the McArthur River Diversion Channel Discharge Point (MRDC DP) from TSF WMD;
- 27.9 ML via the Central East Release Point (CERP) from NOEF SEPROD; and
- 572 ML via the WMD RP from TSF WMD.

During the reporting period, two results outside the SSTVs were recorded at SW11 during managed release events. Both were investigated and determined to be unrelated to managed release activities. A review of monitoring data for the period by WRM (2025a) supported these conclusions, confirming that the SW11 results outside the SSTVs were not attributable to managed releases.

Dredging did not occur over the reporting period and dredge spoil was not actively emplaced at the BBLF. As such, there were no managed releases from the DSEA.

Downstream McArthur River Water Quality

Throughout the reporting period, pH in the McArthur River was circa neutral to slightly alkaline across all monitoring locations, with results generally consistent between upstream and downstream sites relative to the Mine.

At SW11, one pH measurement and three dissolved oxygen measurements were recorded outside the SSTV ranges. None triggered a notifiable incident under the WDL conditions. Each result was investigated and determined to be unrelated to mining activities, with monitoring data indicating influences from upstream catchments (McArthur and Glyde rivers), consistent with previous years' results.

All electrical conductivity and sulphate results at SW11 remained below their respective SSTVs during the reporting period. Filtered metal concentrations in the McArthur River were consistently low, including for key metals of potential concern (cadmium, cobalt, copper, lead, nickel, thallium, and zinc). At SW11, all filtered metal results also remained below their respective SSTVs.

Bing Bong Water Quality

As outlined above, BBDDP experienced cease to flow or dry conditions for all the scheduled sampling events during the reporting period. Accordingly, there were no instances when a measured result at BBDDP triggered a notifiable incident under conditions of the WDL.

Analyte Loads

WRM (2025b) estimated the managed release and background McArthur River loads during the reporting period. The assessment indicated that load increases attributable to managed releases from the Mine were generally less than 10 percent (%), except for analytes filtered boron, filtered manganese and total and filtered thallium; the major ions calcium, chloride, magnesium, sodium and sulphate; and total dissolved solids.

The estimated managed release loads of total lead (3.3 kg) and total zinc (87 kg) discharged to the McArthur River during the reporting period were notably lower than those recorded in the 2017/18 baseline year, consistent with Recommendation 3 of the NT Environment Protection Authority (EPA) Assessment Report 86.

The natural background (pre-mine) total lead load transported by the McArthur River during the reporting period was estimated at 2,236 kg, with managed releases contributing an additional 0.15 % to the background load. For total zinc, the natural background load was estimated at 8,401 kg, with the managed release contributing an additional 1.04 % to the background load.

Conclusion

Based on the review of surface water quality monitoring data between 1 May 2024 and 30 April 2025, WRM (2025a) concluded that:

MRM continued to implement effective controls to minimise the risk of environmental harm of downstream receiving waters due to Mine operations. The review concluded that, during the reporting period, the beneficial uses and community values of the McArthur River were protected from potential mine derived impacts.

...

There were no mine derived SSTV exceedances or notifiable incidents recorded at the SW11 compliance point in the McArthur River during the reporting period. The SSTV exceedances recorded at SW11 during the reporting period were unrelated to mine activities and were a result of natural river processes and contributions from sources upstream of the Mine.

MRM will continue to implement the existing monitoring program in accordance with conditions of the current WDL and DML.

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Attachment 3	Tabulated Monitoring Data for the 2024/25 Period

1 Introduction

1.1 General

The McArthur River Mine (the Mine) is an Open Pit zinc, lead and silver mining operation in the Northern Territory (NT) located approximately 700 kilometres (km) south-east of Darwin, and approximately 45 km south-west of the township of Borroloola (Figure 1).

In addition to mining activities, operations include an on-site concentrator and processing plant and the Bing Bong Loading Facility (BBLF) located on the Gulf of Carpentaria approximately 95 km north-northeast of the Mine (Figure 1). McArthur River Mining Pty Ltd (MRM) is the operator of the Mine and the BBLF and is a wholly owned subsidiary of Glencore. MRM is the world's largest producer of zinc in bulk concentrate form.

MRM operates consistent with its approved *Mining Management Plan (2020)* and associated amendments. On-site mining and processing activities are conducted within Mineral Lease Northern (MLN) 1121, MLN 1122, MLN 1123, MLN 1124 and MLN 1125 (Figure 2).

The BBLF is located within MLN 1126. Adjacent to the Bing Bong MLN is the Bing Bong Dredge Spoil Emplacement Area (DSEA), located on the former Non-Pastoral Land Use Approval NP033. No dredging or dredge spoil emplacement has been undertaken by MRM since 2013.

MRM was granted Waste Discharge Licence (WDL) 174-15 on 27 March 2024, which conditionally permitted the discharge of mine-affected water from specified locations, including two temporary discharge points. Subsequently, on 17 November 2024, MRM was issued WDL 174-16 (the WDL), an amendment to WDL 174-15, which maintained the approved discharge locations and extended the allowable discharge timeframe for one of the temporary discharge points. The managed release locations and receiving waters listed in WDL 174-16 include:

- the Mine Levee Discharge Point (MLDP) into the old McArthur River channel;
- the South-East Levee 1 Discharge Point (SEL1 DP) into the Barney Creek Diversion Channel;
- the McArthur River Diversion Channel Discharge Point(s) (MRDC DP) into the McArthur River Diversion Channel;
- the temporary release location Central East Release Point (CERP) into the Barney Creek Diversion Channel; and
- the Bing Bong Dredge Spoil Drain (BBDDP) into marine waters at the BBLF.

In accordance with Variation of Authorisation Deemed Mining Licence DML0059-01 (the DML), MRM was also authorised during the reporting period for the conditional release of water at the TSF Water Management Dam (WMD) Release Point (RP) into the McArthur River catchment via Little Barney Creek.

1.2 Monitoring Report

This Monitoring Report has been submitted in accordance with Schedule 1 Item 13 of WDL 174-16. WDL 174-16 is provided in Attachment 1.

Table 1 and Table 2 reproduces the requirements of this Monitoring Report given in Schedule 1 Item 15 and Condition 40 of WDL 174-16 respectively, along with a reconciliation of the reporting requirements with this Monitoring Report and its Attachments.

A recent review of the environmental performance of the Mine and BBLF over the period 1 May 2024 to 30 April 2025 was undertaken for the *McArthur River Mine 2024-2025 Environmental Monitoring Report (EMR)* (Attachment 2).

To supplement and verify MRM's collection, review and analysis of environmental monitoring data for the EMR, external experts were engaged to review and provide conclusions regarding environmental performance (as reported in the technical appendices to the EMR). The operational activities of the Mine and BBLF during the EMR reporting period are also described in the EMR (Attachment 2). The historical and recent observations of the physical environment relevant to water management and monitoring (e.g. climate, hydrology, river heights) are described in WRM (2025a) in Attachment 2.

During the reporting period, MRM operated under WDL 174-15 and WDL 174-16 as well as the DML. The following is a summary of which WDL the Mine was operating under during the 2024/25 reporting period:

- WDL 174-15 was operated under from the start of the reporting period (1 May 2024) to 16 November 2024; and
- WDL 174-16 was operated under from 17 November 2024 until the end of the reporting period (30 April 2025).

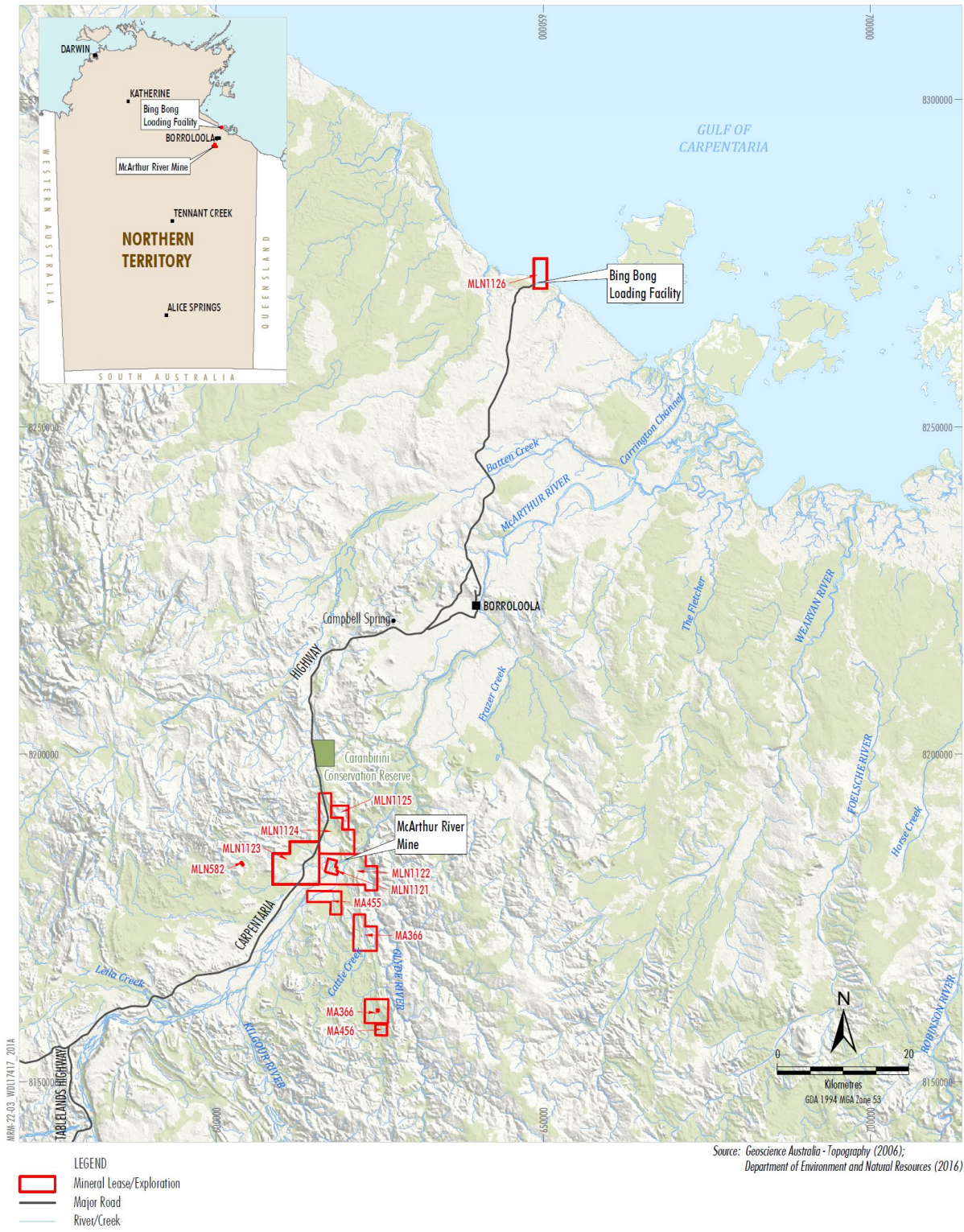


Figure 1: Regional Locality



Figure 2: Mine Site

TABLE 1: WDL 174-16 MONITORING REPORT REQUIREMENTS (SCHEDULE 1 ITEM 15)

Requirement	Section
<p><i>Schedule 1 Item 15.</i> <i>in addition to the requirements in condition 40, the licensee must ensure that each Monitoring Report is prepared in the format described in the National Water Quality Management Strategy, Australian Guidelines for Water Quality Monitoring and Reporting, Chapter 7 and must include:</i></p>	<p>This Monitoring Report and its appendices have been generally structured consistent with Chapter 7 of the Guideline. This includes the provision of the executive summary and primary technical report.</p> <p>This Monitoring Report is based on reviews completed by the qualified specialists WRM Water & Environment Pty Ltd (WRM) in WRM (2025a) and WRM (2025b) (Attachment 2).</p>
<p>5. <i>a data analysis and interpretation using the National Water Quality Management Strategy, Australian Guidelines for Water Quality Monitoring and Reporting, Chapter 6;</i></p>	<p>This Monitoring Report has been generally structured consistent with Chapter 6 of the Guideline. This includes:</p> <ul style="list-style-type: none"> • analysis of changes in time and space (Section 4); • checks for data integrity (Appendix A); • comparison of site and water quality guidelines (Section 6); and • interpretation in relation to study objectives (Section 7).
<p>6. <i>a tabulation of all monitoring data collected as required as a condition of this licence and any additional data used as part of the analysis and interpretation undertaken in the report, to be submitted in electronic Microsoft Excel format;</i></p>	<p>Tabulation of data required under the monitoring schedules listed in Condition 27 is provided in electronic Microsoft Excel format (Attachment 3). The data required under the specialist biota monitoring listed in Condition 27 is provided in the EMR (Attachment 2) and its Appendices.</p>
<p>7. <i>includes total mine-derived loads entering the McArthur River from the mine site for the contaminants listed in Appendix 3 Table 1;</i></p>	<p>Refer to Section 5 and WRM (2025b) of Attachment 2.</p>
<p>8. <i>a comparison between the mine-derived load for each contaminant listed in Appendix 3 table 1 and the background loads in the McArthur River (SW11 and SW21) and Glyde River (SW09);</i></p>	<p>Refer to Section 5 and WRM (2025b) of Attachment 2.</p>
<p>9. <i>a comparison of the mine-derived contaminant loads, referred to in paragraph 7 of this item, against contaminant loads reporting to the McArthur River from July 2017 to June 2018;</i></p>	<p>Refer to Section 5 and WRM (2025b) of Attachment 2.</p>
<p>10. <i>an assessment of all monitoring data (including flow rate and calculated volume from each river contributing to water quality at SW11) and whether the activity has been conducted in a manner that has ensured the McArthur River is being protected at all times from mine related impacts.</i></p>	<p>Refer to Section 6, Section 7 and WRM (2025a) of Attachment 2.</p>

TABLE 2: WDL 174-16 MONITORING REPORT REQUIREMENTS (CONDITION 40)

Requirement	Section
40. The Licensee must ensure that each Monitoring Report:	
40.1. Is prepared in accordance with the requirements of the Administering Agency 'Guideline for Reporting on Environmental Monitoring' (or any other guideline as adopted by the Administering Agency from time to time);	<p>The report has been prepared in alignment with the NT EPA Guideline for Reporting of Environmental Monitoring including:</p> <ul style="list-style-type: none"> • title page; • executive summary; • monitoring objectives and methods (Section 3); • monitoring results (Section 4); • discussion (Section 6); • conclusion (Section 7); • certification (Section 8); and • QA/QC (Appendix A).
40.2. Includes a tabulation, in Microsoft® Excel® format or another format requested by the Administering Agency, of all monitoring data required to be collected in accordance with this licence for the preceding 12 month period);	Refer to Attachment 2 and Attachment 3.
40.3. Includes a tabulation of monthly and annual contaminant loads discharged from the authorised discharge point specified in Item 5 for the preceding 12 month period. Contaminant loads must be calculated for metals, metalloids, nutrients and other parameters (excluding field parameters) listed in the monitoring program specified in Item 11. The calculations must be based on the daily discharge volume and the concentration of contaminant present in the discharge on that day. On the days when a sample was not taken then the concentration of the contaminant must be estimated using Linear Interpolation methodology	Refer to Section 5 and WRM (2025b) of Attachment 2.
40.4. Includes long term trend analysis of monitoring data to demonstrate any environmental impact associated with the Licensed Action over a minimum period of three years (of part thereof);	Refer to Section 4 and Attachment 2.
40.5. Includes a summary of any investigations undertaken by the Licensee in accordance with this licence for the preceding 12 month period; and	Refer to Section 6 and WRM (2025a) of Attachment 2.
40.6. Includes an assessment of environmental impact from the Licensed Action.	Refer to Section 6, Section 7 and Attachment 2.

2 Community Values and Beneficial Uses

2.1 Community Values

Community values are particular values or uses of the environment that are important for a healthy ecosystem or for public benefit, health, safety or welfare, and requires protection from the effects of stressors.

In accordance with the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (Australian and New Zealand Governments [ANZG], 2018), MRM has identified the following community values for the receiving waters downstream of the Mine, including:

- aquatic ecosystems (slightly to moderately disturbed);
- primary industries including stock drinking water, irrigation and general water uses;
- recreation and aesthetics; and
- cultural and spiritual values.

Typically, the most stringent water quality objectives are associated with the protection of aquatic ecosystems. Where more stringent water quality guidelines have been identified for other McArthur River community values (e.g. primary industries, recreation and aesthetics or cultural and spiritual), these have been incorporated into MRM's environmental management and monitoring program targets in addition to the aquatic ecosystem values.

The condition of the McArthur River in the vicinity of the Mine is considered as a 'slightly to moderately disturbed system' due to the influence of pastoralism and grazing throughout the catchment. The ANZG (2018) guidelines recommend that generally a 95 percent (%) species protection level should be applied to slightly to moderately disturbed systems, as is the case for the McArthur River in the vicinity of the Mine.

2.2 Beneficial Uses

The WDL lists the following beneficial uses as declared under the *Water Act 1992* (NT) and the sensitivity of the surrounding land use and environment in the vicinity of the Mine. These include:

- Declared beneficial uses and/or water quality objectives are:
 - McArthur River Area: aquatic ecosystem protection, recreational water quality and aesthetics (Gazette references G9 11 March 1998 and G20 27 May 1988); and
 - McArthur River Catchment Area: environment, cultural and riparian (Gazette reference G10 14 March 2001).
- Sites of conservation significance (SOCS):
 - Sir Edward Pellow Island group (SOCS No. 33);
 - McArthur River coastal floodplain (SOCS No. 34); and
 - Borroloola area (SOCS No. 35).

2.3 Mixing Zones

In accordance with NT EPA *Guidelines on Mixing Zones* (2013), mixing zones are specifically defined areas where the water quality may be below that required to protect environmental values and beneficial uses.

Mixing zones allow for a designated zone of potential impact between the authorised release points and the compliance points, in lieu of prescribing concentration requirements at authorised release points

(NT EPA, 2013). At the Mine, the mixing zone is located between the authorised release points within the mineral leases and the SW11 compliance monitoring point in the McArthur River receiving environment.

The zone extends along the McArthur River from the MRDC DP, past the end of the McArthur River Diversion Channel (Barney Creek and McArthur River confluence), finishing at the northern (downstream) boundary of MLN 1122.

Managed release is also conveyed along Little Barney Creek and Barney Creek (including the Barney Creek Diversion Channel). However, these waterway reaches are in operational areas of the Mine site, are highly ephemeral, are not considered important refugia for the persistence of any aquatic species, nor do they provide a major ecological role within the wider catchment (Indo-Pacific Environmental [IPE], 2019). For these reasons, the Little Barney Creek and the Barney Creek reaches are not afforded mixing zone status.

3 Monitoring Objectives and Method

3.1 Authorised Discharge Points

The authorised discharge, compliance and monitoring points during the reporting period (as detailed in the WDL) are reproduced in Table 3 below, and presented on Figure 3 and Figure 4 for the Mine and Figure 5 for the BBLF. Schedule 1, Items 5 and 6 and Appendix 2 of the WDL describes the authorised discharge points and source waters. Schedule 1, Item 8 and Appendix 2 of the WDL describes the compliance points.

In addition, in accordance with the DML, MRM was authorised during the reporting period for the managed release of water at the TSF WMD into Little Barney Creek via the WMD RP.

3.2 Temporary Release Locations

Due to the impact of Ex Tropical Cyclone (Ex-TC) Megan at the Mine, MRM was granted an amended WDL (WDL 174-15) on 27 March 2024. The amended licence provided conditional approval for the temporary use of two release locations in addition to the authorised discharge points discussed in Section 3.1.

MRM was issued WDL 174-16 on 17 November 2024, an amendment to WDL 174-15, which maintained the approved discharge locations and extended the allowable discharge timeframe for one of the temporary discharge points. Table 3 and Figure 3 includes the temporary discharge point applicable to WDL 174-16. Appendix 9, Condition 44 of the WDL describes the location of the temporary discharge point and the relevant source water body.

TABLE 3: WDL 174-16 AUTHORISED DISCHARGE AND COMPLIANCE MONITORING POINTS

Point	Description	Location
Authorised Discharge Points		
Mine Levee Discharge Point (MLDP)	<ol style="list-style-type: none"> 1. Water from the Water Management Dam. 2. Treated water from the Water Treatment Plant via Pond 2 (OP P2). 3. Groundwater from dewatering bores around main pit collected in and then discharged from OP P2. 4. Rain water collecting in the old McArthur River Channel (NC1A) inside the Mine levee. <p>Waters released at MLDP are pumped over the mine levee wall and flow into the Old McArthur River channel upstream of the McArthur River and Glyde River confluence.</p>	Latitude: -16.427423 Longitude: 136.111403
South-East Levee 1 Discharge Point (SEL1 DP)	<ol style="list-style-type: none"> 1. Rainwater runoff, separated from all contaminated seepages, collected in, and discharged from the South-East Levee 1 (SEL1). <p>Waters released at SEL1 DP are pumped via pipeline to Barney Creek and then flow into the McArthur River. Discharge can only occur when flow as measured in the McArthur River at the downstream gauging station is in excess of 20 cubic metres per second (m³/s).</p>	Latitude: -16.423824 Longitude: 136.108302
McArthur River Diversion Channel Discharge Point(s) (MRDC DP)	<ol style="list-style-type: none"> 1. Water from the Water Management Dam. 2. Treated water from the Water Treatment Plant via OP P2. 3. Groundwater from dewatering bores around main pit collected in and then discharged from OP P2. <p>Waters released at the MRDC DP are pumped into McArthur River Diversion Channel upstream of the McArthur River and Glyde River confluence.</p>	Latitude: -16.435385 Longitude: 136.120196
Bing Bong Dredge Discharge Point (BBDDP)	<p>The BBDDP receives overflow from:</p> <ol style="list-style-type: none"> 1. The final dredge spoil emplacement area cell when in operation; and 2. Saline water from the perimeter drain which surrounds the dredge spoil emplacement area. <p>At BBDDP, passive releases flow across the intertidal flats to the Gulf of Carpentaria via the Bing Bong navigation channel.</p>	Latitude: -15.629683 Longitude: 136.394778
Temporary Release Location		
Central East Release Point (CERP)	<ol style="list-style-type: none"> 1. Water from the South-Eastern Perimeter Runoff Dam (NOEF SEPROD). <p>Waters released at CERP are pumped or siphoned into the NOEF SEPROD stilling basin and flow into the Barney Creek Diversion Channel upstream of the McArthur River and Barney Creek confluence.</p>	Latitude: -16.423233 Longitude: 136.107667
Compliance Monitoring Points		
SW11	<p>The monitoring point is situated along the McArthur River approximately at the edge of MLN 1122. SW11 is downstream of the confluence of the Glyde River. SW11 is approximately:</p> <ul style="list-style-type: none"> • 5 km downstream of MLDP; and • 6 km downstream of SEL1 DP. 	Latitude: -16.407386 Longitude: 136.144785
BBDDP	<p>The BBDDP is located on tidal mudflats approximately 750 metres east of the loading facility.</p>	Latitude: -15.629683 Longitude: 136.394778



Figure 3: Mine Surface Water Monitoring Sites and Release Locations

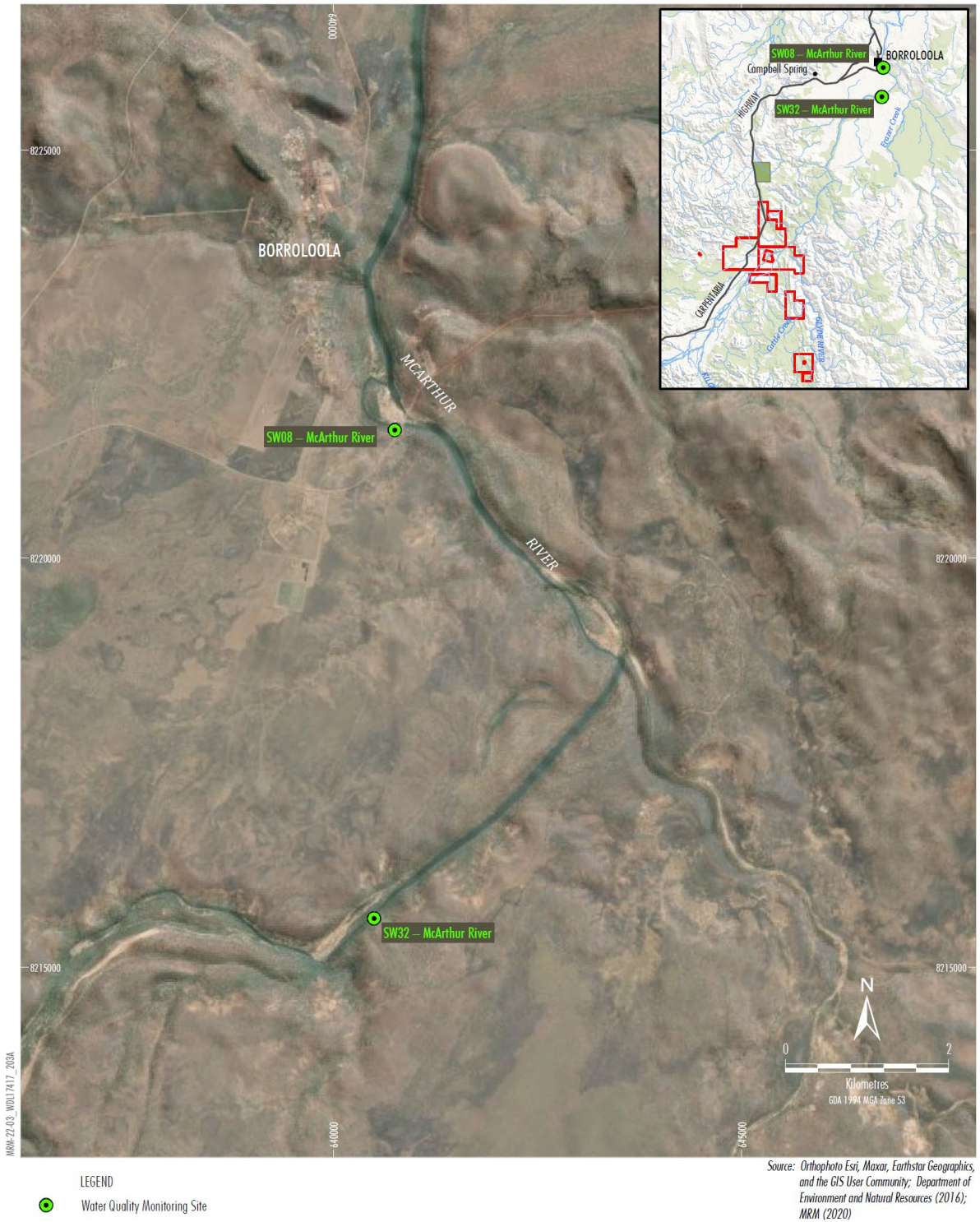


Figure 4: McArthur River Downstream Surface Water Monitoring Sites



Figure 5: Bing Bong Loading Facility Surface Water Monitoring Sites

3.3 Compliance Points and Trigger Levels

WDL 174-16 details Site-Specific Trigger Values (SSTVs) for compliance monitoring points SW11 and BBDDP. The SSTVs for the compliance points are reproduced in Table 4 below. SSTV compliance is assessed against Schedule 1 Item 10 of WDL 174-16 which is reproduced below:

Schedule 1 Item 10. Notifiable incidents (conditions 25 and 26):

- (a) An exceedance of a trigger value specified in Item 7 at the compliance point in Item 8, on three consecutive sampling occasions;
- (b) A measurement outside the range for pH or dissolved oxygen specified in Item 7 at the compliance point in Item 8, on three consecutive sampling occasions;
- (c) An exceedance of three or more times a trigger value specified in Item 7 at the compliance point in Item 8;
- (d) A discharge of mine-affected water at a point not specified in Item 5 or authorised by another relevant regulatory approval;
- (e) A discharge of mine-affected water from a source not specified in Item 6 or authorised by another relevant regulatory approval; or
- (f) A failure to comply with condition 23.

TABLE 4: WDL 174-16 COMPLIANCE POINTS AND SSTVS

Parameter	Site Code			SW11	BBDDP
	Abbreviation	Units	Analysis	SSTVs*	
Field Measurements					
pH	pH	pH Units	In situ	6.0-8.5	8.0-8.4
Electrical Conductivity	EC	µS/cm		1,000	-
Dissolved Oxygen	DO	% saturation		85-120	-
Metals and Metalloids					
Aluminium	Al	µg/L	Filtered (0.45 µm)	269	0.5
Arsenic	As			24	2.3
Cadmium	Cd			1.73	5.5
Cobalt	Co			1.4	-
Copper	Cu			9	1.3
Iron	Fe			347	-
Lead	Pb			17	4.4
Manganese	Mn			1,900	80
Nickel	Ni			11	70
Thallium	Tl			58	-
Zinc	Zn			32	15
Total Petroleum Hydrocarbons (TPH)					
Benzene	NA	µg/L		10	500
TPH Fraction	NA			600	600
C6 – C9					
C10 – C14					
C15 – C28					
C29 – C36					
Other					
Sulphate	SO ₄	mg/L		1,000	-
Nitrate	NO ₃	mg/L		10.6	-

µS/cm = microSiemens per centimetre, µg/L = micrograms per litre, mg/L = milligrams per litre

* SSTVs are applicable to filtered samples for metals and metalloids. The derivation of the SSTVs is documented within the WDL.

3.4 WDL 174-16 Monitoring Program

Schedule 1 Item 11 of WDL 174-16 outlines MRM's monitoring requirements, and the conditions are reproduced below.

Schedule 1 Item 11. Monitoring Program

The Monitoring Program includes:

- (a) Surface water monitoring in accordance with Appendices 4 and 5;*
- (b) Fluvial sediment monitoring in accordance with Appendices 6 and 7; and*
- (c) Biota monitoring in accordance with Appendix 8.*

A summary of reporting period and long-term water quality trends for the McArthur River, including SW11, is provided in Section 4.3. Further information is provided in WRM (2025a) and summarised in the EMR (Attachment 2).

No samples were collected at BBDDP during the reporting period as this location experienced cease to flow or dry conditions during all scheduled sampling events. Similarly, as MRM has not undertaken dredging or dredge spoil emplacement since 2013, there is limited data available for long term trend analysis at BBDDP.

The results for all other monitoring required under WDL 174-16, including long-term trend analysis where data is available, can be sourced directly from the specialist consultant reports appended to the EMR (Attachment 2):

- *Metals and Metalloids in Seafloor Sediments 2024;*
- *Annual Marine Monitoring Program 2024;*
- *Monitoring of Metals and Lead in Fluvial Sediments and Aquatic Fauna 2024;*
- *Annual Seagrass Survey of the Bing Bong Loading Facility 2024;*
- *Aquatic Fauna Monitoring Early Dry Season 2024;*
- *Aquatic Fauna Monitoring Late Dry Season 2024;*
- *Freshwater Aquatic Macroinvertebrate Assessment 2024;*
- *Surface Water Monitoring Annual Report 2024-2025 (WRM, 2025a); and*
- *Mine Derived Analyte Loads Assessment 2024-2025 (WRM, 2025b).*

The monitoring programs, including the sampling and analysis methodology used, are described in the specialist consultant reports appended to the EMR (Attachment 2). The specialist reports also describe the environmental settings during the sampling and EMR reporting period (where relevant).

In addition to addressing the requirements of WDL 174-16, the objectives of the monitoring programs are to help inform the assessment of MRM's performance against its key environmental objectives, which are as follows:

- protect the McArthur River beneficial uses and community values from mining impacts;
- facilitate development of the ecosystems and their functions along the McArthur River Diversion Channel for terrestrial and aquatic flora and fauna;
- achieve a recovering trend in the water quality and ecosystem function in creeks on the Mine site within 20 years of cessation of mining;
- minimise air quality related impacts from the Mine's operations with respect to community health and environment; and
- protect the community values and beneficial uses adjacent to the BBLF and transshipment corridor.

4 Monitoring Results

4.1 Summary of Managed Releases

4.1.1 Release events and volumes

Table 5 presents the releases from MLDP, MRDC DP, WMD RP and CERP to the McArthur River receiving waters during the reporting period. Approximately 1,129.5 ML of water was released to the McArthur River during the reporting period. The following is a breakdown of the total water released from each point and source water:

- approximately 226.5 ML via the MLDP (from OP P2);
- approximately 303.1 ML via the MRDC DP (from TSF WMD);
- approximately 27.9 ML via the CERP (from NOEF SEPROD); and
- approximately 572 ML via the WMD RP (from TSF WMD).

TABLE 5: REPORTING PERIOD MANAGED RELEASES

Release ID	Managed release point	Location Site ID	Release Start Date	Release Finish Date	Average Flow Rate (L/s)	Total Volume (ML)
0	WMD RP	WMD	01/05/2024 00:00	01/05/2024 09:00	170	5.50
1	MRDC DP	WMD	21/12/2024 17:00	22/12/2024 23:57	257	28.64
2	WMD RP	WMD	29/12/2024 17:15	31/12/2024 06:44	288	38.85
3	MRDC DP	WMD	16/01/2025 13:45	16/01/2025 18:22	259	4.30
4	MRDC DP	WMD	17/01/2025 07:30	18/01/2025 18:15	269	33.62
5	WMD RP	WMD	17/01/2025 08:20	18/01/2025 12:36	143	14.55
6	MRDC DP	WMD	23/01/2025 11:33	24/01/2025 15:00	266	26.26
7	WMD RP	WMD	23/01/2025 13:56	24/01/2025 10:30	370	27.39
8	MRDC DP	WMD	08/02/2025 14:50	13/02/2025 13:03	127	53.86
9	WMD RP (siphons)	WMD	08/02/2025 14:50	13/02/2025 06:54	697	281.04
10	MLDP	P2	08/02/2025 14:50	12/02/2025 18:33	302	108.45
11	WMD RP (pumps)	WMD	09/02/2025 08:25	12/02/2025 18:33	550	162.53
12	CERP	SEPROD	10/02/2025 14:50	13/02/2025 12:48	111	27.90
13	MLDP	P2	14/02/2025 08:25	16/02/2025 06:49	294	49.05
14	MRDC DP	WMD	14/02/2025 09:12	16/02/2025 10:07	270	47.58
15	MRDC DP	WMD	22/02/2025 12:42	23/02/2025 05:21	287	17.19
16	MRDC DP	WMD	23/03/2025 07:30	25/03/2025 23:46	182	42.05
17	MLDP	P2	24/03/2025 07:18	25/03/2025 18:28	206	26.05
18	WMD RP (siphons)	WMD	24/03/2025 16:24	25/03/2025 23:26	377	42.14
19	MRDC DP	WMD	29/03/2025 14:47	31/03/2025 17:00	274	49.55
20	MLDP	P2	29/03/2025 15:24	31/03/2025 17:00	241	42.98

4.1.2 Water Treatment

During the reporting period, water generated at the Mine was treated with hydrated lime in NOEF SEPROD and Southern Perimeter Runoff Dam (NOEF SPROD). The dams were periodically filled with various sources of water for lime treatment. A total of 10,758 tonnes (t) of hydrated lime was used in both dams during the reporting period.

In NOEF SPROD, approximately 7,883 t of hydrated lime was used to treat approximately 1,310 megalitres (ML) of water during the reporting period. In NOEF SEPROD, approximately 2,875 t of hydrated lime was used to treat approximately 4,340 ML of water during the reporting period.

All treated water was either transferred to the TSF WMD for storage and potential release under conditions of the WDL and DML, blended back into the mine water circuit for concentrator water supply, or directly released to the receiving environment in accordance with the temporary release conditions outlined in the WDL.

4.2 Tabulation of Monitoring Data

Schedule 1 Item 15 (6) and Condition 40.2 of the WDL requires that the Monitoring Report provide a tabulation of monitoring data, to be submitted in Microsoft Excel format. This tabulated monitoring data is provided in Attachment 3.

The water quality monitoring data for the McArthur River downstream compliance point SW11 over the reporting period is also provided in Table 6 for those parameters with corresponding SSTVs. Sampling was generally undertaken at SW11 on a weekly basis, increasing to daily during managed release events.

The BBDDP is required to be sampled weekly during active dredge disposal. No active dredge disposal occurred during the reporting period and therefore weekly sampling was not required. The BBDDP was inspected on a monthly basis for flow in accordance with the WDL. The inspection records for the BBDDP compliance point are provided in Table 7. During the reporting period, the BBDDP experienced cease to flow or dry conditions during all scheduled sampling events.

Water quality monitoring data for all surface water monitoring sites outlined in Appendix 4 of the WDL is tabulated in Attachment 3. These water quality monitoring sites are also shown on Figure 3 and Figure 4.

TABLE 6: WATER QUALITY DATA FOR SW11 SSTV PARAMETERS

Monitoring Location	Date	Flow	Access	pH Field	EC Field	DO Field	Filtered Al	Filtered As	Filtered Cd	Filtered Co	Filtered Cu	Filtered Fe	Filtered Pb	Filtered Mn	Filtered Ni	Filtered Tl	Filtered Zn	Benzene	TPH C10-C36	SO ₄	NO ₃	
		(Yes/No)	(Yes/No)	(pH Unit)	(µS/cm)	(%)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(µg/L)
				6.0-8.5	1,000	85-120	269	24	1.73	1.4	9	347	17	1,900	11	58	32	10	600	1,000	10,600	
SW11	04/05/2024 11:28	Yes	Yes	8.36	650.2	100.4	<5	1	<0.2	<1	<1	<5	<0.5	25	<1	<0.1	<2	<1	<50	17	<100	
SW11	12/05/2024 11:24	Yes	Yes	7.92	634.9	98.4	<5	0.8	<0.2	<1	<1	<5	<0.5	19	<1	<0.1	<2	<1	<50	13	<100	
SW11	19/05/2024 10:39	Yes	Yes	8.23	627.5	97.8	<5	0.9	<0.2	<1	<1	<5	<0.5	0.6	<1	<0.1	<2	-	-	12	<100	
SW11	26/05/2024 14:21	Yes	Yes	8.33	659.3	103.4	<5	1	<0.2	<1	<1	<5	<0.5	21	<1	<0.1	<2	<1	<50	1.2	<100	
SW11	04/06/2024 13:23	Yes	Yes	7.72	672.6	102	<5	0.9	<0.2	<1	<1	<5	<0.5	33	<1	<0.1	<2	<1	<50	11	<100	
SW11	09/06/2024 14:18	Yes	Yes	8.2	659.3	101.9	<5	0.9	<0.2	<1	<1	<5	<0.5	26	<1	<0.1	<2	<1	<50	10	<100	
SW11	16/06/2024 12:03	Yes	Yes	8.25	662.9	106.7	<5	0.8	<0.2	<1	<1	<5	<0.5	30	<1	<0.1	<2	<1	<50	11	<100	
SW11	23/06/2024 15:45	Yes	Yes	8.24	633.9	100.7	<5	0.6	<0.2	<1	<1	<5	<0.5	9.9	<1	<0.1	<2	<1	<50	10	<100	
SW11	30/06/2024 15:07	Yes	Yes	8.28	658.6	104.5	<5	0.7	<0.2	<1	<1	<5	<0.5	9.1	<1	<0.1	<2	<1	<50	10	<100	
SW11	07/07/2024 12:39	Yes	Yes	8.15	667.8	104.5	<5	0.7	<0.2	<1	<1	<5	<0.5	5.2	<1	<0.1	<2	<1	<50	11	<100	
SW11	14/07/2024 12:23	Yes	Yes	8.55	659.2	106.1	<5	0.8	<0.2	<1	<1	<5	<0.5	8.7	<1	<0.1	<2	<1	<50	10	<100	
SW11	21/07/2024 16:13	Yes	Yes	8.17	667.6	111.1	<5	0.8	<0.2	<1	<1	<5	<0.5	<0.5	<1	<0.1	<2	<1	<50	11	<100	
SW11	28/07/2024 12:56	Yes	Yes	8.24	659.8	109.8	<5	0.9	<0.2	<1	<1	<5	<0.5	1.1	<1	<0.1	<2	<1	<50	11	<100	
SW11	04/08/2024 13:11	Yes	Yes	8.3	655.4	109.5	<5	0.7	<0.2	<1	<1	9	<0.5	32	<1	<0.1	<2	<1	<50	12	<100	
SW11	11/08/2024 12:32	Yes	Yes	8.28	648.8	112.1	<5	0.8	<0.2	<1	<1	11	<0.5	39	<1	<0.1	<2	<1	<50	12	<100	
SW11	18/08/2024 11:57	Yes	Yes	8.17	673.4	105.3	<5	0.8	<0.2	<1	<1	11	<0.5	48	<1	<0.1	<2	<1	<50	13	<100	
SW11	25/08/2024 13:34	Yes	Yes	8.18	672.8	110.1	<5	1	<0.2	<1	<1	14	<0.5	45	<1	0.1	<2	<1	<50	14	<100	
SW11	01/09/2024 11:19	Yes	Yes	8.11	695.8	99.1	<5	0.9	<0.2	<1	<1	15	<0.5	51	<1	0.1	<2	<1	<50	14	<100	
SW11	08/09/2024 11:54	Yes	Yes	8.06	692.1	97.3	<5	1.1	<0.2	<1	<1	16	<0.5	54	<1	0.2	<2	<1	<50	15	<100	
SW11	15/09/2024 11:35	Yes	Yes	8.09	734.1	98.8	<5	1.1	<0.2	<1	<1	14	<0.5	51	<1	0.2	<2	<1	<50	18	<100	
SW11	22/09/2024 12:38	Yes	Yes	8.24	750	100.8	<5	1.1	<0.2	<1	<1	17	<0.5	61	<1	0.2	<2	<1	<50	19	<100	
SW11	29/09/2024 15:12	Yes	Yes	8.24	750	100.8	<5	1.2	<0.2	<1	<1	16	<0.5	63	<1	0.3	<2	<1	<50	21	<100	
SW11	06/10/2024 16:56	Yes	Yes	8.24	758.3	100.2	<5	1.2	<0.2	<1	<1	11	<0.5	37	<1	0.3	<2	<1	<50	19	<100	
SW11	13/10/2024 11:15	Yes	Yes	8.13	789.7	92.5	<5	1.5	<0.2	<1	<1	14	<0.5	4.1	<1	0.3	<2	<1	<50	23	<100	
SW11	20/10/2024 12:17	Yes	Yes	8.06	784.1	96.6	<5	1.6	<0.2	<1	<1	14	<0.5	17	<1	0.4	<2	<1	<50	26	<100	
SW11	27/10/2024 12:04	Yes	Yes	8.24	785.9	102.7	<5	1.3	<0.2	<1	<1	10	<0.5	3.9	<1	0.4	<2	<1	<50	26	<100	
SW11	03/11/2024 12:25	Yes	Yes	8.07	841.7	99.5	<5	1.1	<0.2	<1	<1	<5	<0.5	32	<1	0.5	<2	<1	<50	101	<100	
SW11	10/11/2024 12:44	Yes	Yes	8.29	773.5	120	<5	2	<0.2	<1	<1	<5	<0.5	7.4	<1	0.3	<2	<1	<50	26	<100	
SW11	17/11/2024 17:05	Yes	Yes	7.38	228.8	86	7	1	<0.2	<1	<1	135	<0.5	38	<1	<0.1	<2	<1	<50	3.9	3068	
SW11	24/11/2024 15:49	Yes	Yes	8.22	304.6	123.9	<5	1.3	<0.2	<1	<1	338	<0.5	9.5	<1	<0.1	<2	<1	<50	4.1	<100	
SW11	02/12/2024 13:20	Yes	Yes	7.7	64.7	86.7	97	<0.5	<0.2	<1	<1	224	<0.5	2.8	<1	<0.1	<2	<1	<50	4	1045	
SW11	08/12/2024 09:42	Yes	Yes	7.85	175.7	92.7	33	0.8	<0.2	<1	<1	148	<0.5	33	<1	<0.1	<2	<1	<50	3.7	688	
SW11	15/12/2024 09:03	Yes	Yes	7.57	99.3	89.3	32	0.6	<0.2	<1	<1	180	<0.5	1	<1	<0.1	<2	<1	<50	1.6	531	
SW11	22/12/2024 09:11	Yes	Yes	6.58	233.7	91.5	14	0.6	<0.2	<1	<1	158	<0.5	1.5	<1	0.1	<2	<1	<50	50	254	
SW11	29/12/2024 13:47	Yes	Yes	7.63	214.7	88.5	7	0.7	<0.2	<1	<1	92	<0.5	0.5	<1	<0.1	<2	<1	<50	5.1	153	
SW11	30/12/2024 11:06	Yes	Yes	6.98	78.5	88.1	28	<0.5	<0.2	<1	<1	210	<0.5	1	<1	<0.1	<2	-	-	1.1	303	
SW11	31/12/2024 07:45	Yes	Yes	6.83	34.8	93.6	57	<0.5	<0.2	<1	<1	181	<0.5	0.9	<1	<0.1	<2	-	-	0.8	287	
SW11	05/01/2025 08:34	Yes	Yes	7.42	144.1	86.9	10	0.6	<0.2	<1	<1	145	<0.5	5.1	<1	<0.1	<2	<1	<50	1.8	553	
SW11	12/01/2025 11:51	Yes	Yes	7.3	66.2	90.3	61	<0.5	<0.2	<1	<1	106	<0.5	1	<1	<0.1	<2	<1	<50	0.7	399	
SW11	16/01/2025 15:56	Yes	Yes	7.89	204.6	96	<5	0.8	<0.2	<1	<1	152	<0.5	0.9	<1	<0.1	<2	-	-	3.6	172	

Monitoring Location	Date	Flow	Access	pH Field	EC Field	DO Field	Filtered Al	Filtered As	Filtered Cd	Filtered Co	Filtered Cu	Filtered Fe	Filtered Pb	Filtered Mn	Filtered Ni	Filtered Tl	Filtered Zn	Benzene	TPH C10-C36	SO ₄	NO ₃	
		(Yes/No)	(Yes/No)	(pH Unit)	(µS/cm)	(%)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(µg/L)
				6.0-8.5	1,000	85-120	269	24	1.73	1.4	9	347	17	1,900	11	58	32	10	600	1,000	10,600	
SW11	17/01/2025 08:53	Yes	Yes	7.56	346.7	86	<5	0.9	<0.2	<1	<1	18	<0.5	<0.5	<1	0.1	<2	-	-	67	111	
SW11	18/01/2025 08:48	Yes	Yes	7.66	514	91	<5	0.7	<0.2	<1	<1	15	<0.5	0.6	<1	0.3	<2	-	-	158	519	
SW11	19/01/2025 08:17	Yes	Yes	7.75	178.8	95.1	9	0.6	<0.2	<1	<1	58	<0.5	0.6	<1	<0.1	<2	<1	<50	3.6	469	
SW11	24/01/2025 08:15	Yes	Yes	7.45	573.6	88.5	<5	0.7	<0.2	<1	<1	11	<0.5	<0.5	<1	0.3	<2	-	-	171	170	
SW11	26/01/2025 09:12	Yes	Yes	7.92	126.5	96	8	0.7	<0.2	<1	<1	241	<0.5	1.1	<1	<0.1	<2	<1	<50	2.3	184	
SW11	02/02/2025 09:07	Yes	Yes	7.62	208.6	91.7	<5	0.7	<0.2	<1	<1	59	<0.5	0.5	<1	<0.1	<2	<1	<50	4.5	221	
SW11	09/02/2025 09:40	Yes	Yes	7.23	157.3	85	<5	<0.5	<0.2	<1	<1	9	<0.5	<0.5	<1	<0.1	<2	<1	<50	15	572	
SW11	10/02/2025 10:38	Yes	Yes	6.8	13.1	92	24	<0.5	<0.2	<1	<1	96	<0.5	1.4	<1	<0.1	<2	-	-	0.3	605	
SW11	11/02/2025 08:38	Yes	Yes	6.99	11.7	92.1	84	<0.5	<0.2	<1	<1	101	<0.5	0.9	<1	<0.1	<2	-	-	0.9	665	
SW11	12/02/2025 08:03	Yes	Yes	7.06	55.7	88	23	<0.5	<0.2	<1	<1	79	<0.5	1.3	<1	<0.1	<2	-	-	5.7	628	
SW11	13/02/2025 09:56	Yes	Yes	6.68	738.3	82.7	<5	<0.5	<0.2	<1	<1	24	<0.5	39	<1	0.7	<2	-	-	292	345	
SW11	14/02/2025 16:31	Yes	Yes	6.89	374.8	86.1	<5	0.5	<0.2	<1	<1	15	<0.5	21	<1	0.2	<2	-	-	103	355	
SW11	15/02/2025 11:12	Yes	Yes	6.84	447.9	93.7	<5	<0.5	<0.2	<1	<1	19	<0.5	24	<1	0.4	<2	-	-	135	550	
SW11	16/02/2025 08:11	Yes	Yes	6.34	618.3	91.8	<5	<0.5	<0.2	<1	<1	14	<0.5	36	<1	0.6	<2	<1	<50	216	659	
SW11	23/02/2025 08:40	Yes	Yes	7.59	193.7	91.4	<5	0.6	<0.2	<1	<1	36	<0.5	1	<1	<0.1	<2	<1	<50	7.4	364	
SW11	02/03/2025 09:05	Yes	Yes	7.45	224.2	91	<5	0.6	<0.2	<1	<1	81	<0.5	86	<1	<0.1	<2	<1	<50	7.4	402	
SW11	09/03/2025 10:44	Yes	Yes	7.87	307.5	95.6	<5	0.7	<0.2	<1	<1	104	<0.5	110	<1	0.1	<2	<1	<50	8.3	816	
SW11	16/03/2025 08:48	Yes	Yes	6.79	268.3	94.9	<5	0.8	<0.2	<1	<1	66	<0.5	74	<1	<0.1	<2	<1	<50	6	345	
SW11	23/03/2025 12:02	Yes	Yes	7.33	132.7	93.8	13	<0.5	<0.2	<1	<1	35	<0.5	2.6	<1	<0.1	<2	<1	<50	2.6	2061	
SW11	24/03/2025 13:17	Yes	Yes	7.54	359.5	90.2	<5	0.6	<0.2	<1	<1	14	<0.5	7.4	<1	<0.1	<2	-	-	55	214	
SW11	25/03/2025 08:45	Yes	Yes	6.51	26.7	80.4	28	<0.5	<0.2	<1	<1	104	<0.5	2.7	<1	<0.1	<2	-	-	0.5	<100	
SW11	30/03/2025 09:15	Yes	Yes	7.27	16.1	94.2	33	<0.5	<0.2	<1	<1	103	<0.5	0.6	<1	<0.1	<2	<1	<50	0.6	197	
SW11	31/03/2025 08:14	Yes	Yes	6.68	39	85.9	56	<0.5	<0.2	<1	<1	126	<0.5	0.5	<1	<0.1	<2	-	-	0.9	108	
SW11	06/04/2025 11:37	Yes	Yes	7.74	102	97.4	182	<0.5	<0.2	<1	<1	251	<0.5	13	<1	<0.1	<2	<1	<50	4.9	499	
SW11	13/04/2025 09:13	Yes	Yes	7.62	195.3	99.9	<5	<0.5	<0.2	<1	<1	57	<0.5	61	<1	<0.1	<2	<1	<50	5.7	362	
SW11	20/04/2025 08:30	Yes	Yes	7.86	112.2	97.3	<5	0.6	<0.2	<1	<1	33	<0.5	22	<1	<0.1	<2	<1	<50	8.2	292	
SW11	27/04/2025 08:54	Yes	Yes	7.84	664.3	94	<5	0.8	<0.2	<1	<1	38	<0.5	43	<1	<0.1	<2	<1	<50	8.9	257	

Notes: Shaded results show instances whereby monitoring results were beyond the SSTV value. Dashes indicate no data.

TABLE 7: WATER QUALITY DATA FOR BBDDP SSTV PARAMETERS

Monitoring Location	Date	Dry (Yes/No)	Access (Yes/No)	Comment	pH Field	EC Field	DO Field	Filtered Al	Filtered As	Filtered Cd	Filtered Co	Filtered Cu	Filtered Fe	Filtered Pb	Filtered Mn	Filtered Ni	Filtered Tl	Filtered Zn	Benzene	TPH C10-C36	SO ₄	NO ₃			
					(pH Unit)	(µS/cm)	(%)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(µg/L)
					8-8.4	-	-	0.5	2.3	5.5	-	1.3	-	4.4	80	70	-	15	500	600	-	-			
ASW BBDDP	22/05/2024 10:50	No	Yes	No Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
ASW BBDDP	25/06/2024 11:30	No	Yes	Cease to flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
ASW BBDDP	09/07/2024 13:30	No	Yes	Cease Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
ASW BBDDP	03/08/2024 13:30	No	Yes	Cease Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
ASW BBDDP	03/09/2024 13:30	No	Yes	Cease Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
ASW BBDDP	02/10/2024 15:20	Yes	Yes	Cease Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
ASW BBDDP	05/11/2024 10:20	Yes	Yes	Cease Flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
ASW BBDDP	03/12/2024 09:38	Yes	Yes	Cease flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
ASW BBDDP	08/01/2025 11:38	No	Yes	Pooled - Not connected or Flowing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
ASW BBDDP	05/02/2025 16:38	No	Yes	Pooled - Not connected or Flowing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
ASW BBDDP	08/03/2025 12:15	No	Yes	Pooled, cease to flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
ASW BBDDP	08/04/2025 12:15	No	Yes	Ceased to flow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

Notes: Shaded results show instances whereby monitoring results were beyond the SSTV value. Dashes indicate no data.

4.3 Rainfall

The McArthur River catchment experiences a monsoonal climate regime, which is strongly seasonal with distinct wet and dry seasons. Climatic conditions are known to significantly influence the natural environment in the vicinity of the Mine, in particular the McArthur River and its tributaries. However, during the reporting period the McArthur River did not experience “cease to flow” / dry conditions, whereas the Glyde River did from late August until mid-November.

Approximately 661 mm of rainfall was recorded at the Mine over the 2024/25 reporting period, which is below the average (721 mm).

Figure 6 presents the reporting period SILO Patched Point daily and cumulative rainfalls at the MRM Airport station (14704).

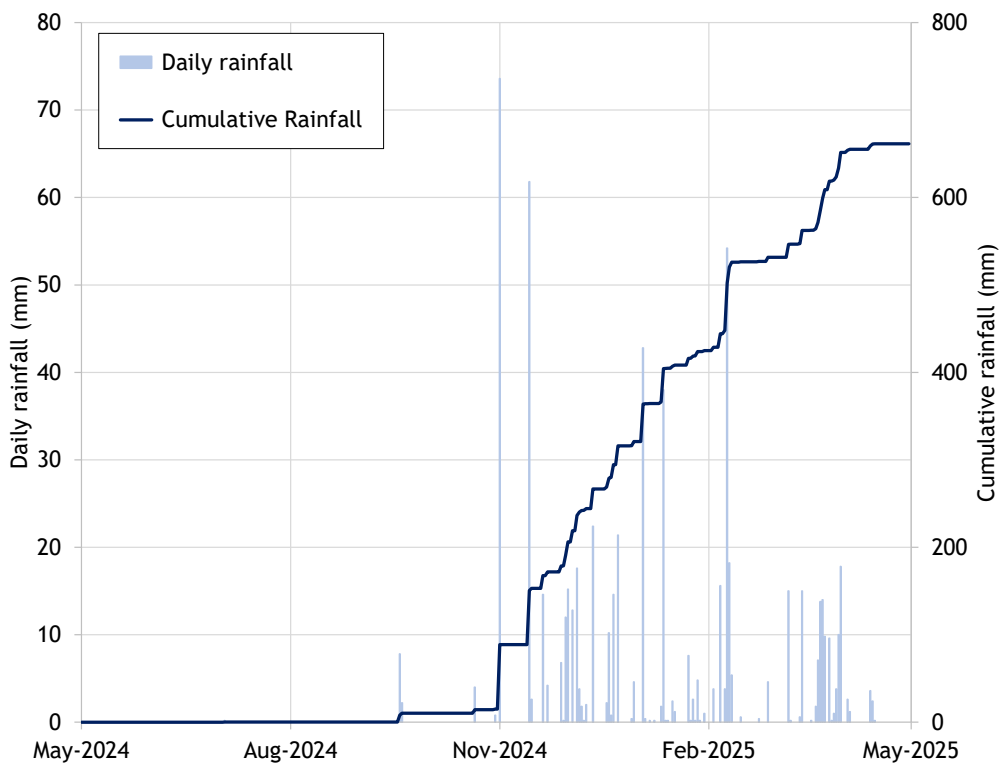


Figure 6: Reporting Period Daily Rainfall and Cumulative Rainfall at MRM Airport

4.4 McArthur River Stream Flow

Water levels in the McArthur River at the MIM Pump Gauging Station adjacent the Mine peaked at about 7 metres (m) (27.7 m Australian Height Datum [AHD]), with a corresponding river flow of about 328 cubic metres per second (m^3/s). Water levels in the McArthur River at the SW11 compliance point peaked at approximately 11.5 m (25.1 m AHD), with a corresponding river flow of about 914 m^3/s .

Figure 7 presents the McArthur River water level (m AHD) and flow rate (m^3/s) at the MIM Pump Gauging Station and SW11 (Downstream Gauging Station [DSGS]) as well as weekly rainfall recorded at the McArthur River Airport station (14704) during the reporting period.

Although rainfall totals were below average, the McArthur River did not experience cease to flow conditions due to the effects of Ex-TC Cyclone Megan, which impacted the site towards the end of the previous reporting period.

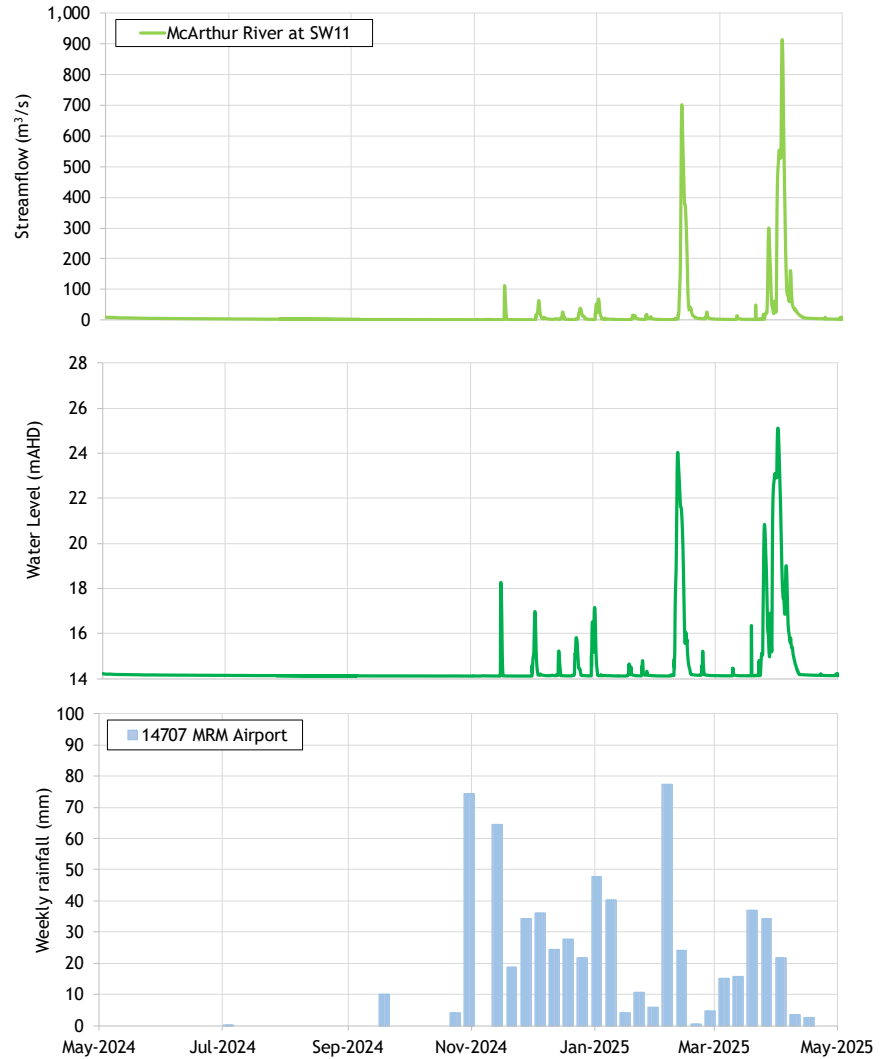
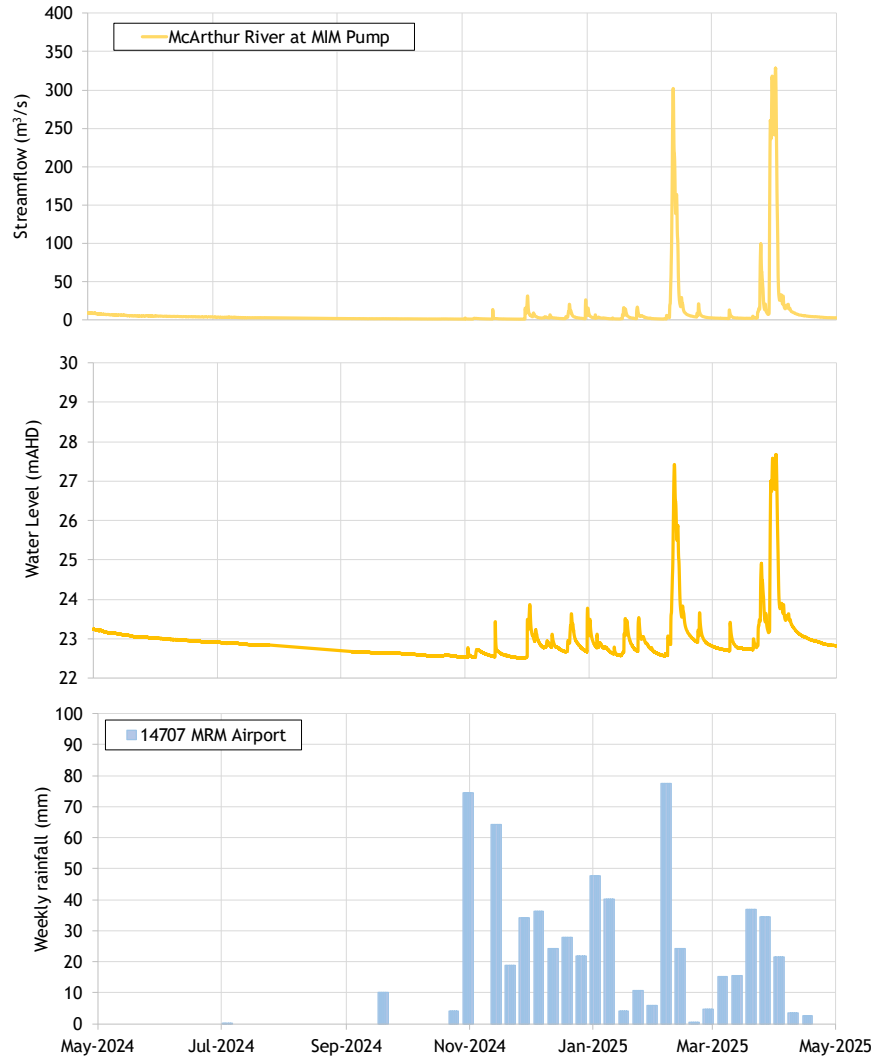


Figure 7: Reporting Period McArthur River Height, Flow and Weekly Rainfall

4.5 McArthur River Surface Water Quality

Surface water quality for each SSTV parameter at select sites on the McArthur River and Glyde River for the reporting period and historically are presented in Chart 1 to Chart 36. The reporting period graphs present the weekly rainfall record from the gauge at McArthur River Airport from the Department of Environment and Science SILO Patched Point Data Service, and the historical graphs present the rainfall as monthly. The results presented in this section focus on the following key monitoring locations:

- SW21 (McArthur River, upstream of the Mine);
- SW12 (McArthur River, downstream of the Mine but upstream of the Glyde River confluence);
- SW09 (upstream Glyde River); and
- SW11 (Compliance Monitoring Point downstream of the Glyde River confluence and downstream of the Mine).

4.5.1 pH

Field measured pH is presented on Chart 1 for the reporting period. Recorded pH measurements at SW11 were within the SSTV limits. The pH levels during the reporting period were generally consistent with the range of historical values (Chart 2) and ranged between approximately 6 and 8.5 (pH units).

There was one pH sample outside the SSTV range at SW11 during the reporting period, but it did not trigger a notifiable incident under conditions of the WDL. The non-notifiable exceedance is detailed further in Section 6.1.

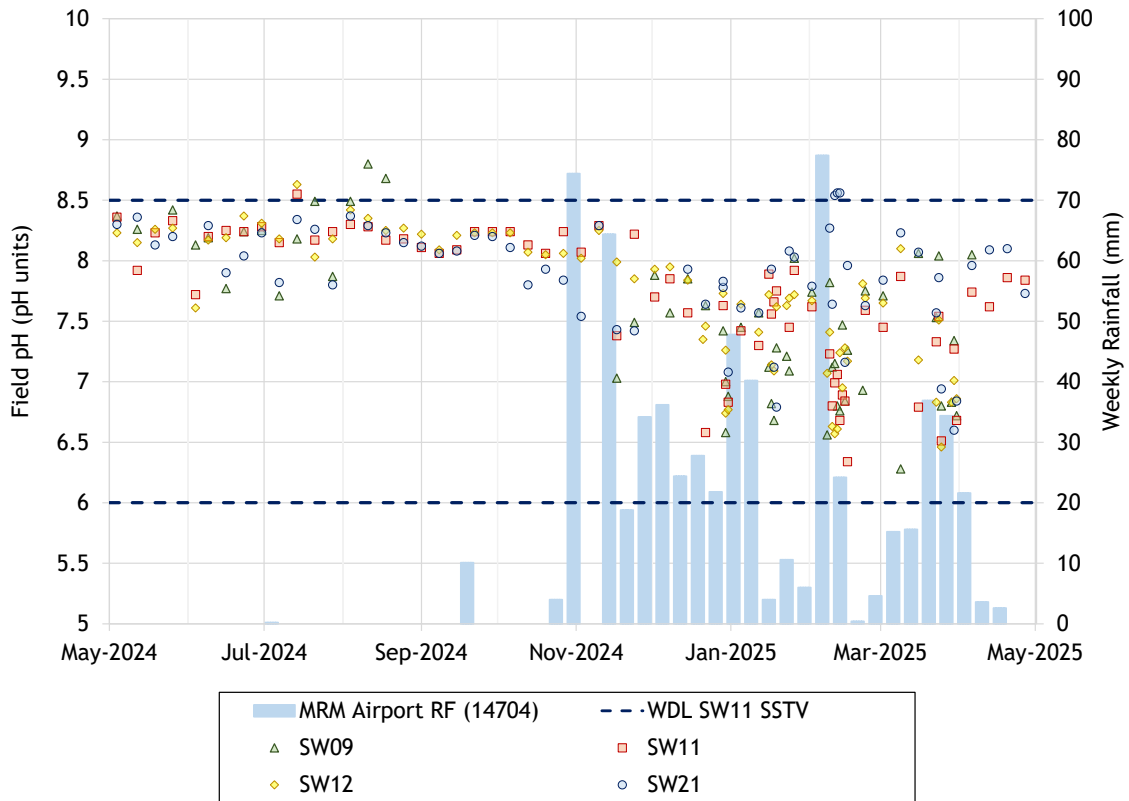


Chart 1: Reporting Period Field pH and Weekly Rainfall – McArthur River and Glyde River Monitoring Sites

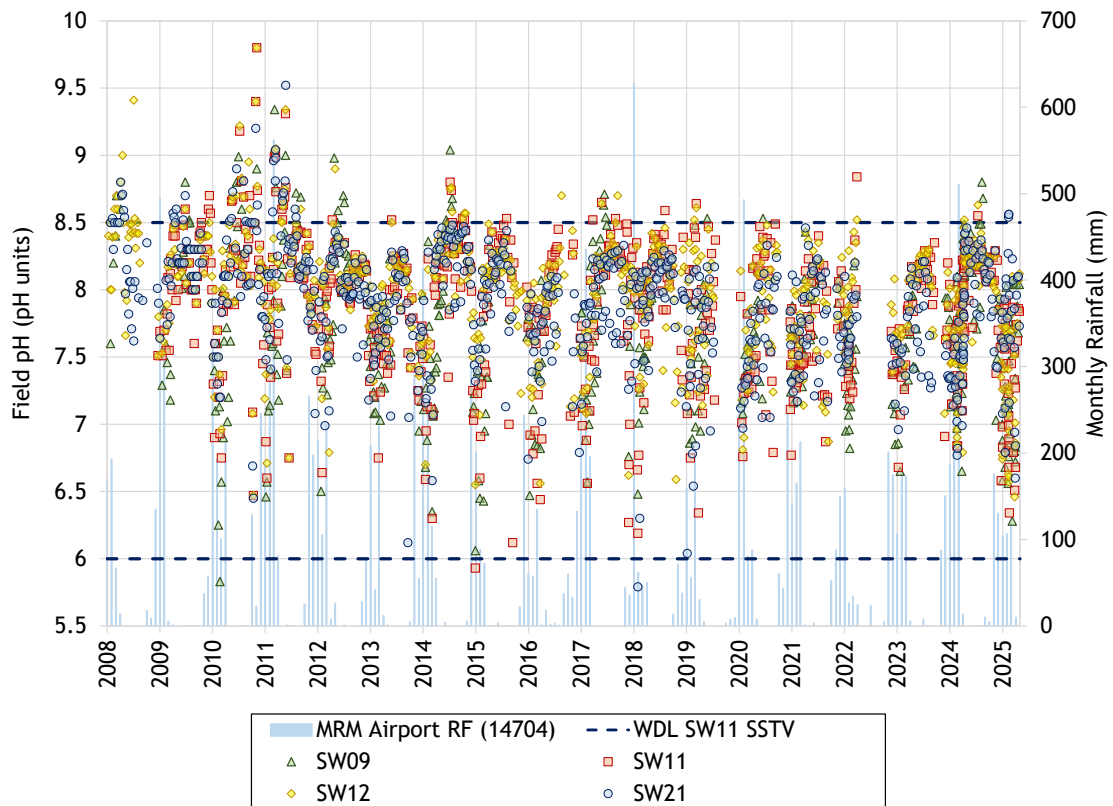


Chart 2: Historical Field pH and Monthly Rainfall – McArthur River and Glyde River Monitoring Sites

4.5.2 Electrical Conductivity

Electrical conductivity (EC) (laboratory measured) levels are presented on Chart 3 for the reporting period. Recorded EC levels were below the SSTV at SW11 during the reporting period. An increasing trend is observed as the dry season progresses as a result of evaporation, reduced flow volumes and a higher contribution from groundwater expressing as surface water baseflow. Rapid decreases in EC occur as a result of the dilution provided by rainfall events.

During the reporting period, EC levels were generally consistent with the range of historical values (Chart 4). EC levels were elevated at SW12 on 13 February 2025 due to managed releases from OP P2 and TSF WMD. However, EC levels at SW11 were notably lower than those at SW12 due to the mixing of Glyde River and McArthur River waters.

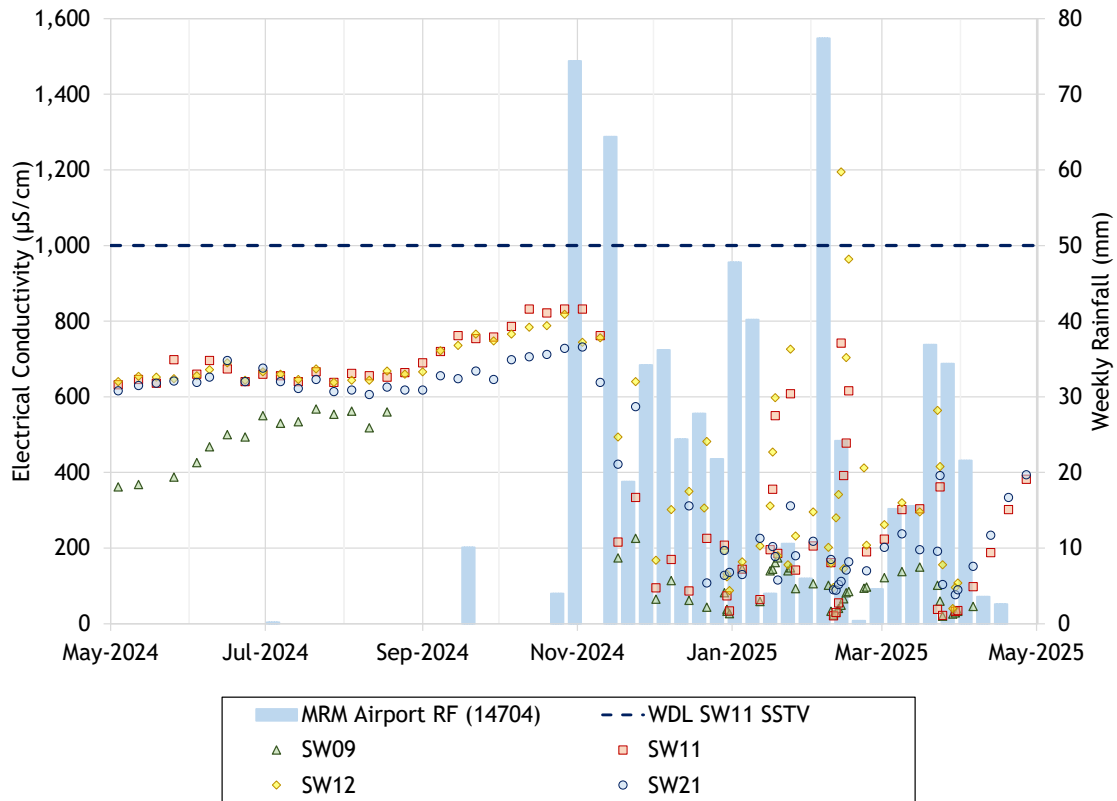


Chart 3: Reporting Period Laboratory Electrical Conductivity and Weekly Rainfall – McArthur River and Glyde River Monitoring Sites

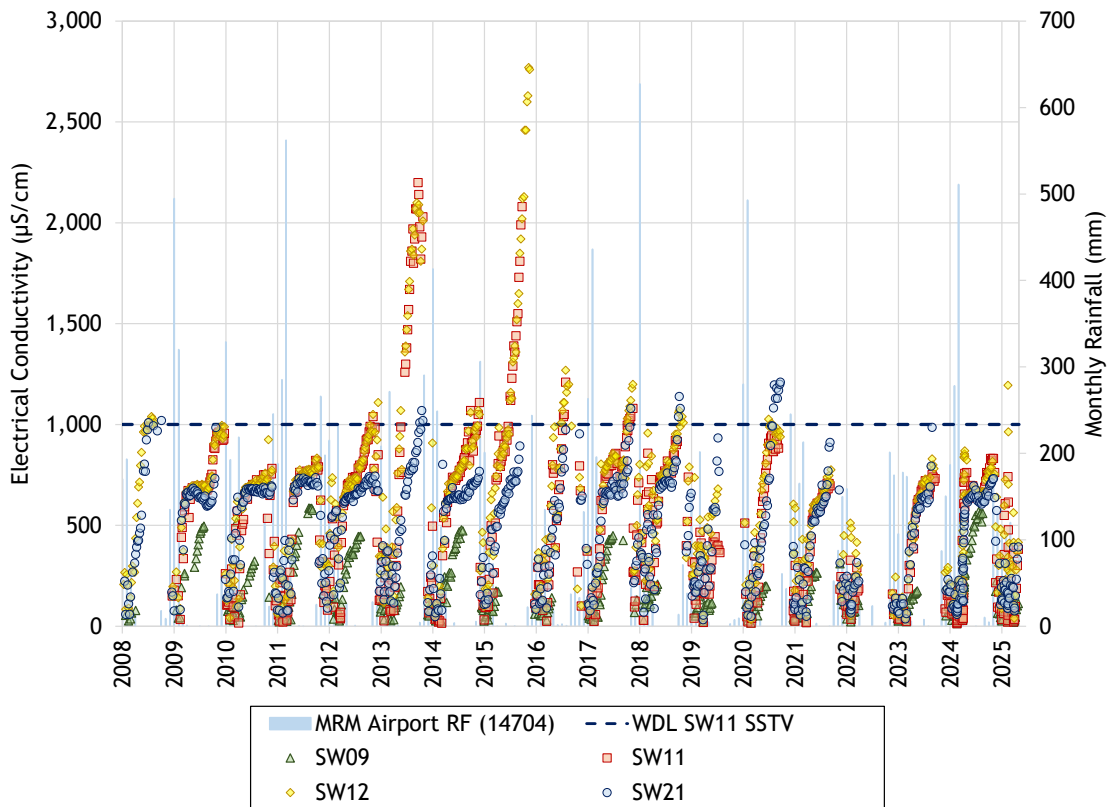


Chart 4: Historical Laboratory Electrical Conductivity and Monthly Rainfall – McArthur River and Glyde River Monitoring Sites

4.5.3 Dissolved Oxygen

Field dissolved oxygen (DO) measurements are presented on Chart 5 for the reporting period. DO measurements were typically in the range 60 to 120 % saturation. The levels exhibit a slightly greater variation during the dry season, including sites upstream of the Mine (Chart 6).

Three DO measurements at SW11 recorded saturations outside the SSTV range. Two samples were below the minimum SSTV (85 % saturation), while one sample was above the maximum SSTV (120 %). None of these measurements triggered notifiable incidents under conditions of the WDL. The non-notifiable exceedances are detailed further in Section 6.1.

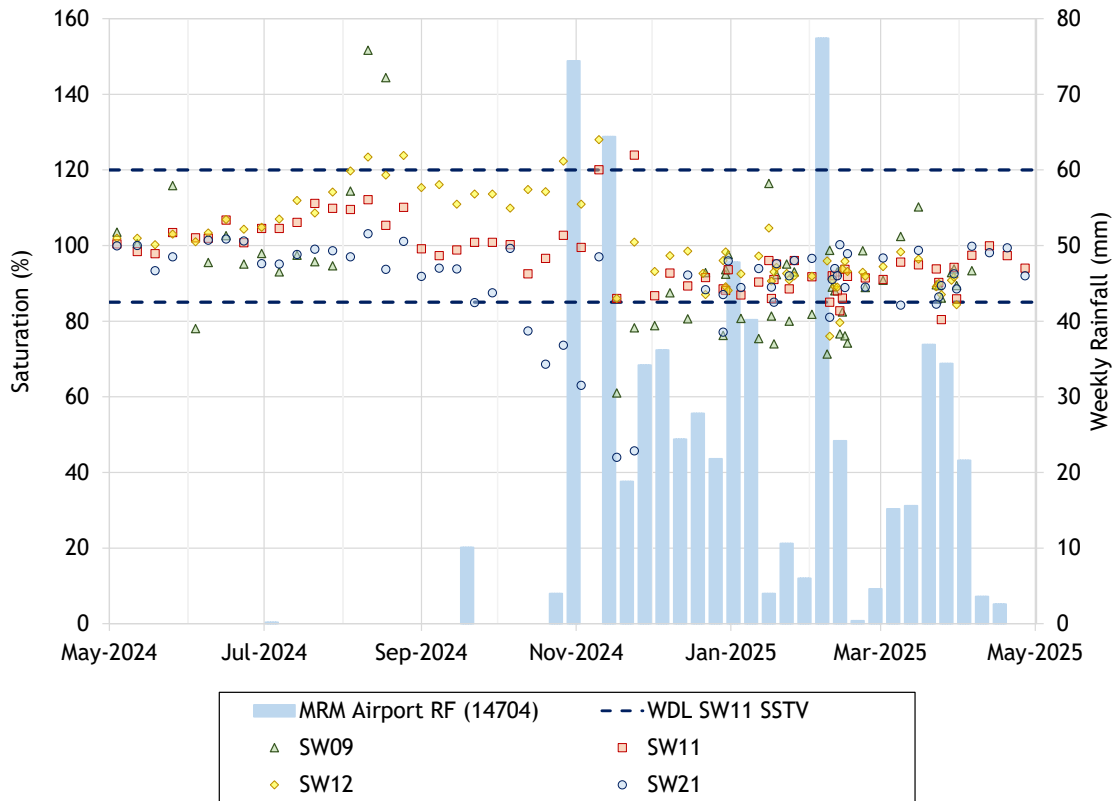


Chart 5: Reporting Period Dissolved Oxygen and Weekly Rainfall – McArthur River and Glyde River Monitoring Sites

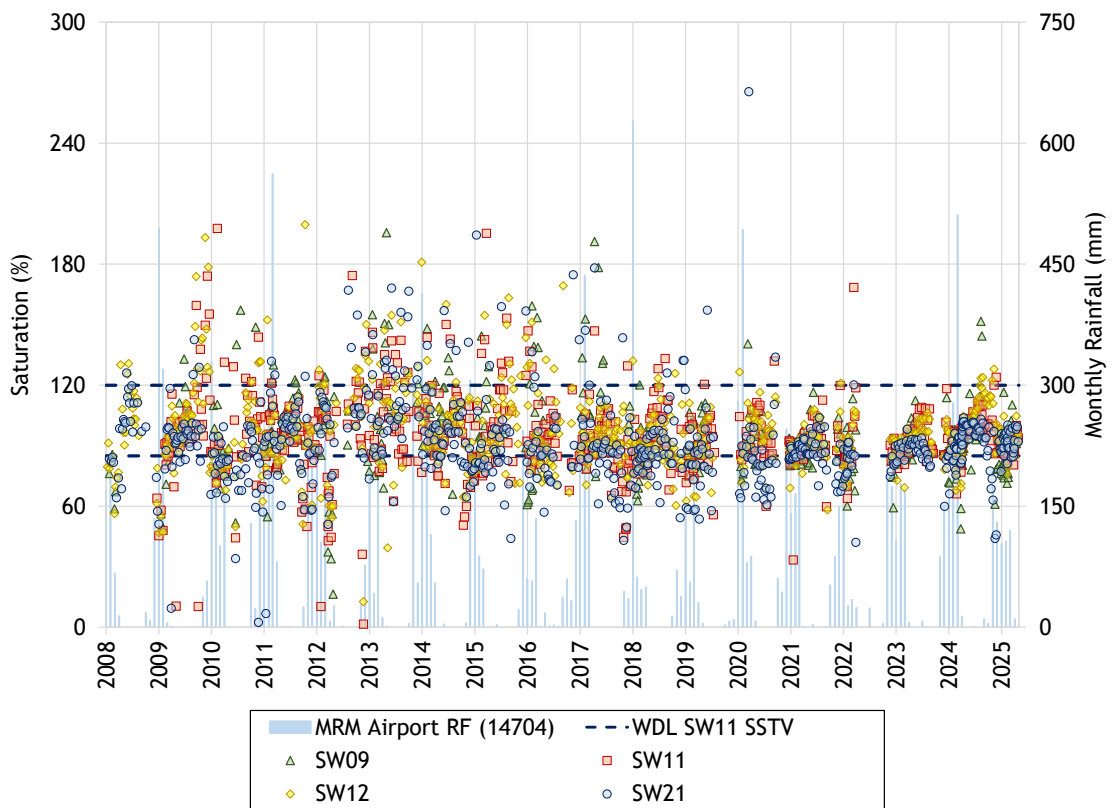


Chart 6: Historical Dissolved Oxygen and Monthly Rainfall – McArthur River and Glyde River Monitoring Sites

4.5.4 Filtered Aluminium

Filtered aluminium (Al) concentrations are presented on Chart 7 for the reporting period. During the reporting period, the recorded filtered Al concentrations were generally consistent with historical trends. The data indicates consistently low concentrations during the dry season, and higher concentrations during the wet season. Spikes in filtered Al, of similar concentration, are observed in the historical time series (Chart 8), also coinciding with periods of high rainfall.

During the reporting period, the recorded filtered Al concentrations were lower than historical concentrations and were below the SSTV at SW11 for the entire period.

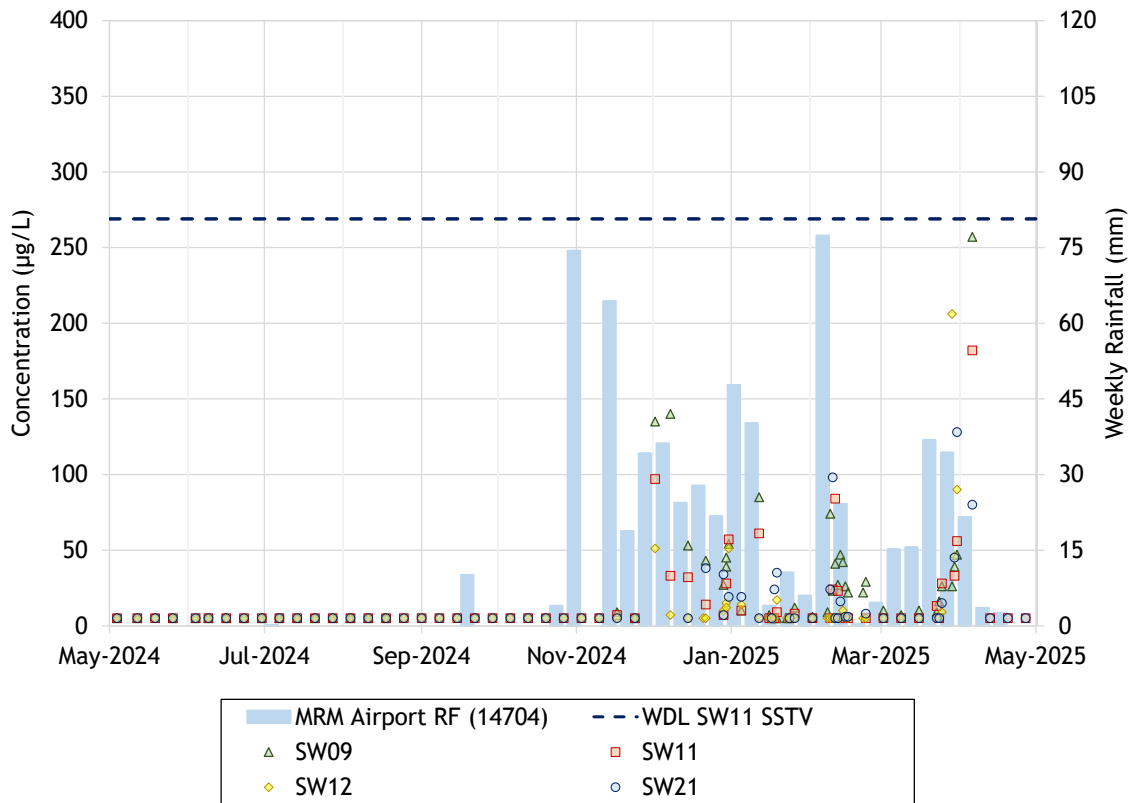


Chart 7: Reporting Period Filtered AI and Weekly Rainfall – McArthur River and Glyde River Monitoring Sites

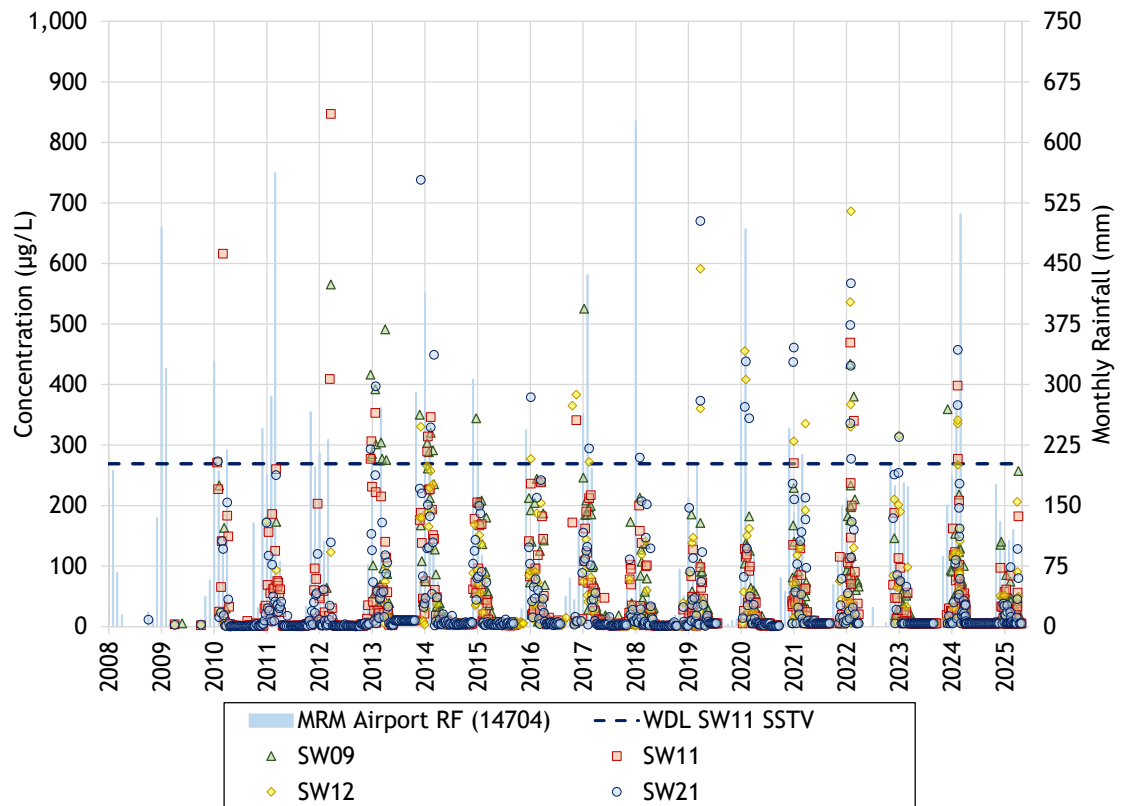


Chart 8: Historical Filtered AI and Monthly Rainfall – McArthur River and Glyde River Monitoring Sites

4.5.5 Filtered Arsenic

Filtered arsenic (As) concentrations are presented on Chart 9 for the reporting period. Recorded filtered As concentrations were below the SSTV at SW11 for the entire reporting period. Filtered As concentrations were low, which is consistent with the historical data (Chart 10).

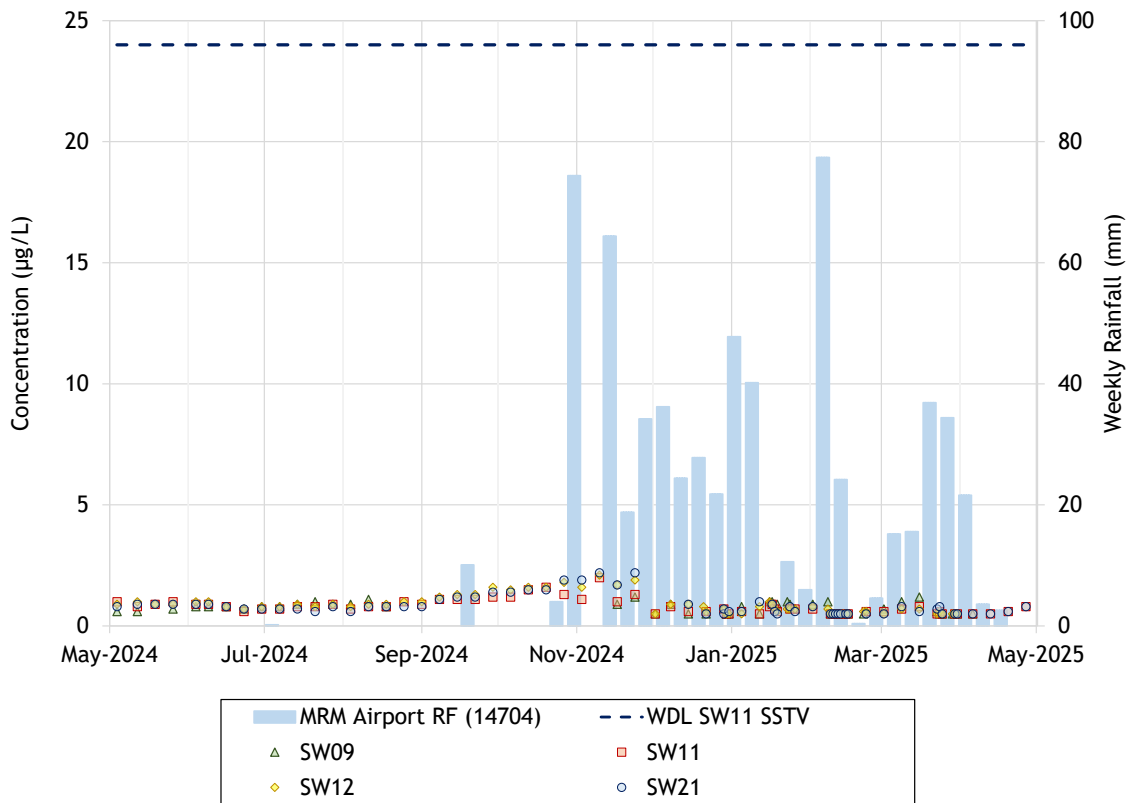


Chart 9: Reporting Period Filtered As and Weekly Rainfall – McArthur River and Glyde River Monitoring Sites

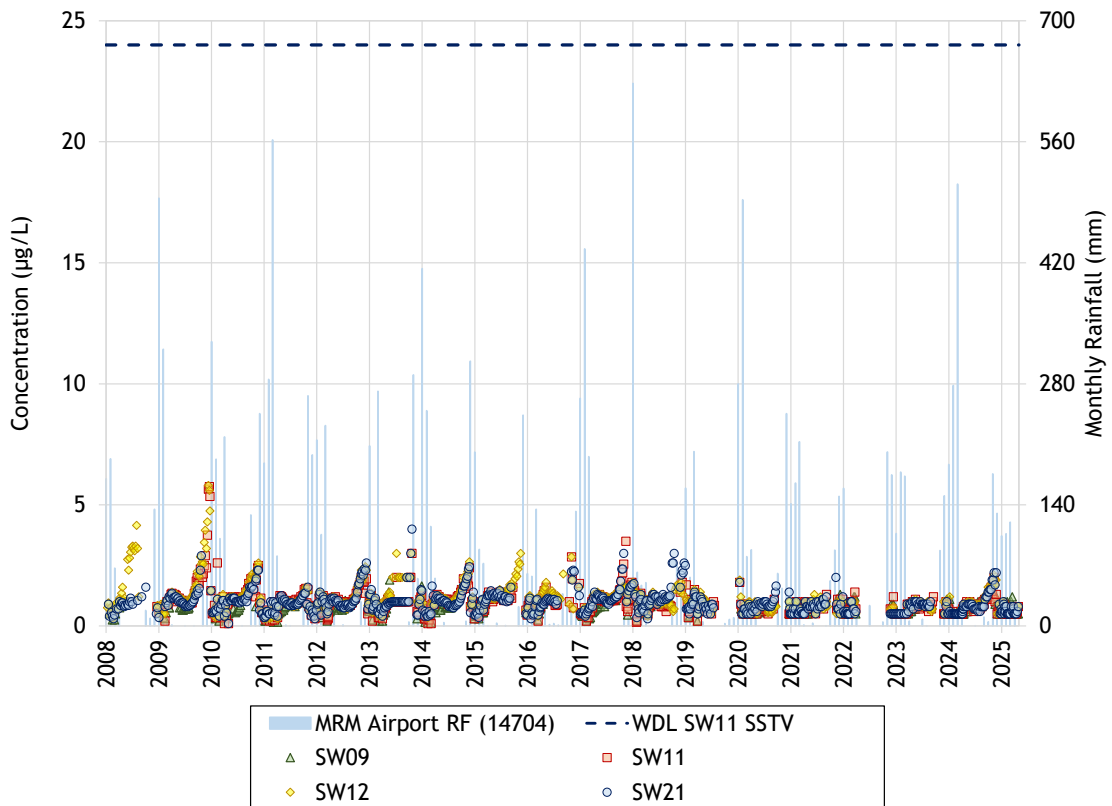


Chart 10: Historical Filtered As and Monthly Rainfall – McArthur River and Glyde River Monitoring Sites

4.5.6 Filtered Cadmium

Filtered cadmium (Cd) concentrations are presented on Chart 11 for the reporting period. Recorded filtered Cd concentrations were below the SSTV at SW11 for the entire reporting period. The data shows no significant trends during the reporting period. Most of the samples were below the laboratory limit of reporting (LOR) (0.2 µg/L), and consistent with historical concentrations (Chart 12).

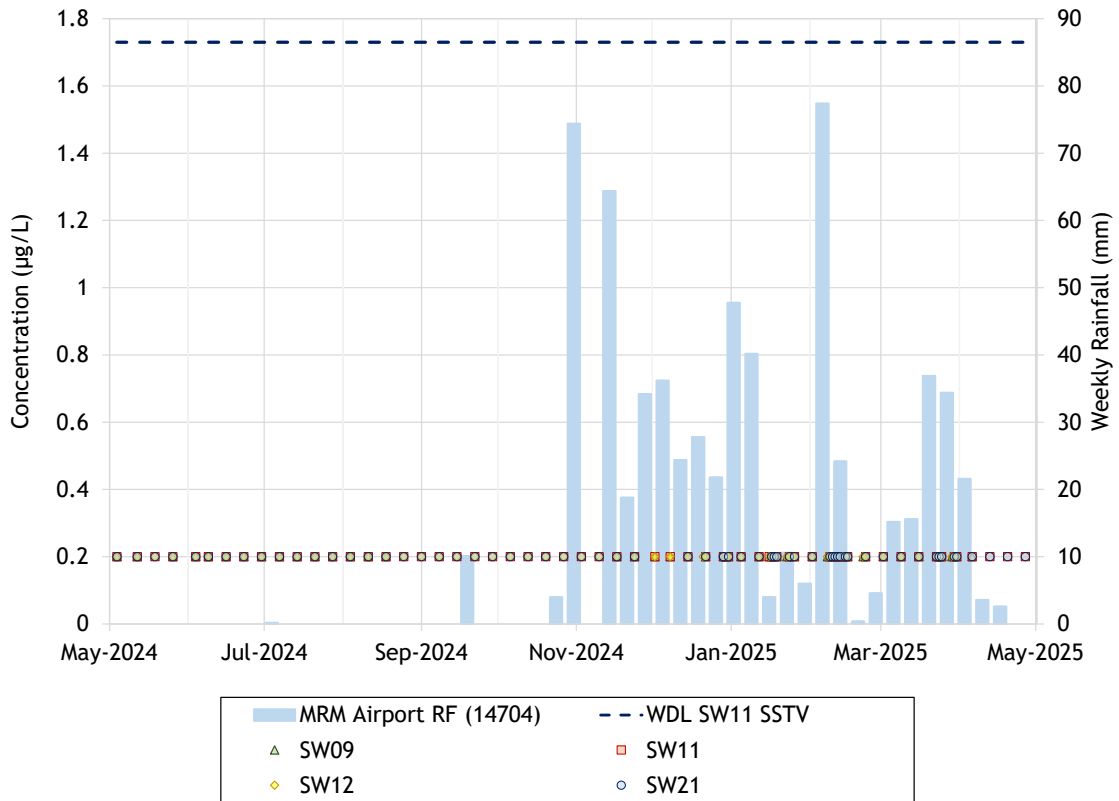


Chart 11: Reporting Period Filtered Cd and Weekly Rainfall – McArthur River and Glyde River Monitoring Sites

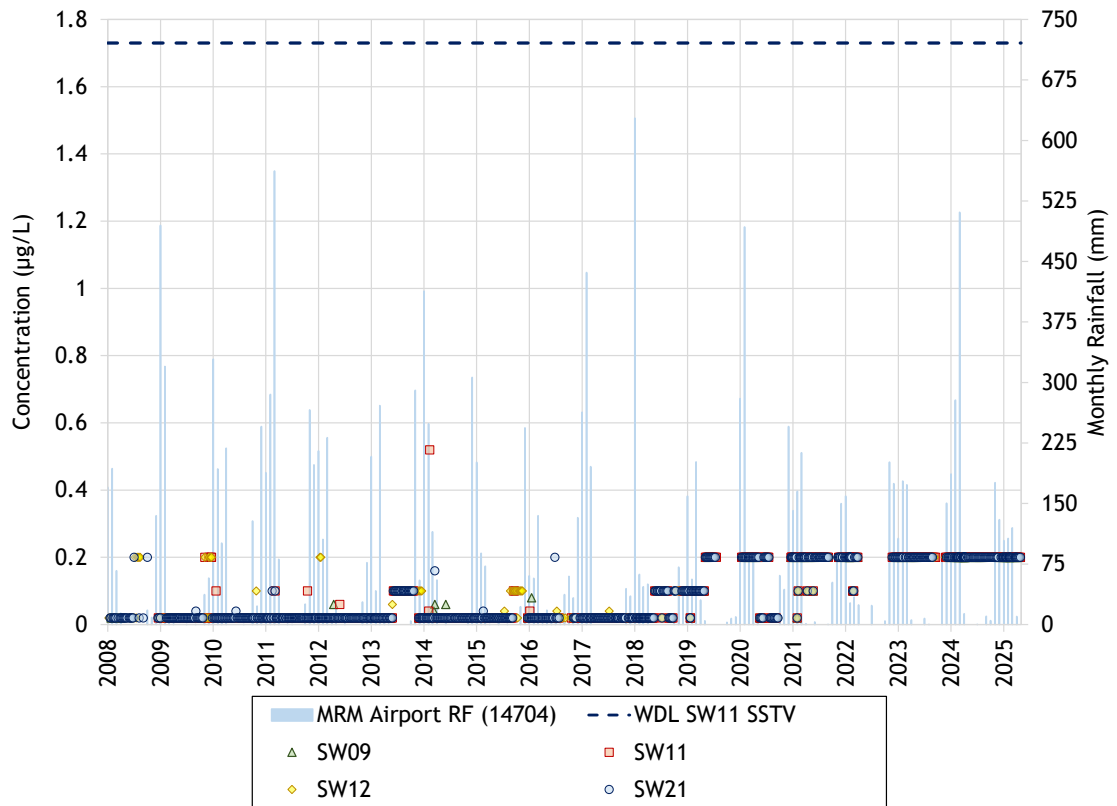


Chart 12: Historical Filtered Cd and Monthly Rainfall – McArthur River and Glyde River Monitoring Sites

4.5.7 Filtered Cobalt

Filtered cobalt (Co) concentrations are presented on Chart 13 for the reporting period. During the reporting period, most of the samples were below the LOR (1 µg/L), and consistent with historical data (Chart 14).

Recorded filtered Co concentrations were below the SSTV at SW11 for the entire reporting period.

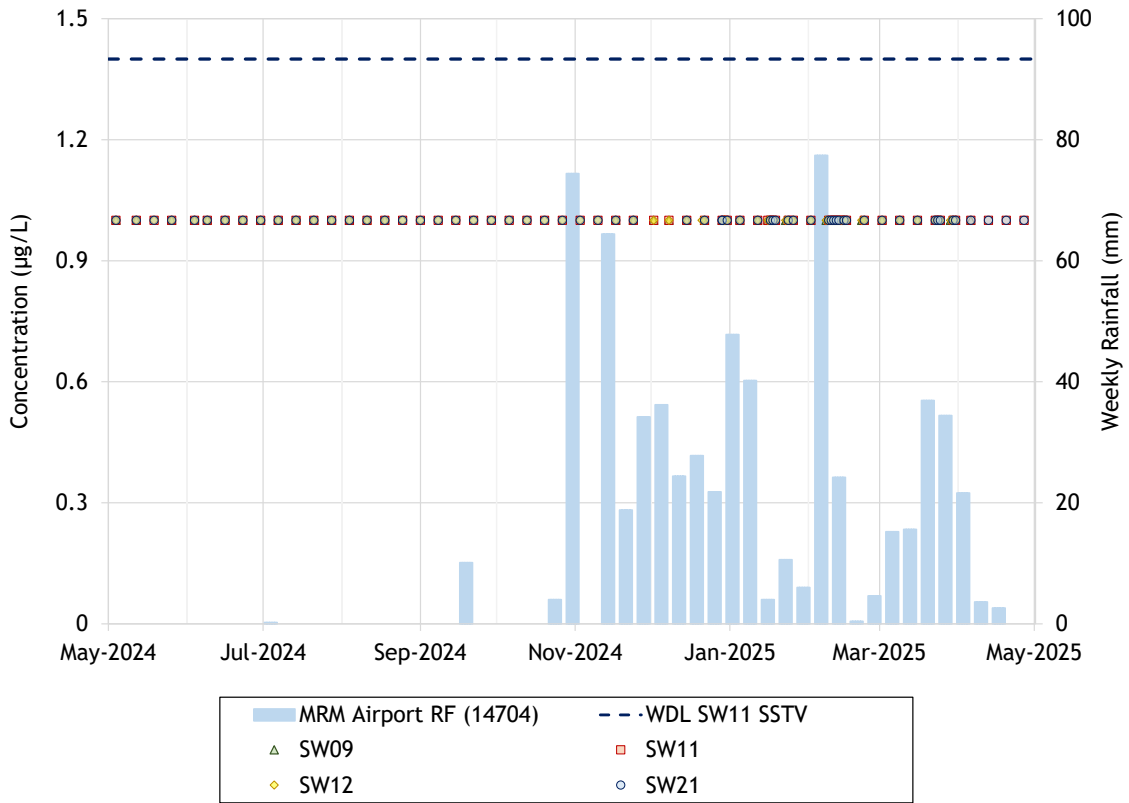


Chart 13: Reporting Period Filtered Co and Weekly Rainfall – McArthur River and Glyde River Monitoring Sites

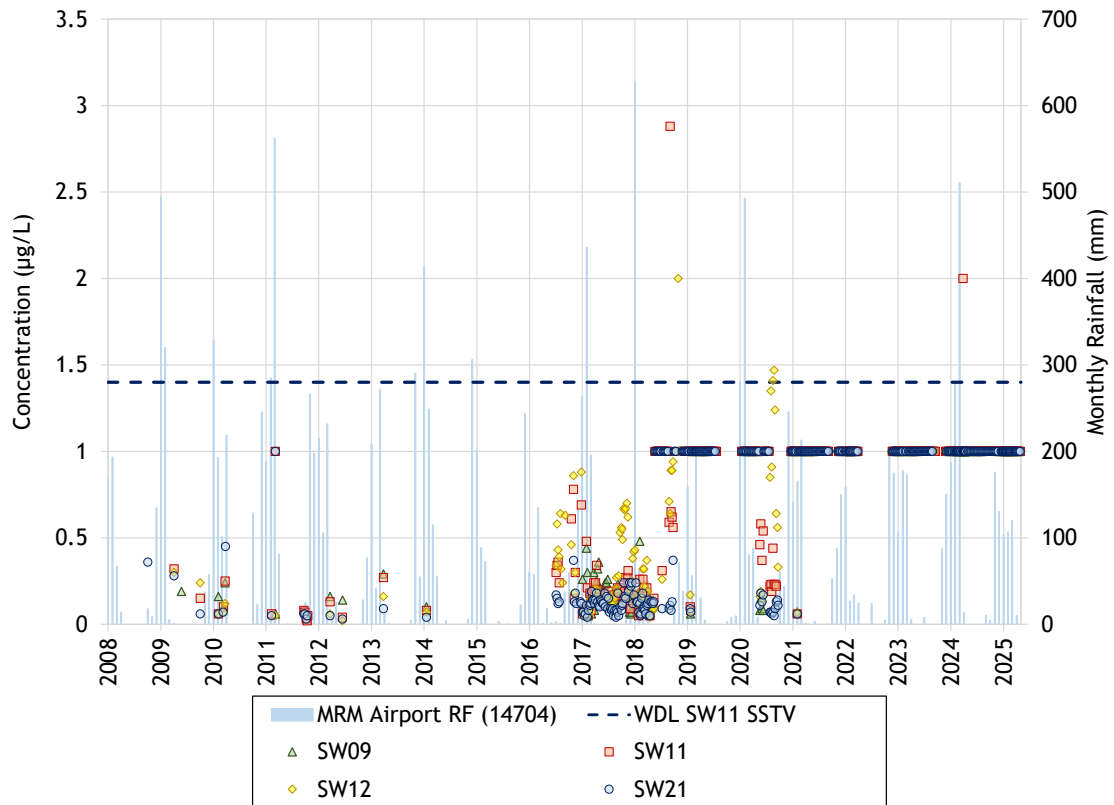


Chart 14: Historical Filtered Co and Monthly Rainfall – McArthur River and Glyde River Monitoring Sites

4.5.8 Filtered Copper

Filtered copper (Cu) concentrations are presented on Chart 15 for the reporting period. Recorded filtered Cu concentrations were below the SSTV at SW11 for the entire reporting period. During the reporting period, almost all measured filtered Cu concentrations were below 1.0 µg/L, which is consistent with the historical data (Chart 16).

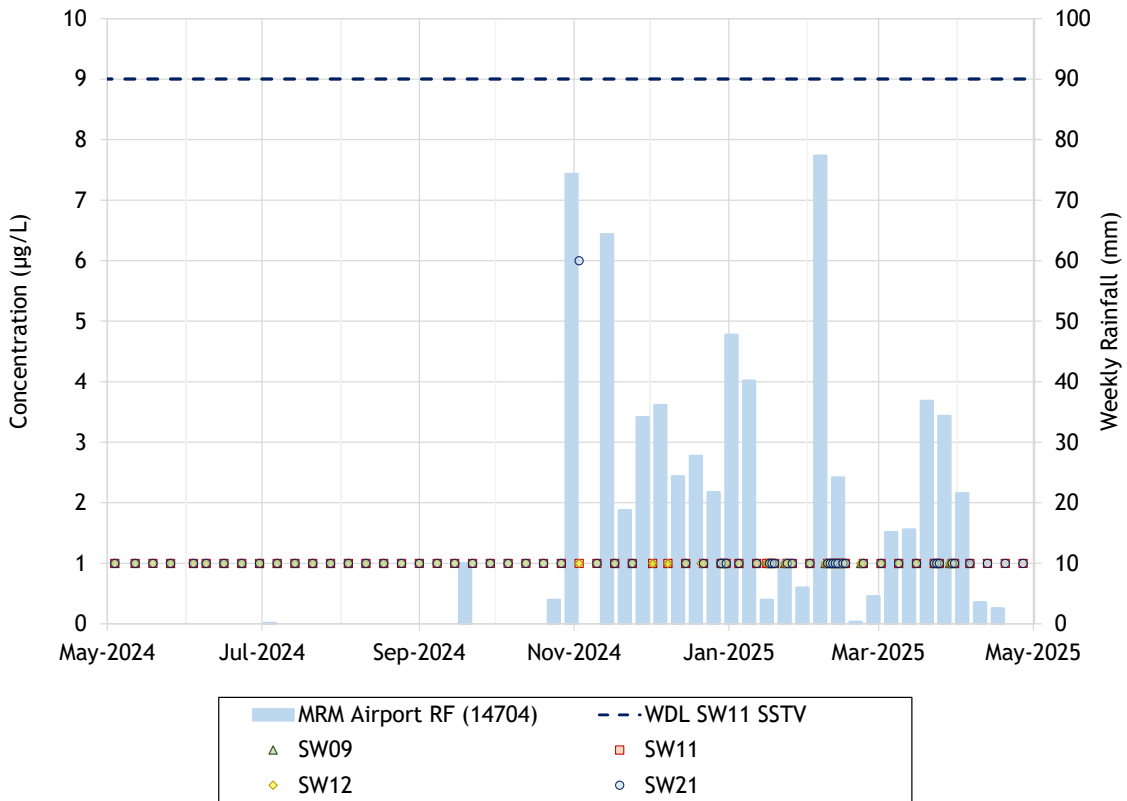


Chart 15: Reporting Period Filtered Cu and Weekly Rainfall – McArthur River and Glyde River Monitoring Sites

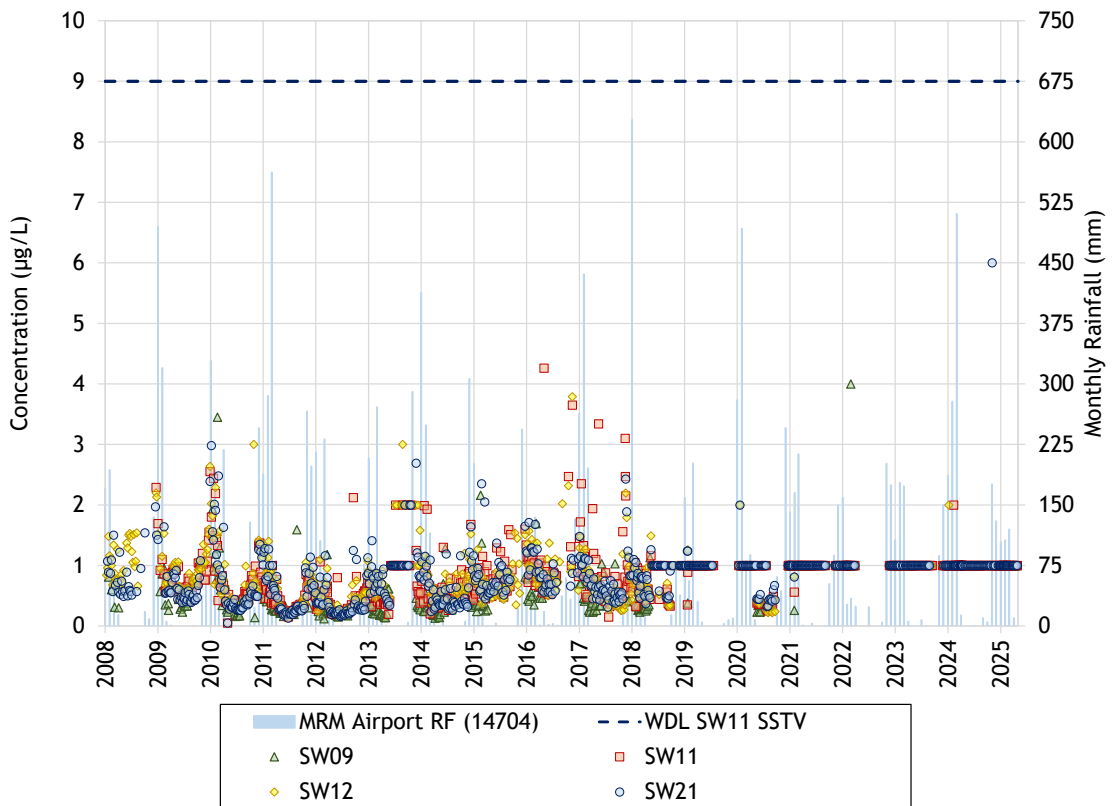


Chart 16: Historical Filtered Cu and Monthly Rainfall – McArthur River and Glyde River Monitoring Sites

4.5.9 Filtered Iron

Filtered iron (Fe) concentrations are presented on Chart 17 for the reporting period. Concentrations were generally lower through the dry season with fluctuations through the wet season associated with the rainfall events. The data for the reporting period is generally consistent with the historical data (Chart 18).

Recorded filtered Fe concentrations were below the SSTV at SW11 for the entire reporting period.

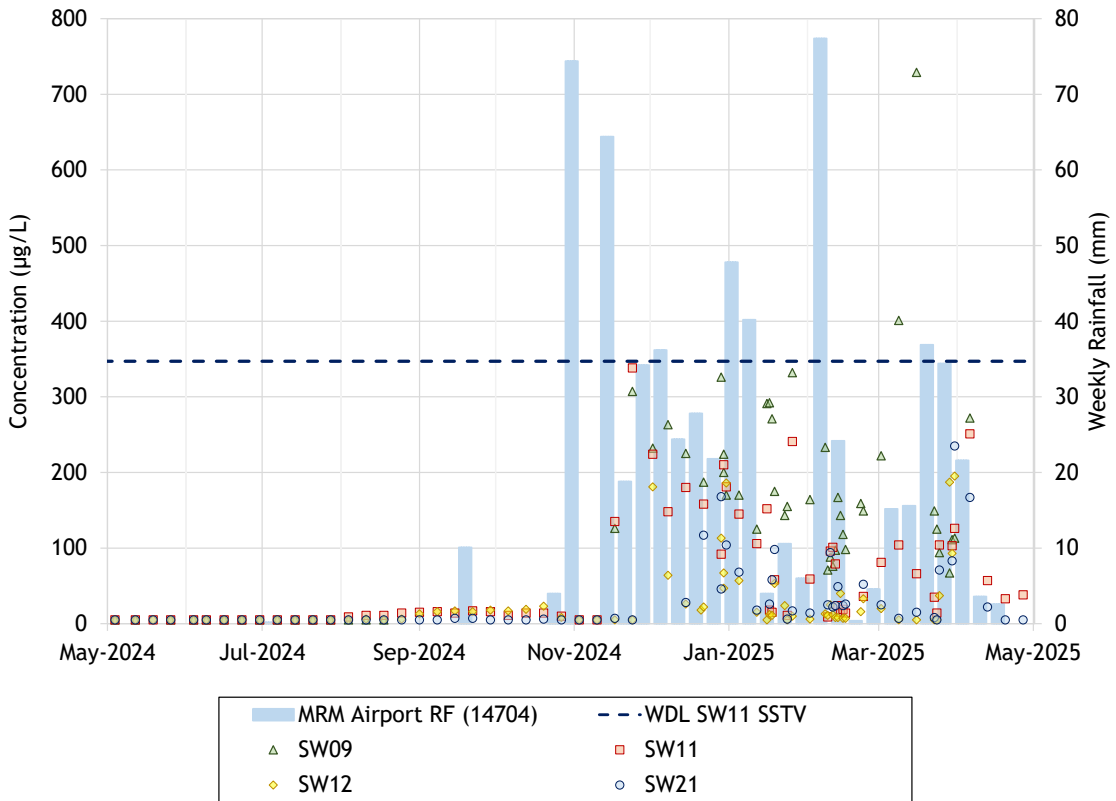


Chart 17: Reporting Period Filtered Fe and Weekly Rainfall – McArthur River and Glyde River Monitoring Sites

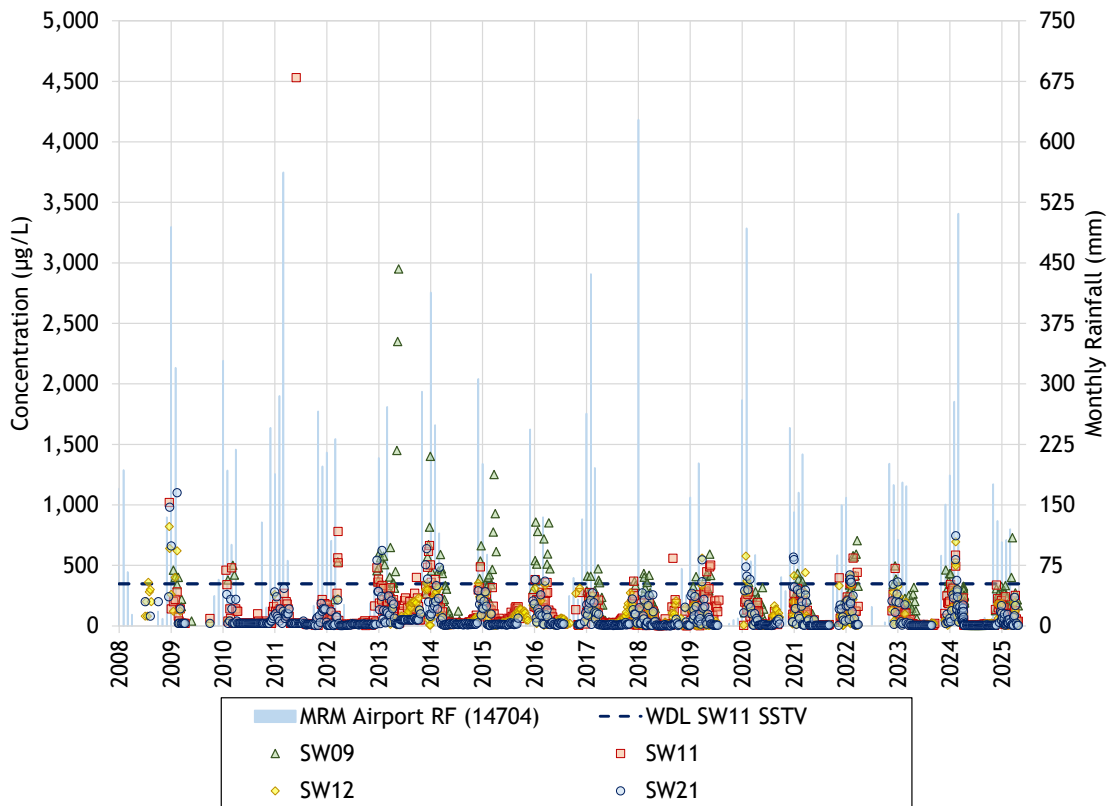


Chart 18: Historical Filtered Fe and Monthly Rainfall – McArthur River and Glyde River Monitoring Sites

4.5.10 Filtered Lead

Filtered lead (Pb) concentrations are presented on Chart 19 for the reporting period. Recorded filtered Pb concentrations were below the SSTV at SW11 for the entire reporting period. During the reporting period, low concentrations were recorded throughout, with all concentrations at or below 0.5 µg/L. The reporting period results are consistent with the historical dataset (Chart 20).

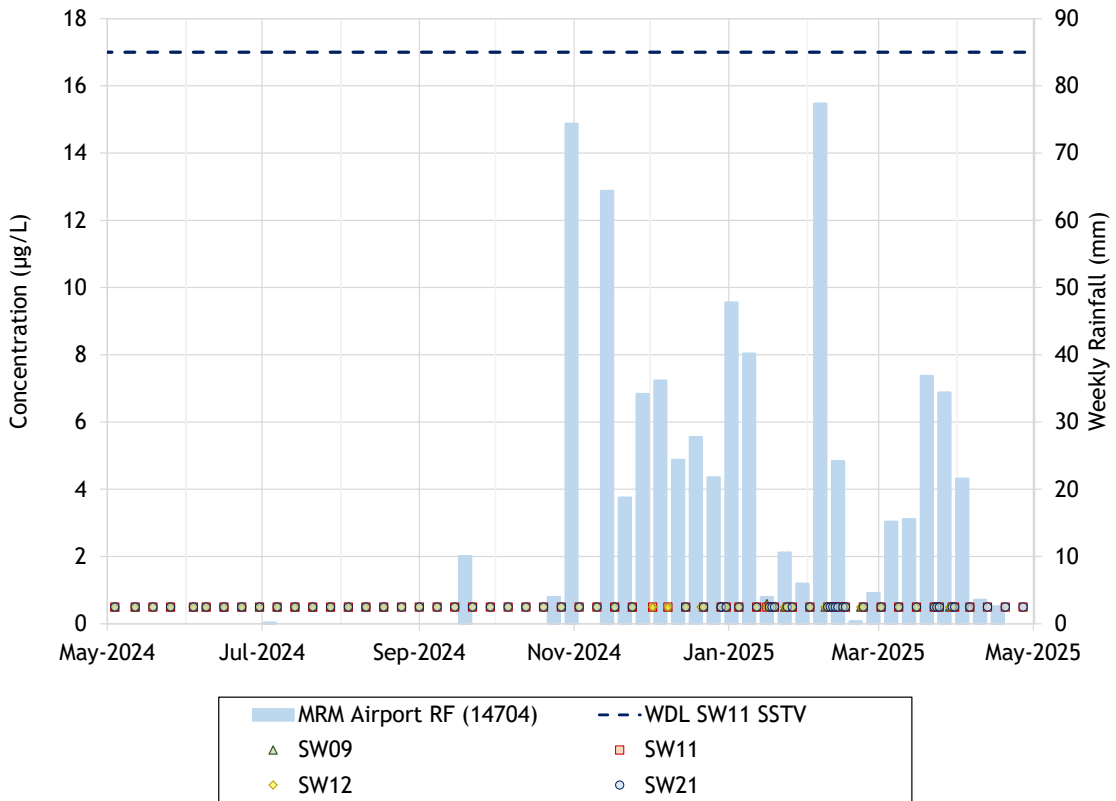


Chart 19: Reporting Period Filtered Pb and Weekly Rainfall – McArthur River and Glyde River Monitoring Sites

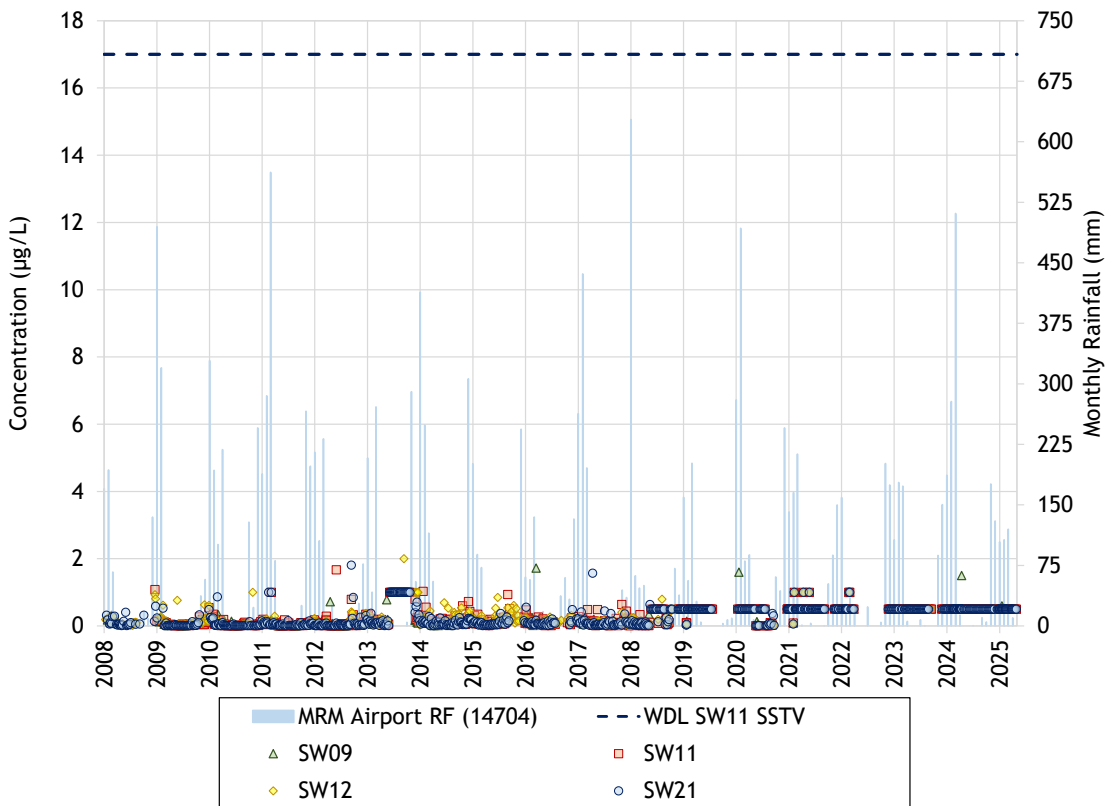


Chart 20: Historical Filtered Pb and Monthly Rainfall – McArthur River and Glyde River Monitoring Sites

4.5.11 Filtered Manganese

Filtered manganese (Mn) concentrations are presented on Chart 21 for the reporting period. Recorded filtered Mn concentrations were below the SSTV at SW11 for the entire reporting period.

The historical data (Chart 22) shows that the filtered Mn levels in upstream McArthur River (SW21) and Glyde River (SW09) were consistently low. Filtered Mn levels downstream of the Mine (SW11 and SW12) were generally low during the wet seasons but comparatively higher during the dry seasons. Concentrations during the reporting period were consistent with the historical record.

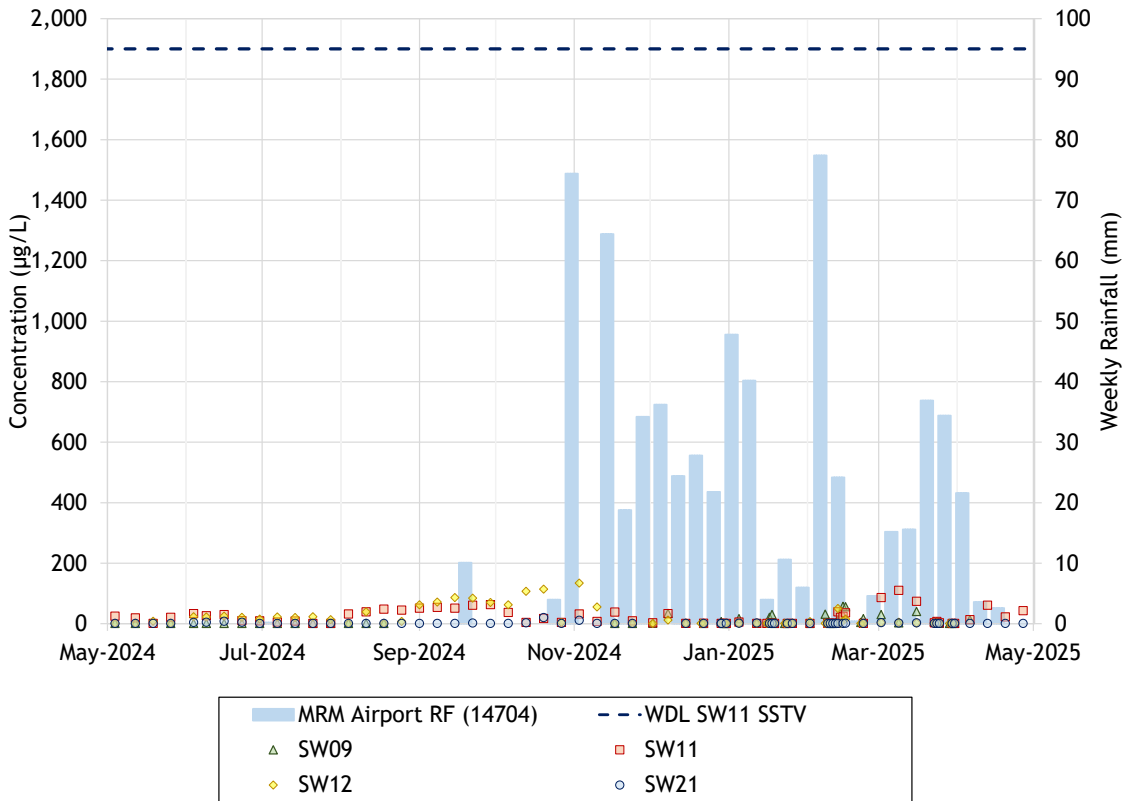


Chart 21: Reporting Period Filtered Mn and Weekly Rainfall – McArthur River and Glyde River Monitoring Sites

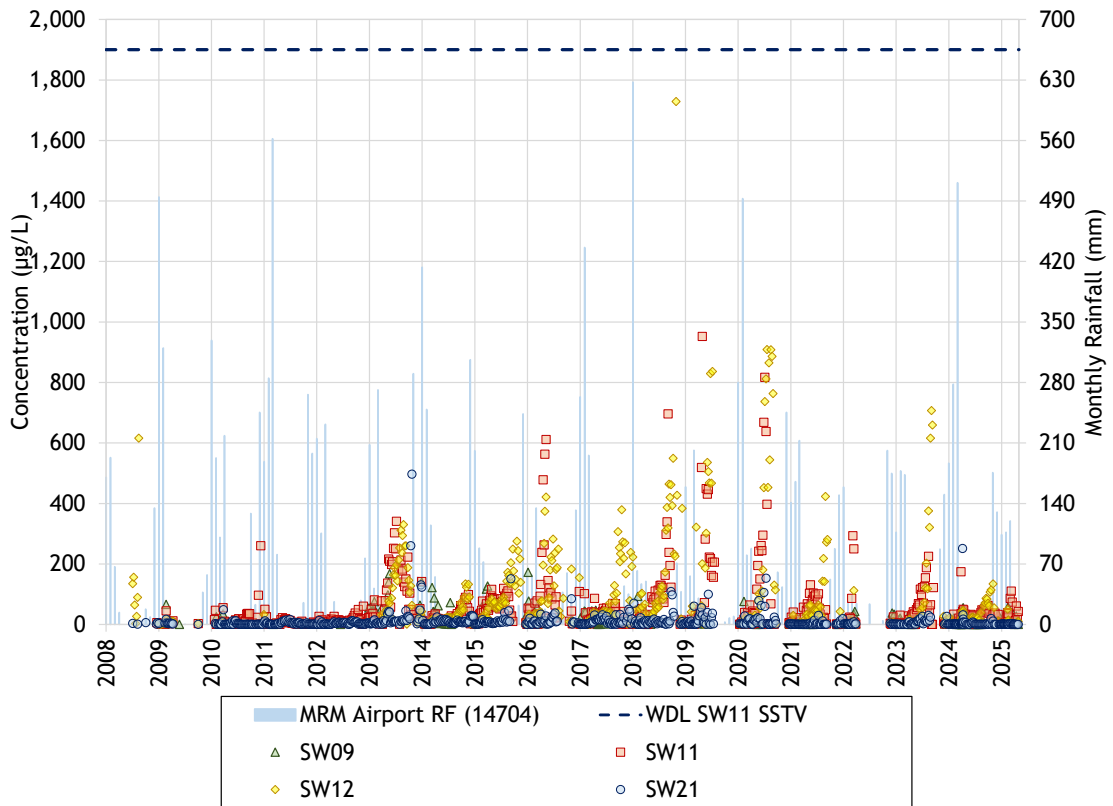


Chart 22: Historical Filtered Mn and Monthly Rainfall – McArthur River and Glyde River Monitoring Sites

4.5.12 Filtered Nickel

Filtered nickel (Ni) concentrations are presented on Chart 23 for the reporting period. Recorded filtered Ni concentrations at SW11 were below the SSTV for the entire reporting period. Almost all filtered Ni samples recorded concentrations at or below 1.0 µg/L. Concentrations during the reporting period were consistent with the historical record (Chart 24).

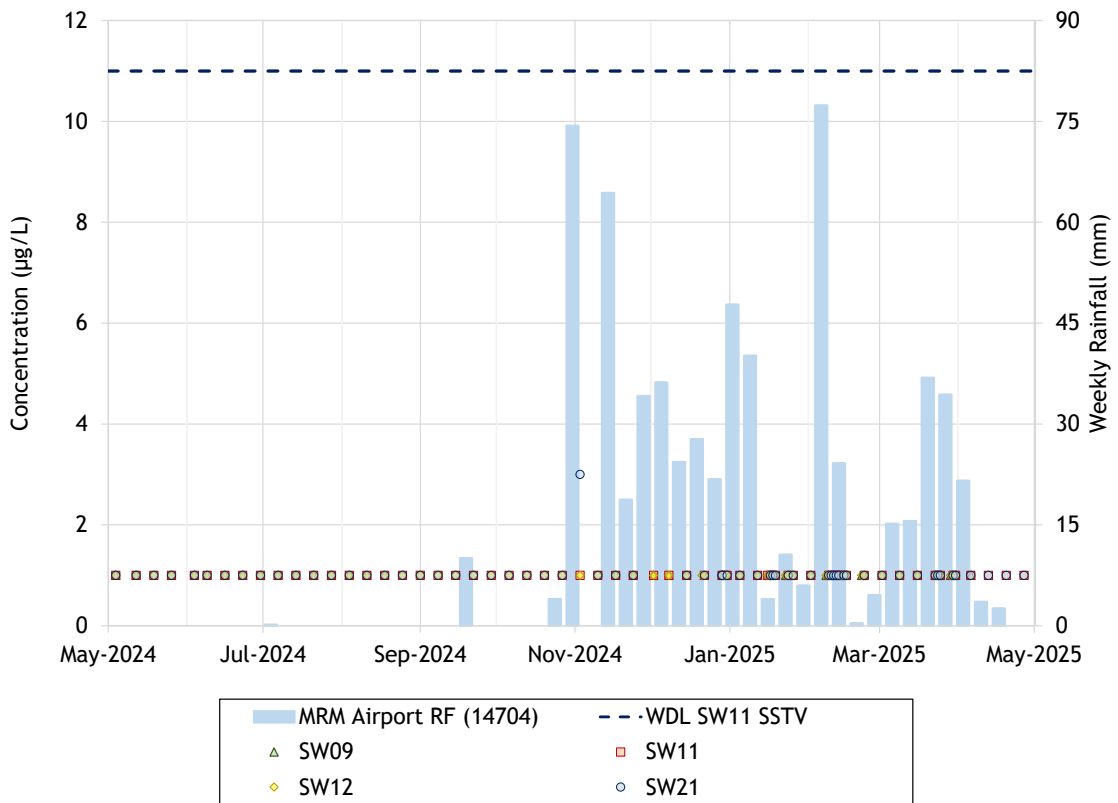


Chart 23: Reporting Period Filtered Ni and Weekly Rainfall – McArthur River and Glyde River Monitoring Sites

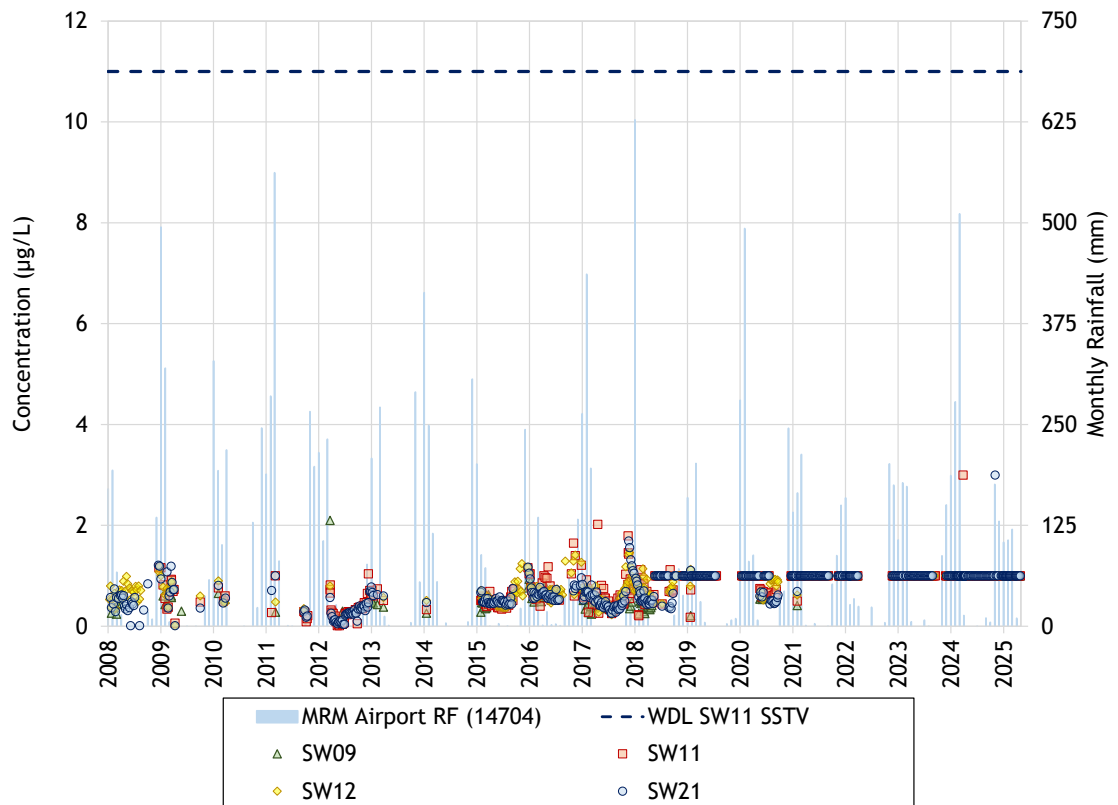


Chart 24: Historical Filtered Ni and Monthly Rainfall – McArthur River and Glyde River Monitoring Sites

4.5.13 Filtered Thallium

Filtered thallium (Tl) concentrations are presented on Chart 25 for the reporting period. Recorded filtered Tl concentrations at SW11 were below the SSTV for the entire reporting period. All samples for filtered Tl recorded concentrations below 1.3 µg/L. Concentrations during the reporting period were consistent with the historical record (Chart 26).

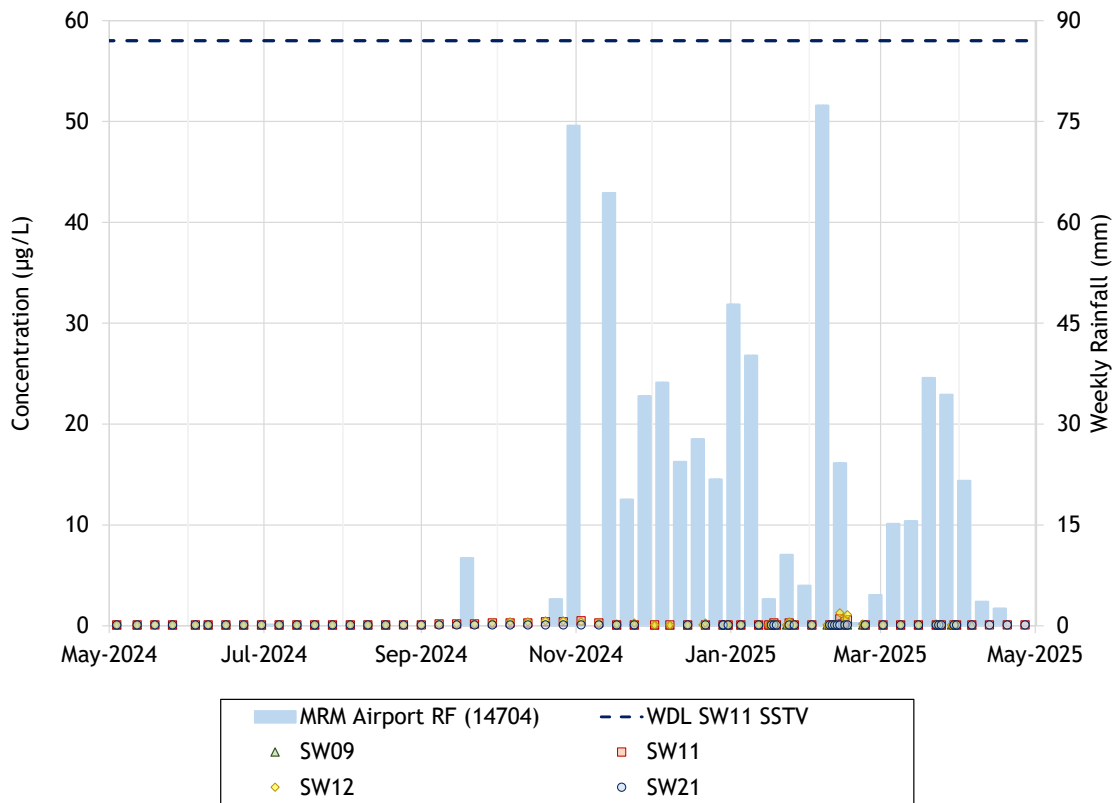


Chart 25: Reporting Period Filtered TI and Weekly Rainfall – McArthur River and Glyde River Monitoring Sites

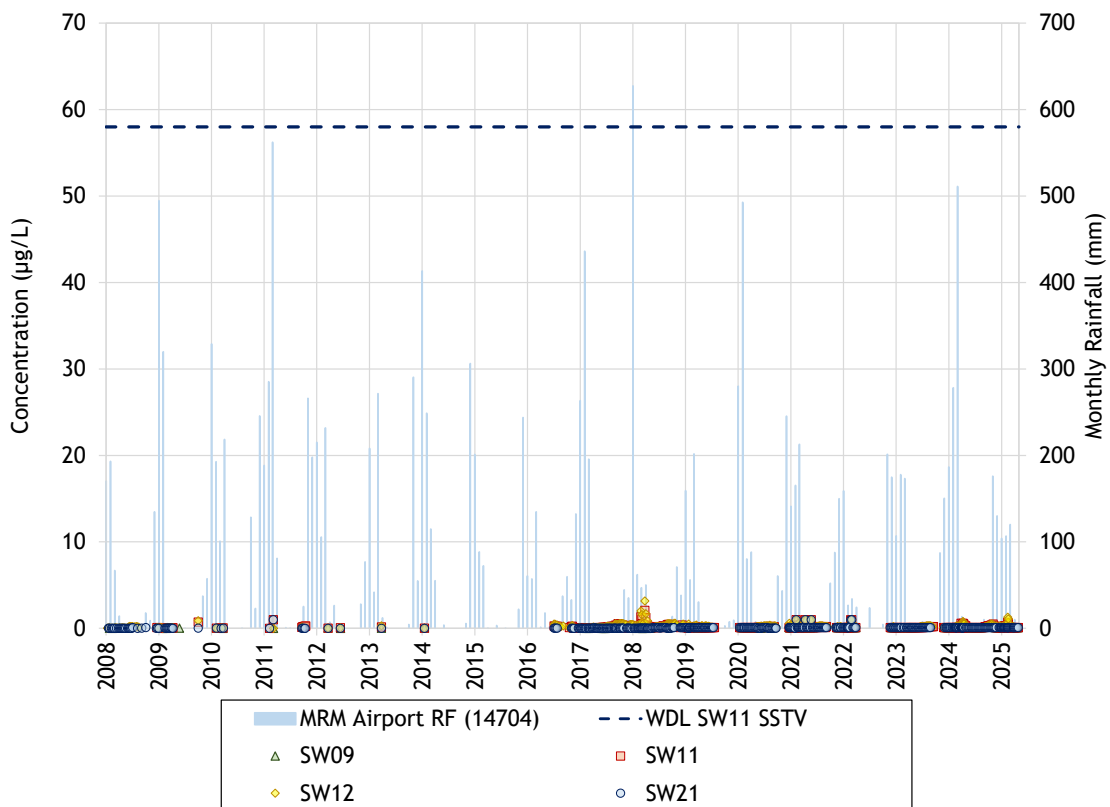


Chart 26: Historical Filtered TI and Monthly Rainfall – McArthur River and Glyde River Monitoring Sites

4.5.14 Filtered Zinc

Filtered zinc (Zn) concentrations are presented on Chart 27 for the reporting period. Recorded filtered Zn concentrations at SW11 were below the SSTV for the entire reporting period. Most samples for filtered Zn at the presented sites recorded concentrations at or below 2 µg/L. Concentrations during the reporting period were lower than the historical record (Chart 28).

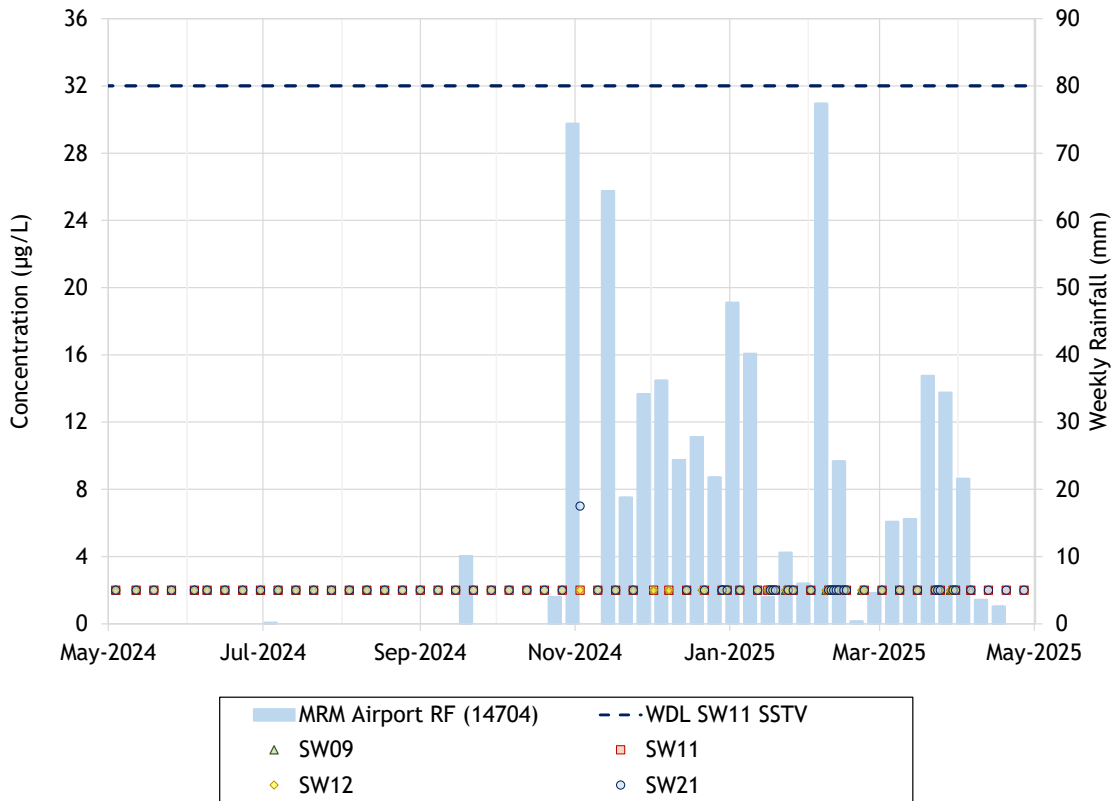


Chart 27: Reporting Period Filtered Zn and Weekly Rainfall – McArthur River and Glyde River Monitoring Sites.

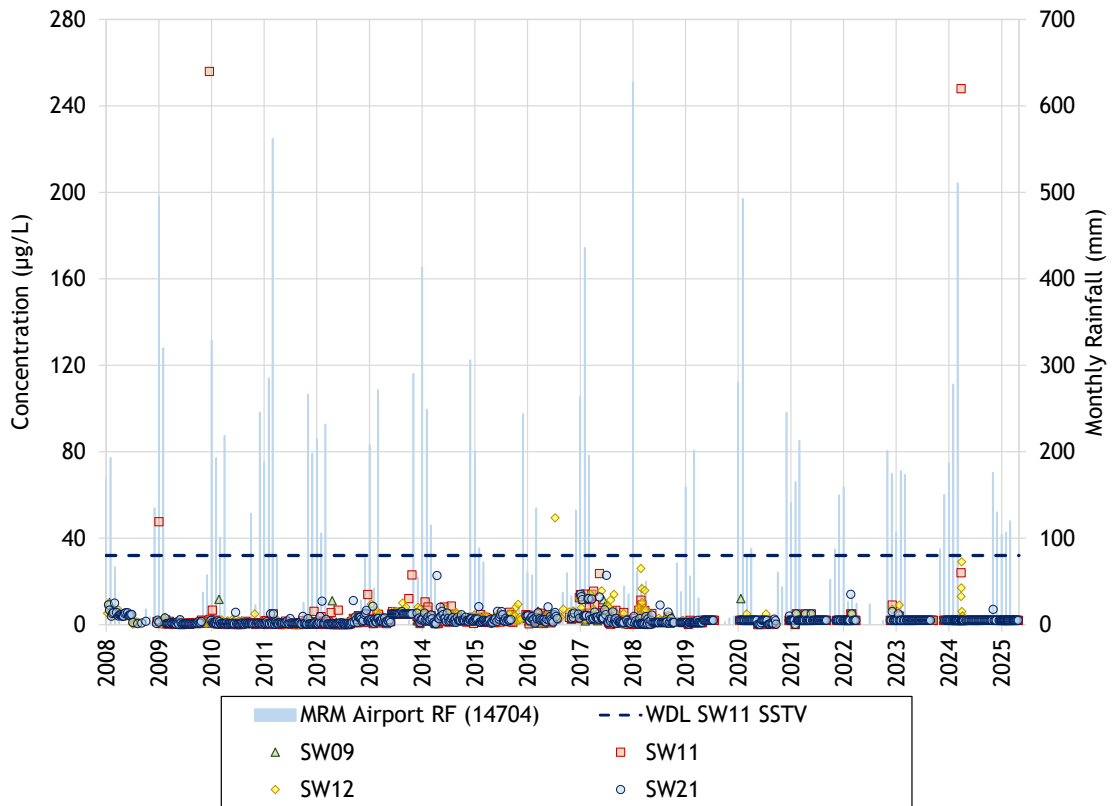


Chart 28: Historical Filtered Zn and Monthly Rainfall – McArthur River and Glyde River Monitoring Sites

4.5.15 Sulphate

Sulphate (SO_4) concentrations are presented on Chart 29 for the reporting period. Recorded SO_4 concentrations at SW11 were below the SSTV for the entire reporting period. SO_4 concentrations show a similar trend to EC levels where values outside periods of managed release are highest during the dry season and lowest during the wet season (Chart 30).

During the reporting period, SO_4 concentrations were generally consistent with the historical record. However, there were notable increases in SO_4 concentrations at SW12 downstream of the Mine during periods of managed release. Despite these increases, concentrations at SW11 remained well below the SSTV.

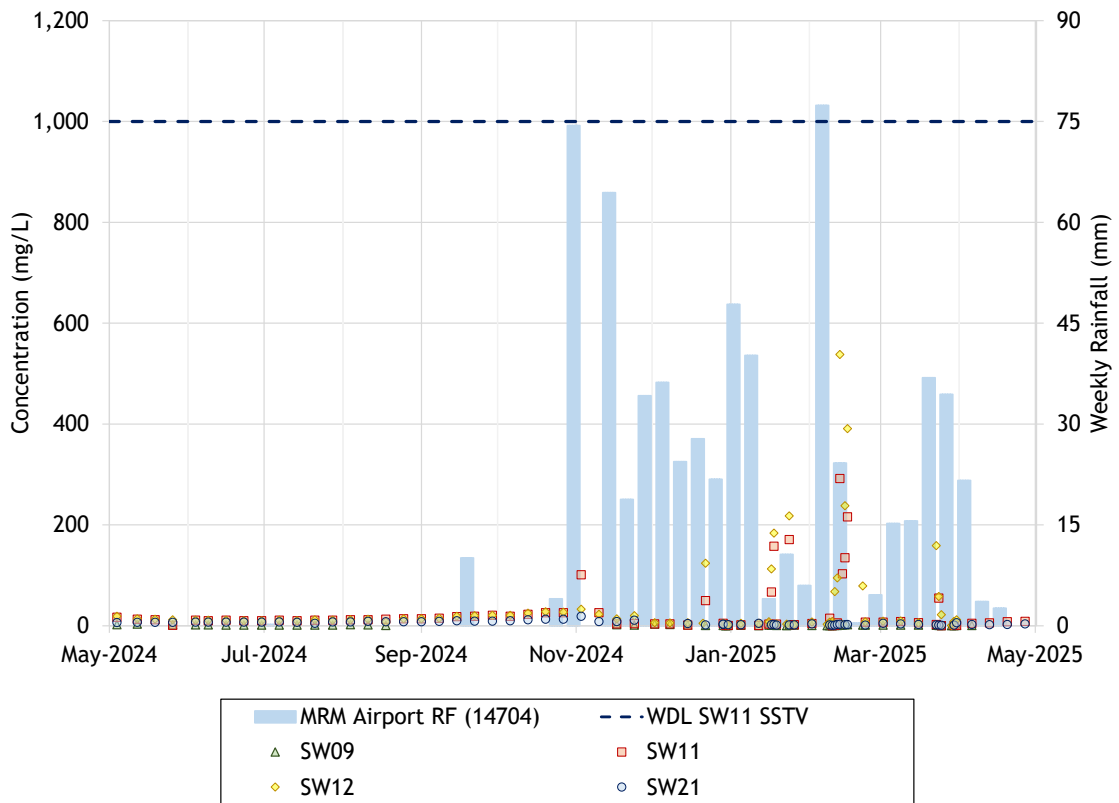


Chart 29: Reporting Period SO₄ and Weekly Rainfall – McArthur River and Glyde River Monitoring Sites

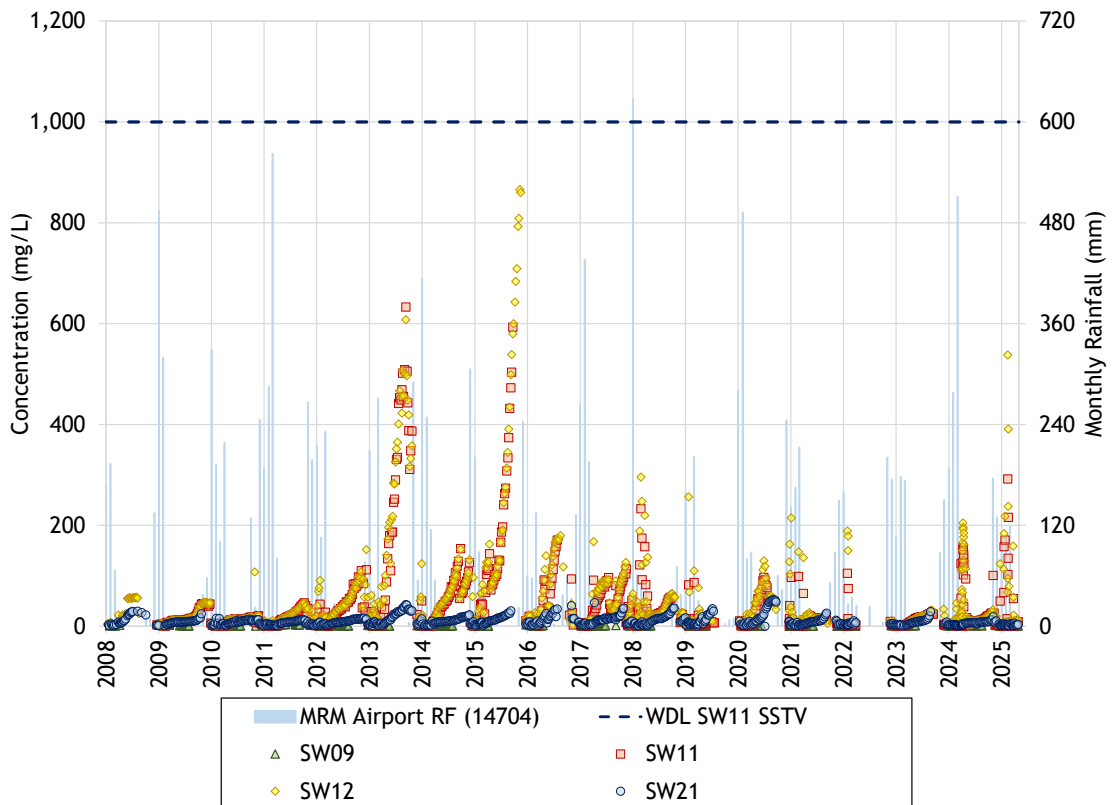


Chart 30: Historical SO₄ and Monthly Rainfall – McArthur River and Glyde River Monitoring Sites

4.5.16 Nitrate

Nitrate (NO_3) concentrations are presented on Chart 31 for the reporting period. Recorded NO_3 concentrations were below the SSTV at SW11 for the entire reporting period. During the reporting period, the concentrations of NO_3 at SW21 and SW12 remained relatively low, with a few exceptions, while NO_3 concentrations at SW09 and SW11 were slightly elevated from the onset of the wet season. This is consistent with the historical record (Chart 32) with the Glyde River being identified as a source of NO_3 to the McArthur River in the past.

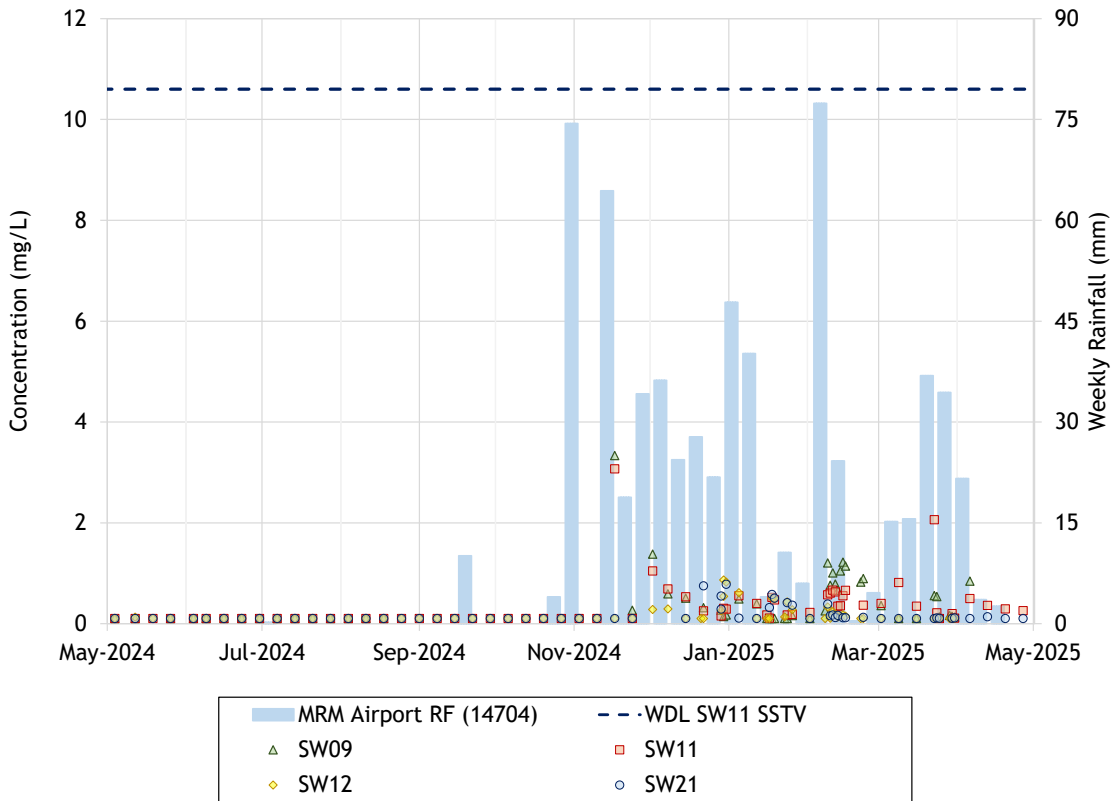


Chart 31: Reporting Period NO₃ and Weekly Rainfall – McArthur River and Glyde River Monitoring Sites

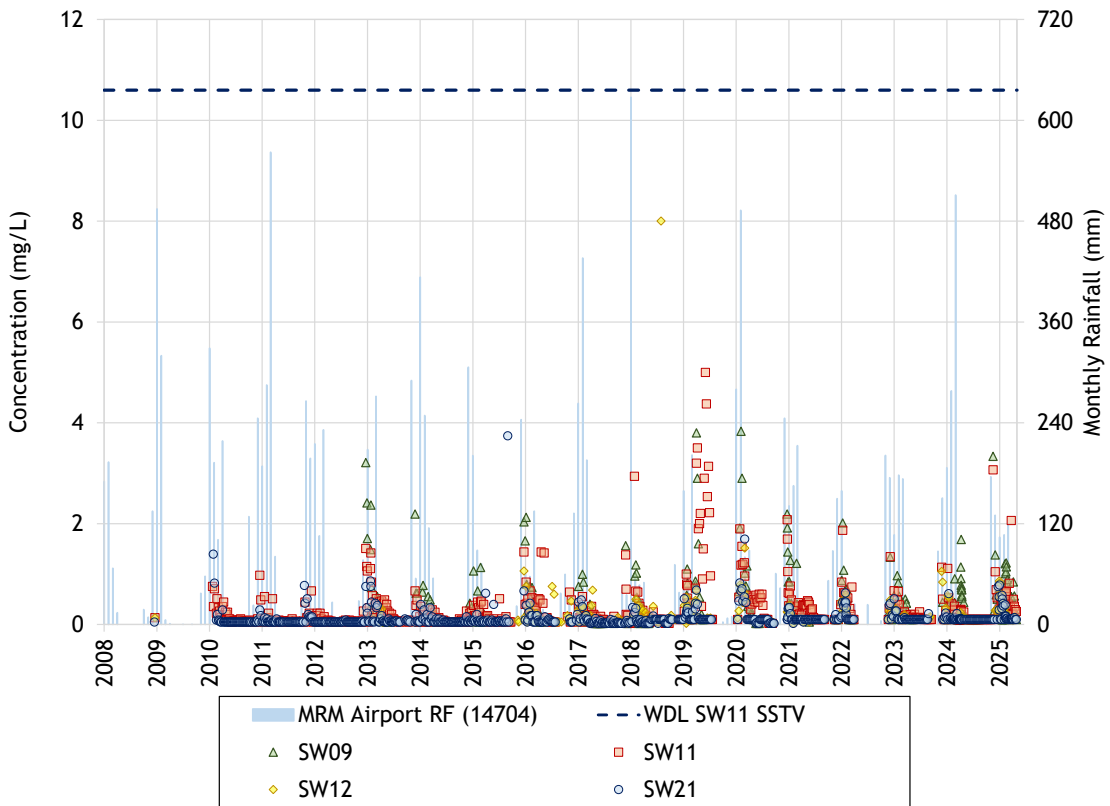


Chart 32: Historical NO₃ and Monthly Rainfall – McArthur River and Glyde River Monitoring Sites

4.5.17 Total Petroleum Hydrocarbons C10 – C36

Total petroleum hydrocarbon (TPH) (C10-C36 sum) concentrations are presented on Chart 33 and Chart 34 for the reporting and historical periods. Almost all recorded TPH C10-C36 concentrations at SW11 were at or below the LOR (50 µg/L) during the reporting period, which is consistent with the historical data.

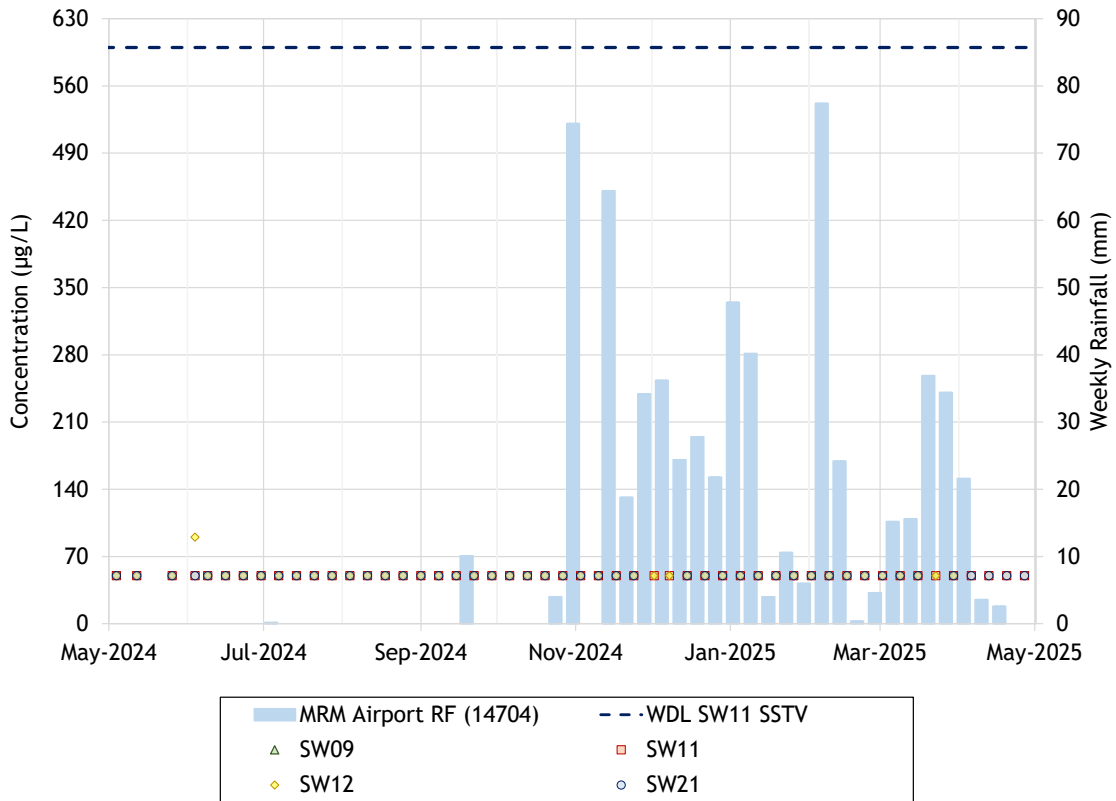


Chart 33: Reporting Period TPH C10-C36 Fraction and Weekly Rainfall – McArthur River and Glyde River Monitoring Sites

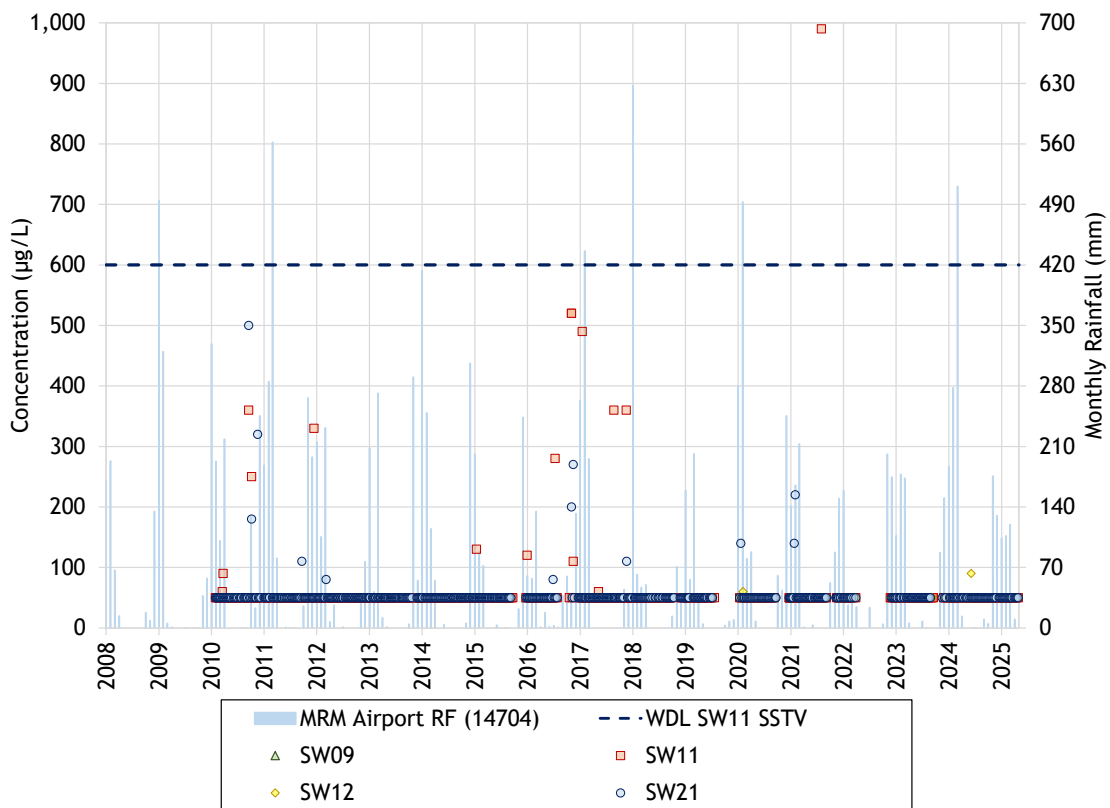


Chart 34: Historical TPH C10-C36 Fraction and Monthly Rainfall – McArthur River and Glyde River Monitoring Sites

4.5.18 Benzene

Benzene concentrations are presented on Chart 35 and Chart 36 for the reporting and historical periods. Benzene concentrations were extremely low during the reporting period. Recorded benzene concentrations at SW11 were at or below the LOR (1.0 µg/L), which is consistent with the historical data.

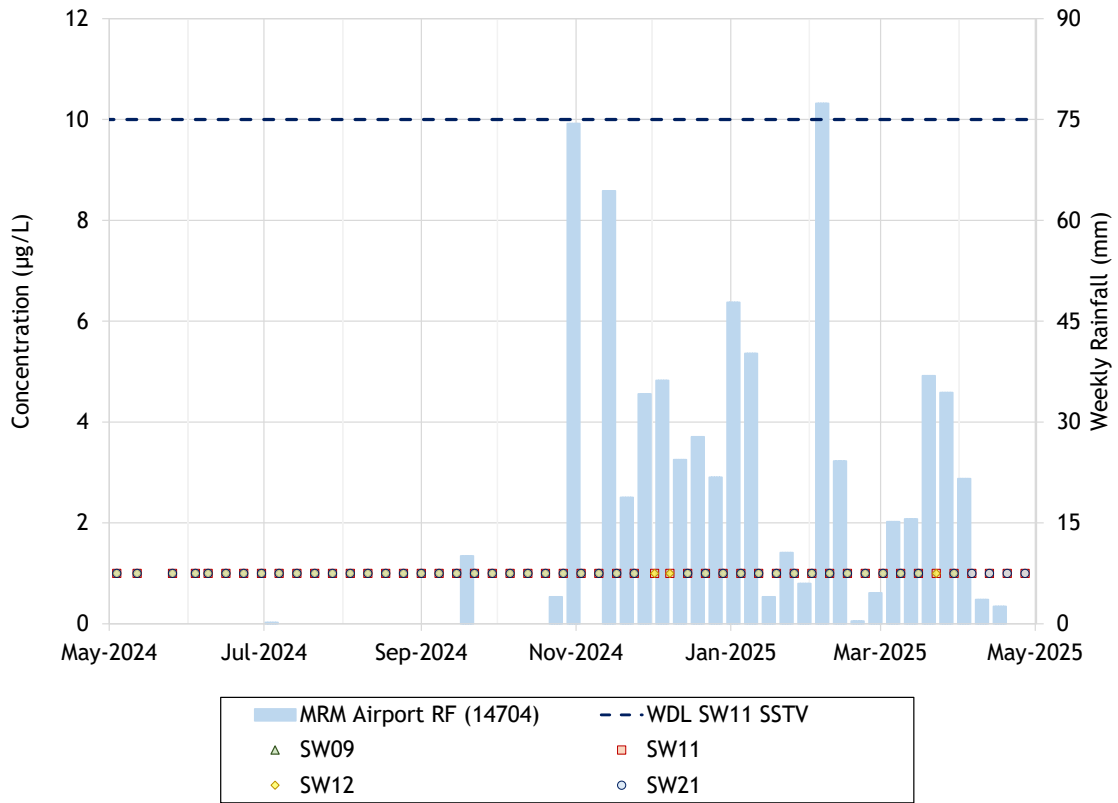


Chart 35: Reporting Period Benzene and Weekly Rainfall – McArthur River and Glyde River Monitoring Sites

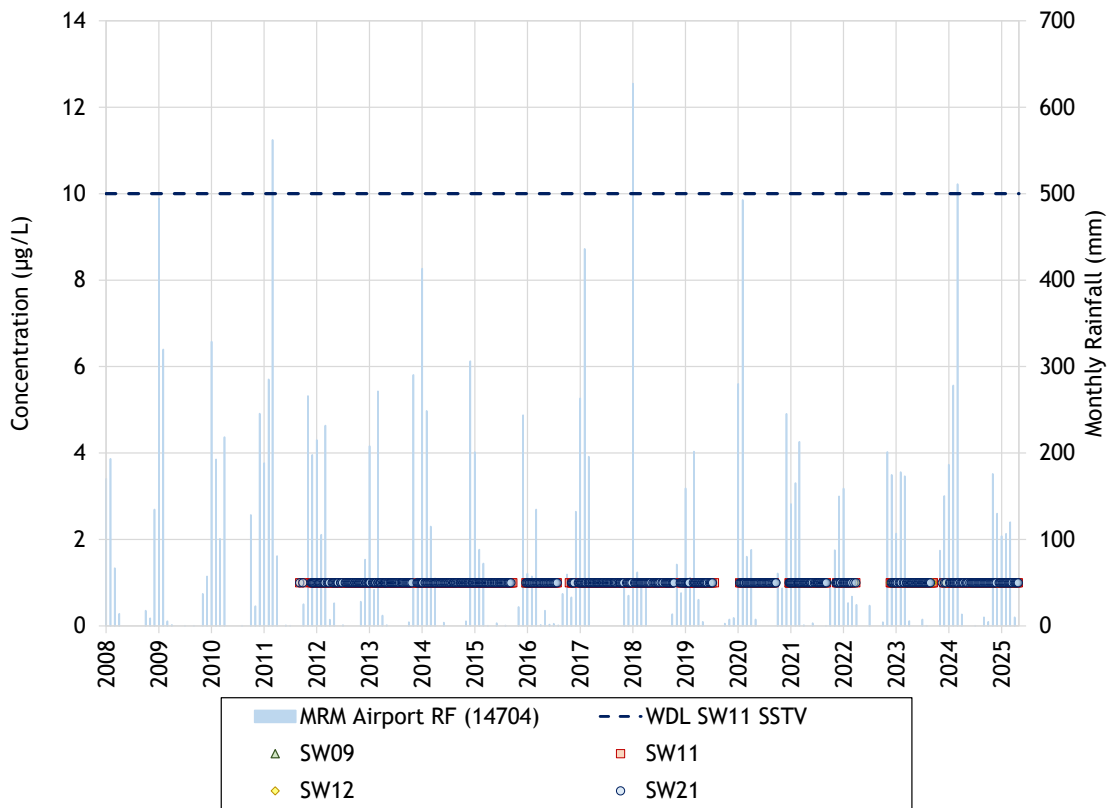


Chart 36: Historical Benzene and Monthly Rainfall – McArthur River and Glyde River Monitoring Site

4.6 Downstream McArthur River

Monitoring point SW08 is located at the Burketown Crossing at Borroloola, approximately 60 km river distance downstream of the Mine. Monitoring point SW32 is located on the McArthur River approximately 6 km upstream of SW08 and the Burketown Crossing.

Chart 37 to Chart 42 present the surface water quality data for McArthur River at SW08 and SW32 for key analytes (pH, EC, SO₄, filtered Tl, filtered Zn, filtered Pb) over the past five years. Additional water quality data for SW08 and SW32 can be found in WRM (2025a). The charts present the weekly rainfall record from the gauge at the McArthur River Airport from the Department of Environment and Science SILO Patched Point Data Service. Relevant SSTVs for the SW11 compliance point have also been plotted on the SW08 and SW32 charts for context, however these SSTVs are not formally prescribed at either of those locations.

4.6.1 pH

Field pH measurements are presented on Chart 37 for the past five years. In general, pH levels at SW08 and SW32 were circumneutral to slightly alkaline during the reporting period with all pH levels recorded near Borroloola between 6.5 and 8.5 (pH units).

4.6.2 Electrical Conductivity and Sulphate

EC (laboratory measured) levels are presented on Chart 38 and SO₄ concentrations are presented on Chart 39 for the past five years. EC levels were similar to those in previous years and no measured SO₄ concentrations were elevated beyond 200 mg/L. There were no measured EC levels or SO₄ concentrations beyond the SW11 SSTV at SW08 or SW32 during the reporting period.

4.6.3 Filtered Thallium

Filtered Tl measurements are presented on Chart 40 for the past five years. Recorded filtered Tl concentrations were consistently low at SW08 and SW32 during the reporting period. All samples contained filtered Tl concentrations well below the SW11 SSTV (58 µg/L).

4.6.4 Filtered Zinc

Filtered Zn measurements are presented on Chart 41 for the past five years. Recorded filtered Zn concentrations were consistently low at SW08 and SW32 during the reporting period. All samples contained filtered Zn concentrations well below the SW11 SSTV (32 µg/L).

4.6.5 Filtered Lead

Filtered Pb measurements are presented on Chart 42 for the past five years. Recorded filtered Pb concentrations were consistently low at SW08 and SW32 during the reporting period. All samples contained filtered Pb concentrations well below the SW11 SSTV (17 µg/L).

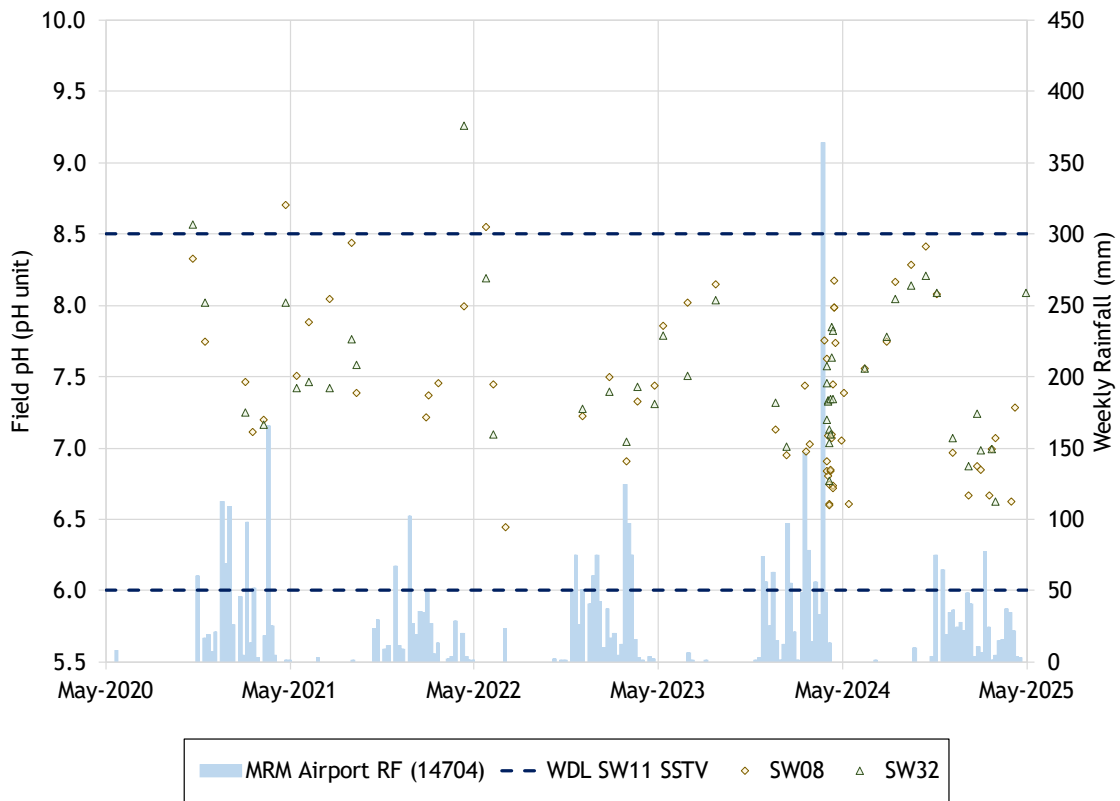


Chart 37: Past Five Years of pH (Field) and Weekly Rainfall – Downstream McArthur River Monitoring Sites

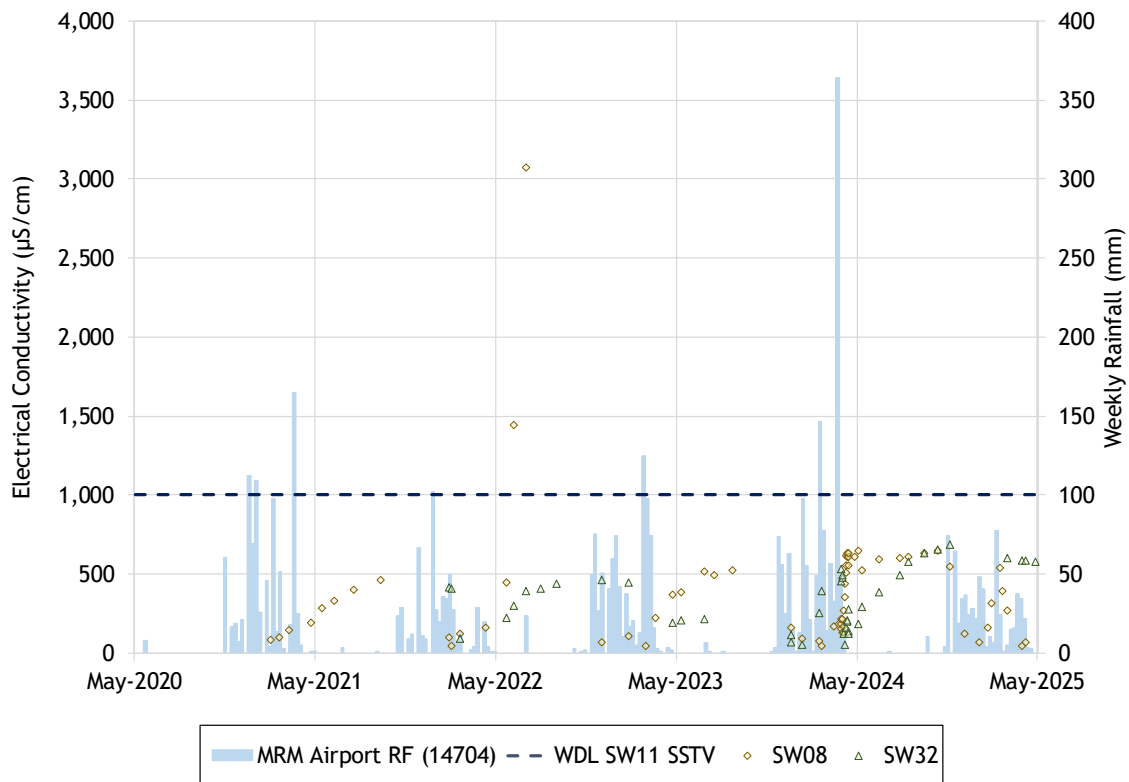


Chart 38: Past Five Years of Laboratory Electrical Conductivity and Weekly Rainfall – Downstream McArthur River Monitoring Sites

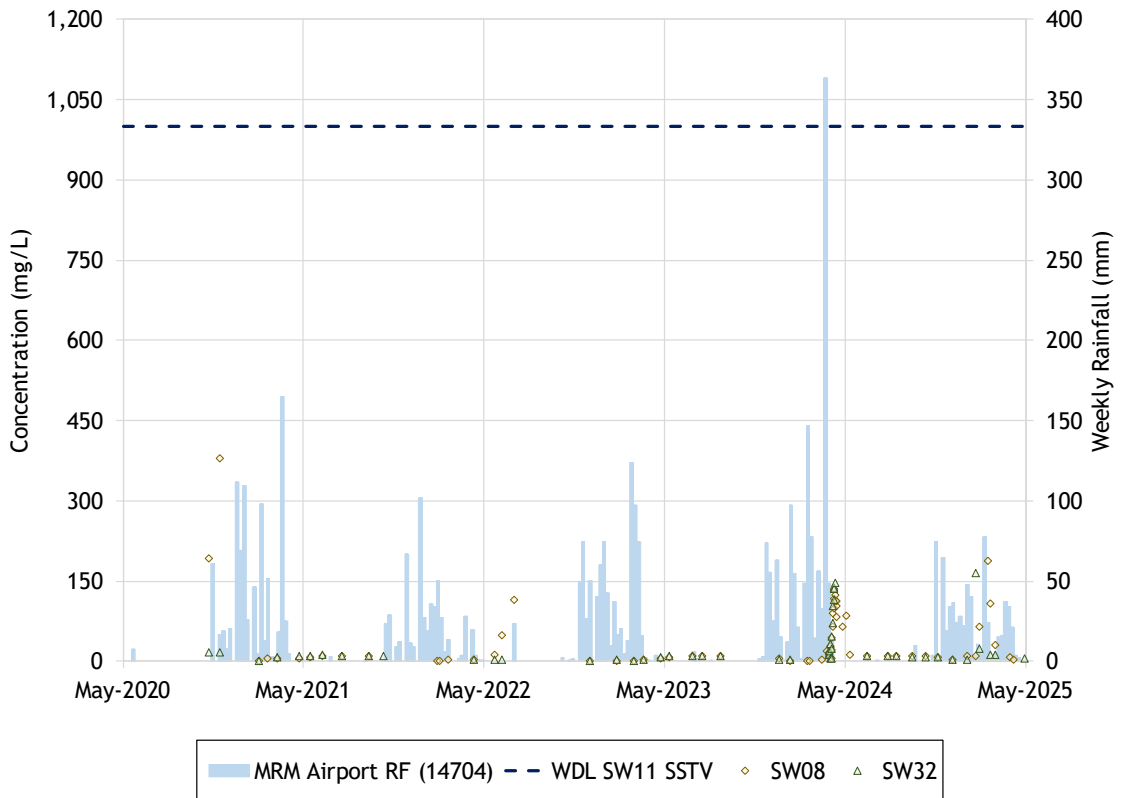


Chart 39: Past Five Years of Sulphate and Weekly Rainfall – Downstream McArthur River Monitoring Sites

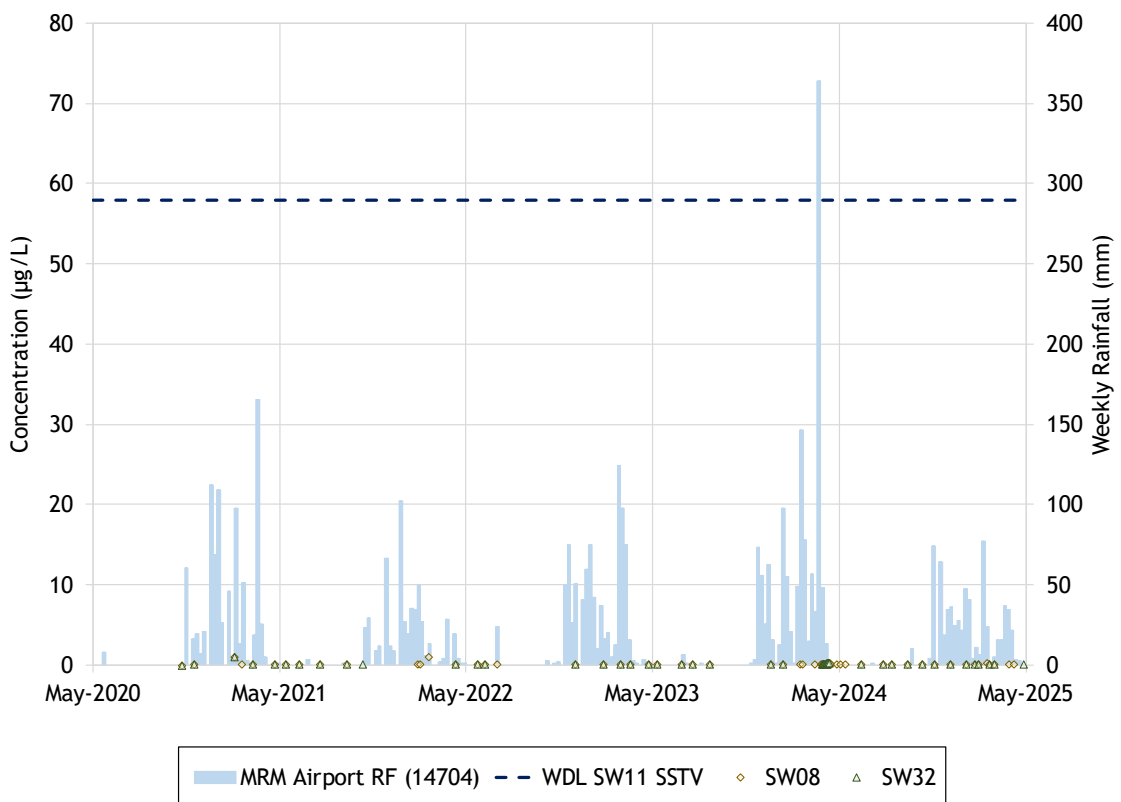


Chart 40: Past Five Years of Filtered TI and Weekly Rainfall – Downstream McArthur River Monitoring Sites

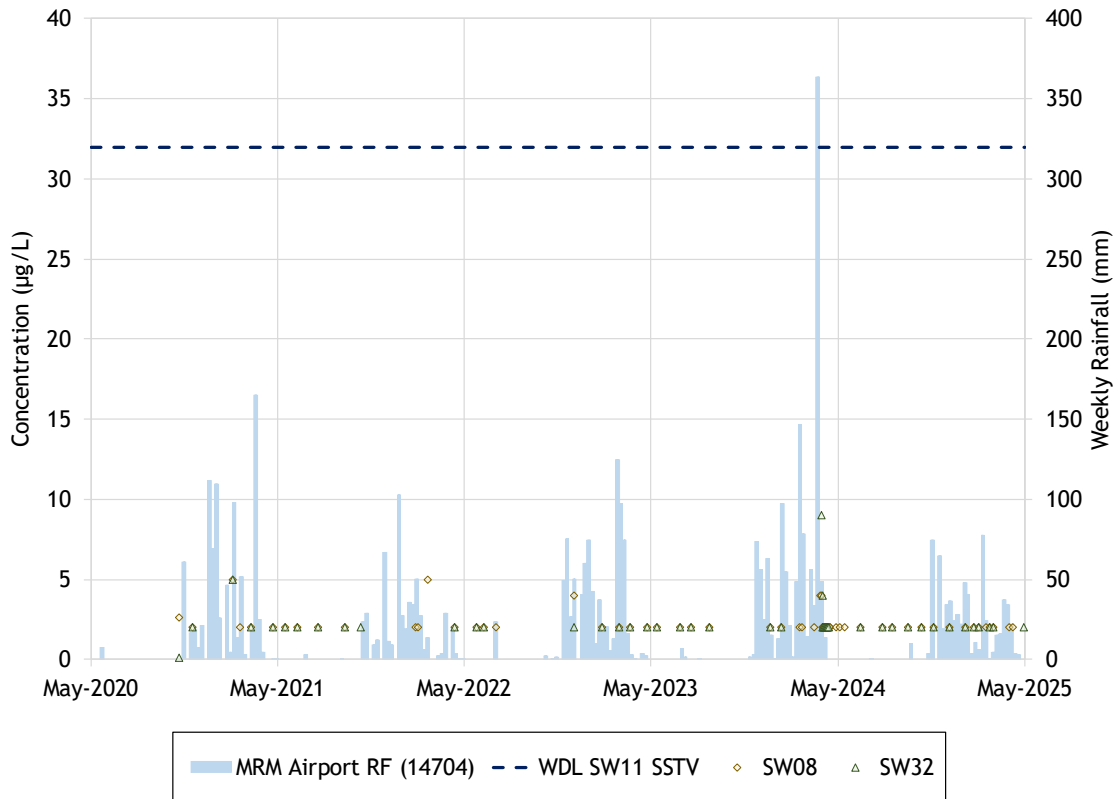


Chart 41: Past Five Years of Filtered Zn and Weekly Rainfall – Downstream McArthur River Monitoring Sites

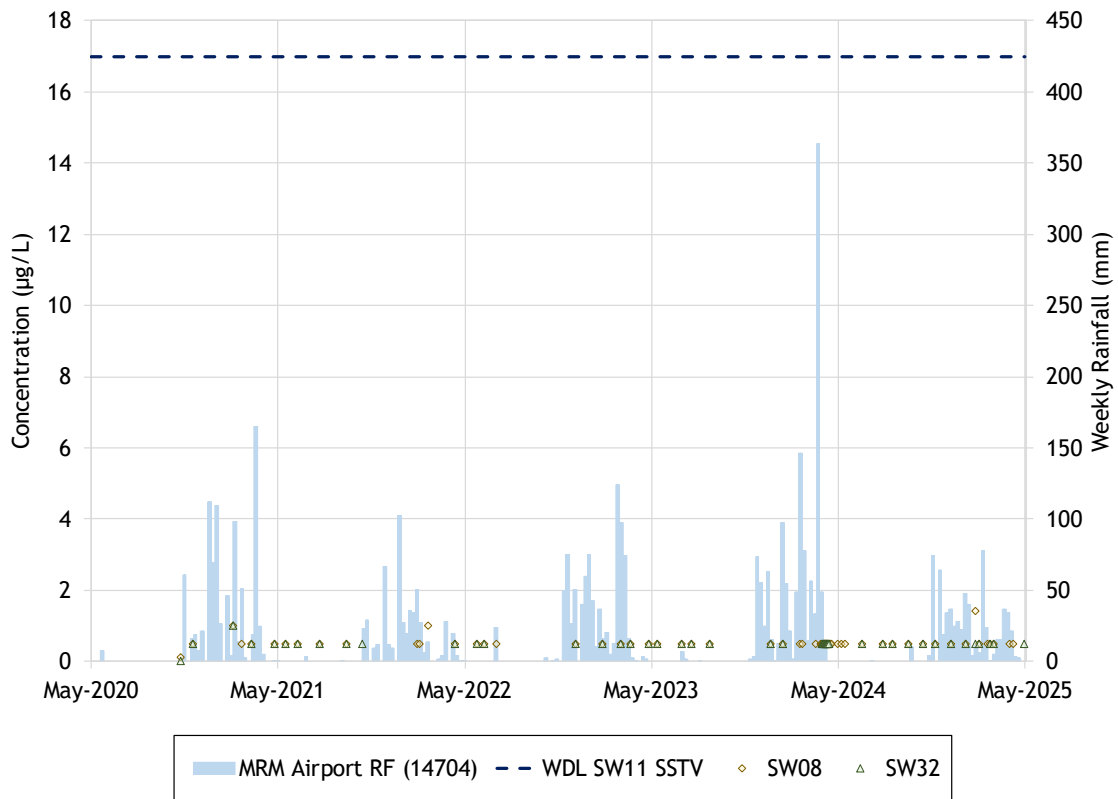


Chart 42: Past Five Years of Filtered Pb and Weekly Rainfall – Downstream McArthur River Monitoring Sites

4.7 Local Creek Stream Flow

The following is a summary of the flows in Surprise, Barney and Emu Creeks during the reporting period:

4.7.1 Surprise Creek

Figure 8 presents the water level (m AHD) and flow rate (m^3/s) recorded at the Surprise Creek Gauging Station (SCGS) at SW02 during the reporting period. The daily rainfall recorded at the McArthur River Airport station (14704) is also presented.

Little to no flow occurred at the Surprise Creek gauging station during the reporting period.

4.7.2 Barney Creek

Figure 9 presents the water level (m AHD) and flow rate (m^3/s) recorded at the Barney Creek Gauging Station (BCGS) at SW04 for the reporting period. Daily rainfall recorded at McArthur River Airport station (14704) is also presented.

Based on the recorded data, there were some Barney Creek flows at the beginning of the reporting period. Wet season flow at the Barney Creek gauging station commenced in early November 2024. Flows in Barney Creek peaked at approximately $16 \text{ m}^3/\text{s}$ during the reporting period.

4.7.3 Emu Creek

Figure 10 presents the water level (m AHD) and flow rate (m^3/s) recorded at the Emu Creek monitoring station SW31 during the reporting period. Daily rainfall recorded at McArthur River Airport station (14704) is also presented.

Based on the recorded data, there were some Emu Creek flows at the beginning of the reporting period. Wet season flow at the Emu Creek gauging station commenced in in mid-February 2025. Flows in Emu Creek peaked at approximately $6 \text{ m}^3/\text{s}$ during the reporting period.

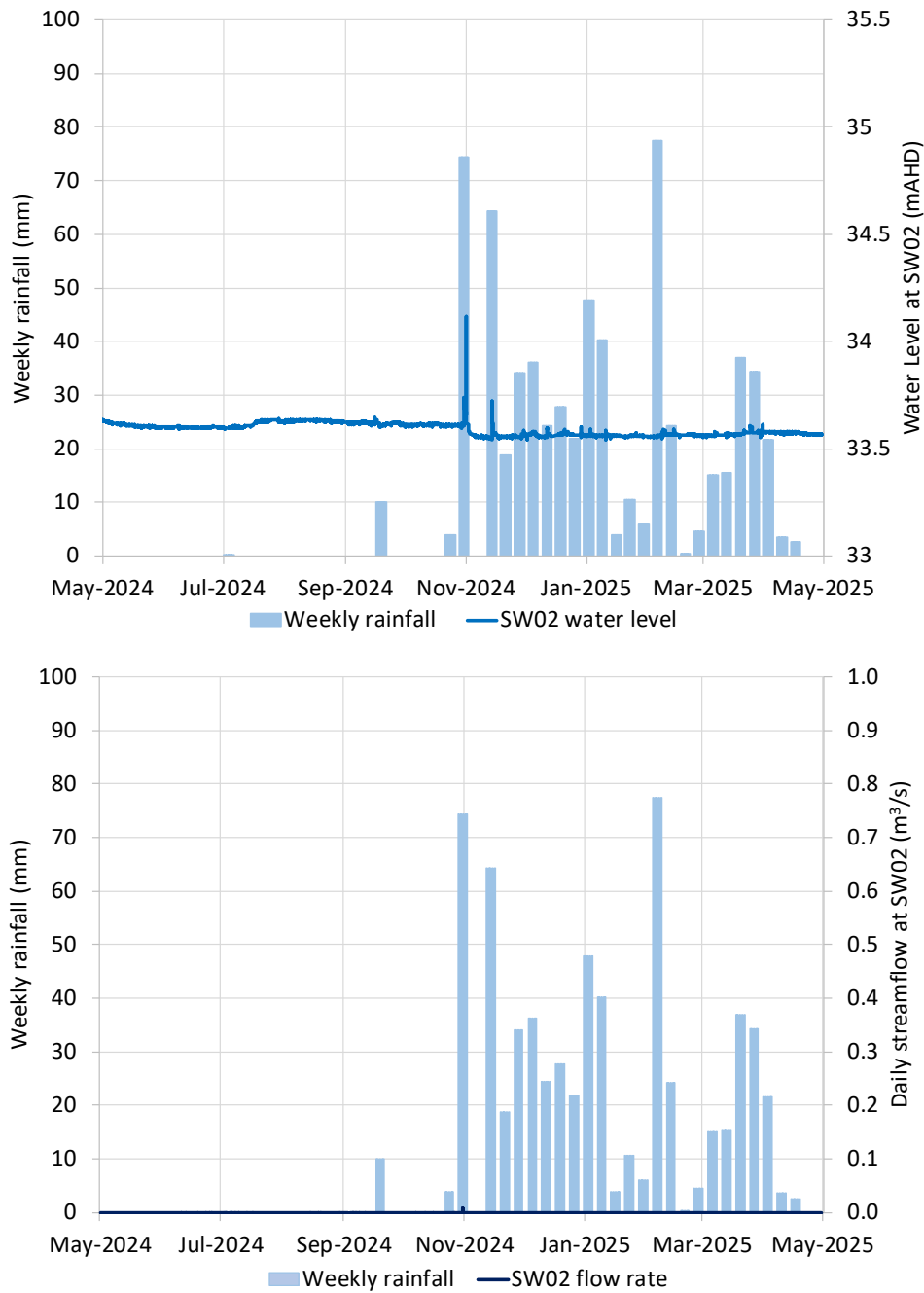


Figure 8: Reporting Period Surprise Creek Water Level and Flowrate

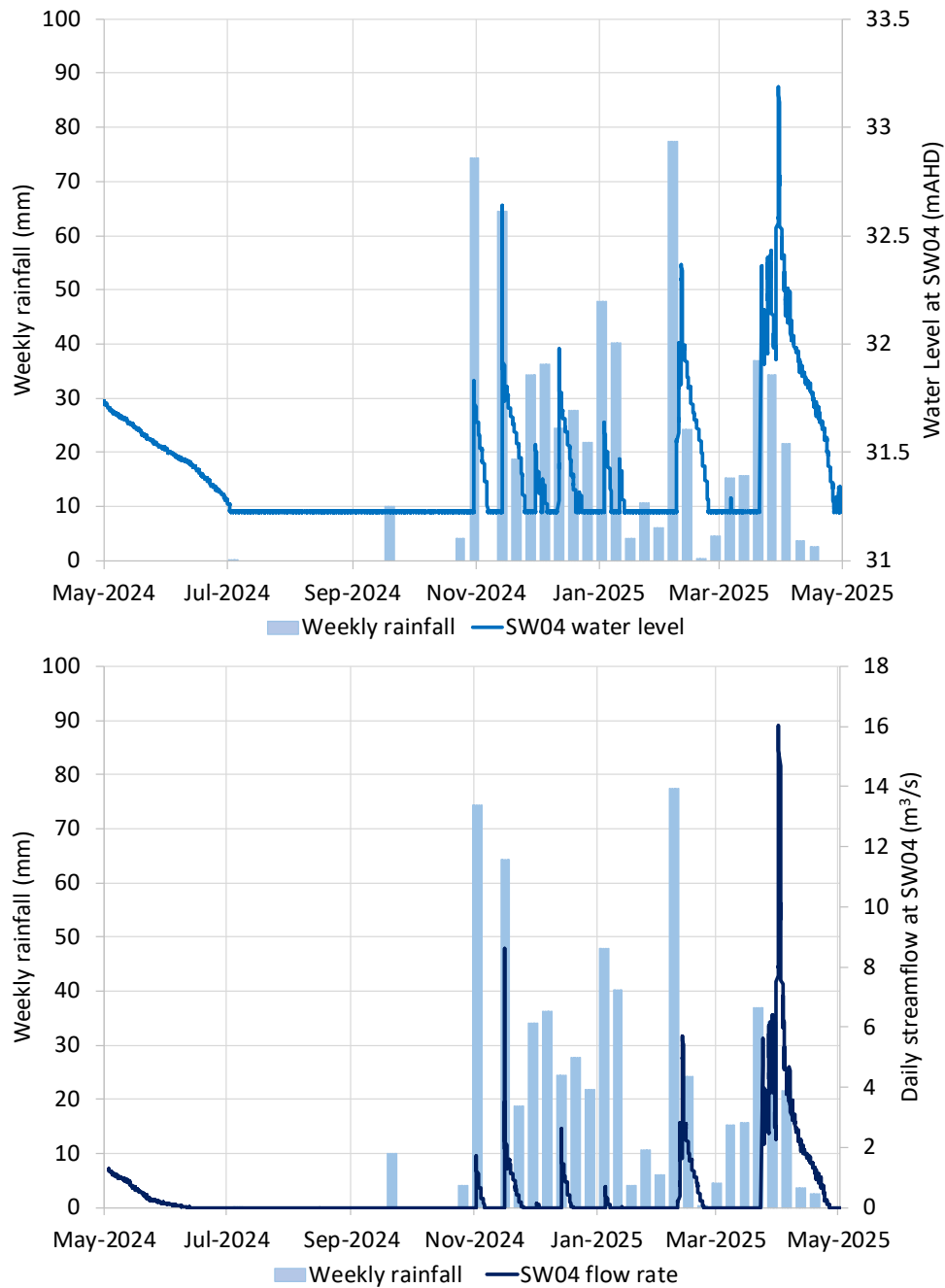


Figure 9: Reporting Period Barney Creek Water Level and Flowrate

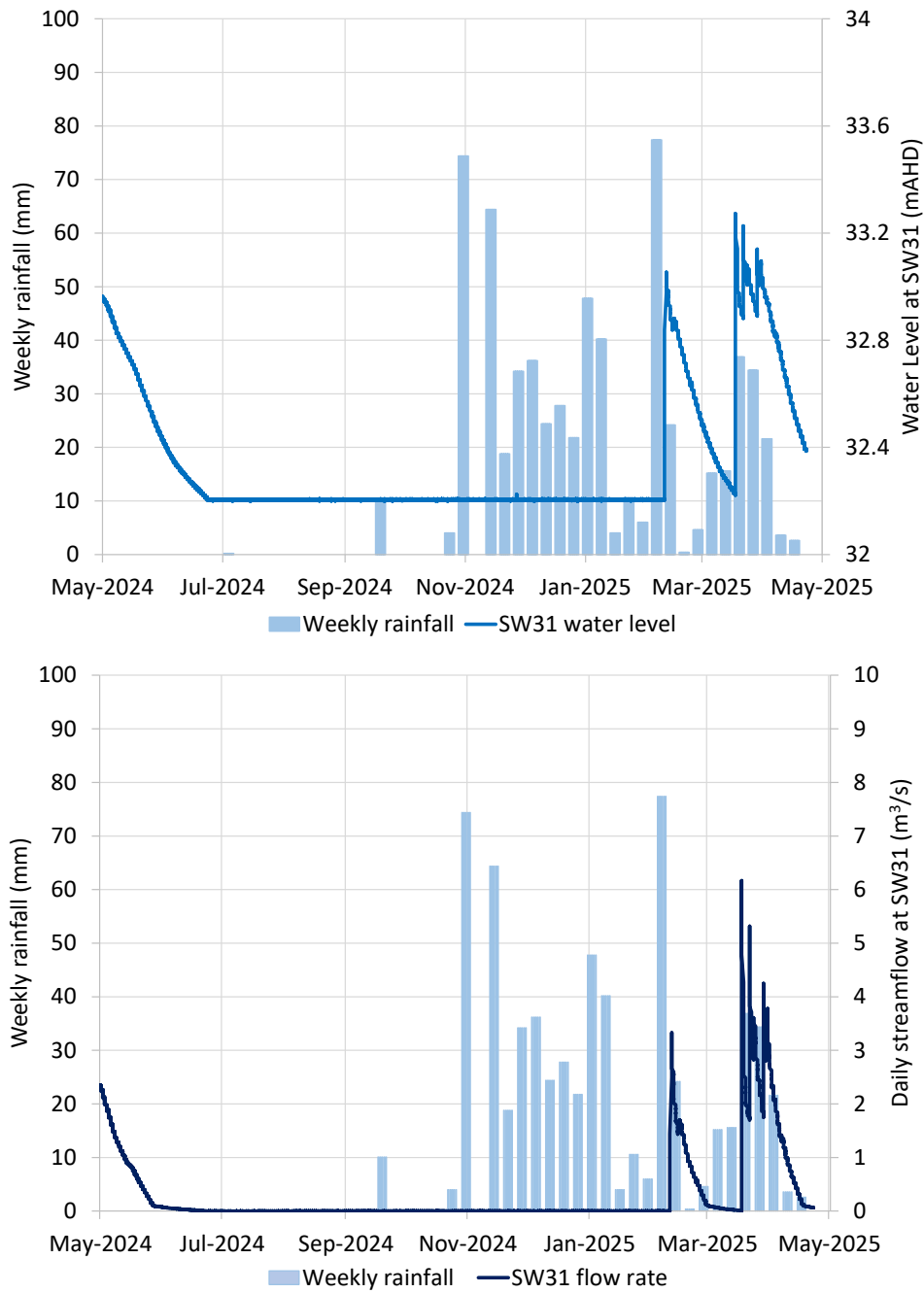


Figure 10: Reporting Period Emu Creek Water Level and Flowrate

4.8 Local Creek Water Quality

Surface water quality for key analytes (pH, EC, SO₄, filtered Tl, filtered Zn, filtered Pb) at the upstream control locations (SW28, SW29 and SW31) and most downstream locations (SW20, SW24 and SW26) on the local creeks for the past five years, including the reporting period, are presented on Chart 43 to Chart 48. The charts also present the weekly rainfall record from the gauge at McArthur River Airport from the Department of Environment and Science SILO Patched Point Data Service.

4.8.1 pH

Field measured pH levels at locations on Surprise Creek (SW29 and SW24), Barney Creek (SW28 and SW20) and Emu Creek (SW31 and SW26) are presented on Chart 43 for the past five years.

4.8.1.1 Surprise Creek

During the reporting period, pH levels at SW29 (upstream Surprise Creek) were typically higher than those recorded at SW24 (downstream Surprise Creek). All pH levels recorded in Surprise Creek during the reporting period were below 8.5.

4.8.1.2 Barney Creek

During the reporting period, a range of pH levels were recorded in Barney Creek. The highest pH levels were recorded at SW20 (downstream Barney Creek), while the lowest pH levels were recorded at SW28 (upstream Barney Creek). Notably, all measured pH levels below 6.5 were obtained at SW28, upstream and outside the influence of the Mine.

4.8.1.3 Emu Creek

Due to cease to flow conditions in Emu Creek, samples were only obtained towards the end of the wet season. pH levels recorded in Emu Creek over the reporting period were generally circumneutral to slightly alkaline. pH varied more at SW31 (upstream Emu Creek) while pH at SW26 (downstream Emu Creek) was circumneutral to slightly alkaline.

4.8.2 Electrical Conductivity and Sulphate

EC (laboratory measured) levels and SO₄ concentrations at locations on Surprise Creek (SW29 and SW24), Barney Creek (SW28 and SW20) and Emu Creek (SW31 and SW26) are presented on Chart 44 and Chart 45, respectively, for the past five years.

4.8.2.1 Surprise Creek

During the reporting period, EC levels and SO₄ concentrations at SW24 (downstream Surprise Creek) were elevated compared to those at SW29 (upstream Surprise Creek). EC levels and SO₄ concentrations at SW24 increase notably in the dry season. SW24 is located downstream of the TSF and NOEF and appears to be influenced by mine-derived baseflows.

4.8.2.2 Barney Creek

During the reporting period, the EC levels and SO₄ concentrations at SW20 (downstream Barney Creek) were elevated when compared to those at SW28 (upstream Barney Creek). Additionally, EC and SO₄ concentrations in Barney Creek were at their peak during the dry season and during periods of managed release.

4.8.2.3 Emu Creek

During the reporting period, the EC levels and SO₄ concentrations at SW26 (downstream Emu Creek) were elevated when compared to those at SW31 (upstream Emu Creek). The recorded EC levels and SO₄

concentrations at SW26 decreased during the wet season as the lower reaches of the creek continued to recover from the uncontrolled release that occurred following Ex-TC Cyclone Megan towards the end of the previous reporting period.

4.8.3 Filtered Thallium

Filtered Tl concentrations in Surprise Creek (SW29 and SW24), Barney Creek (SW28 and SW20) and Emu Creek (SW31 and SW26) are presented on Chart 46 for the past five years.

4.8.3.1 Surprise Creek

Filtered Tl concentrations were consistently low during the reporting period.

4.8.3.2 Barney Creek

Filtered Tl concentrations were consistently low during the reporting period.

4.8.3.3 Emu Creek

Filtered Tl concentrations were consistently low during the reporting period.

4.8.4 Filtered Zinc

Filtered Zn concentrations in Surprise Creek (SW29 and SW24), Barney Creek (SW28 and SW20) and Emu Creek (SW31 and SW26) are presented on Chart 47 for the past five years.

4.8.4.1 Surprise Creek

Filtered Zn concentrations were consistently low during the reporting period.

4.8.4.2 Barney Creek

Filtered Zn concentrations were consistently low during the reporting period.

4.8.4.3 Emu Creek

During the reporting period, filtered Zn concentrations remained low at both SW31 (upstream Emu Creek) and SW26 (downstream Emu Creek), except for a single elevated result at SW26 early in the wet season. Consistent with trends observed for EC and SO₄, filtered Zn concentrations at SW26 were initially elevated due to residual effects from the uncontrolled release following Ex-TC Cyclone Megan at the end of the previous reporting period, but improved progressively as the wet season advanced.

4.8.5 Filtered Lead

Filtered Pb concentrations in Surprise Creek (SW29 and SW24), Barney Creek (SW28 and SW20) and Emu Creek (SW31 and SW26) are presented on Chart 48 for the past five years.

4.8.5.1 Surprise Creek

Filtered Pb concentrations were consistently low during the reporting period. Most samples at the two Surprise Creek locations measured filtered Pb concentrations below the LOR (0.5 µg/L).

4.8.5.2 Barney Creek

Filtered Pb concentrations were consistently low during the reporting period. Most samples at the two Barney Creek locations measured filtered Pb concentrations below the LOR (0.5 µg/L).

4.8.5.3 Emu Creek

Filtered Pb concentrations were consistently low during the reporting period. Most samples at the two Emu Creek locations measured filtered Pb concentrations below the LOR (0.5 µg/L).

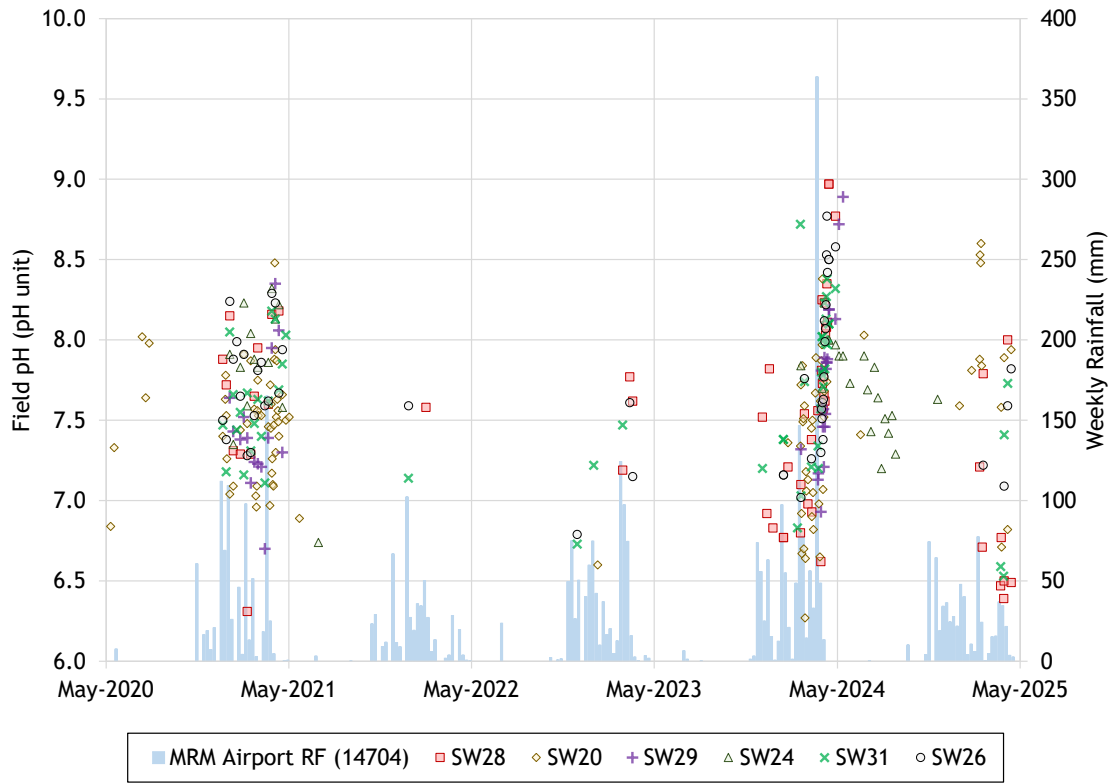


Chart 43: Past Five Years of Field pH and Weekly Rainfall – Local Creeks Monitoring Sites

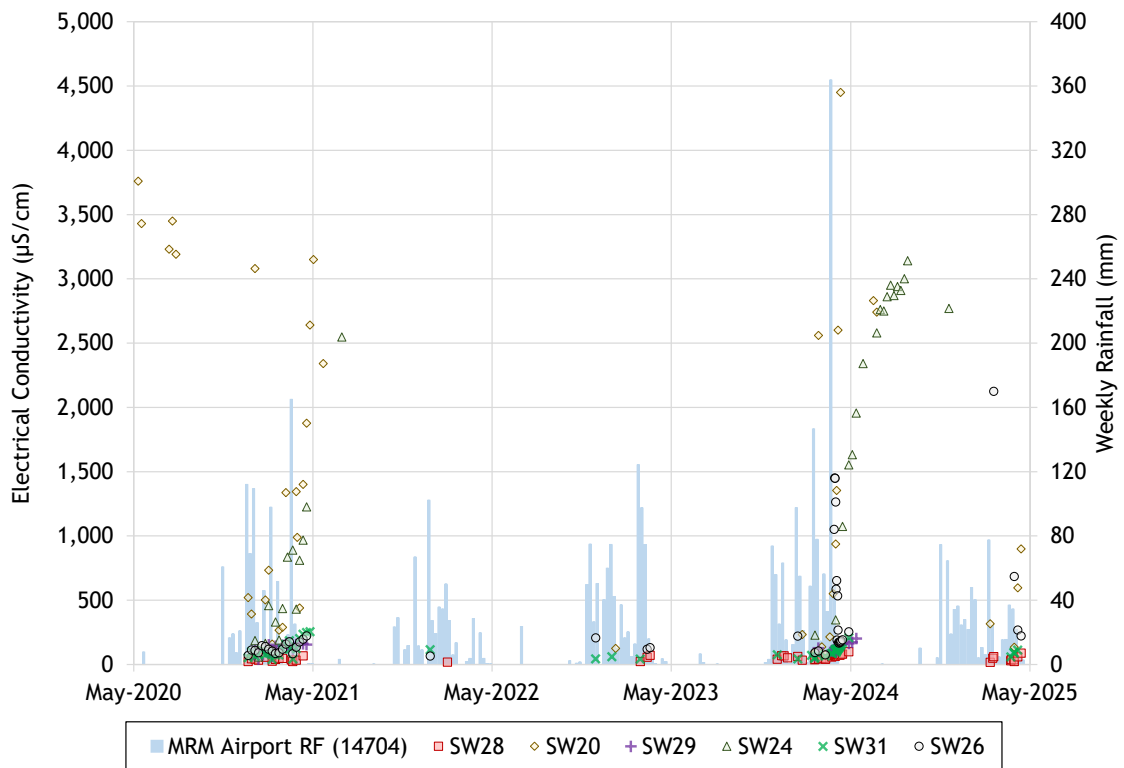


Chart 44: Past Five Years of Laboratory Electrical Conductivity and Weekly Rainfall – Local Creeks Monitoring Sites

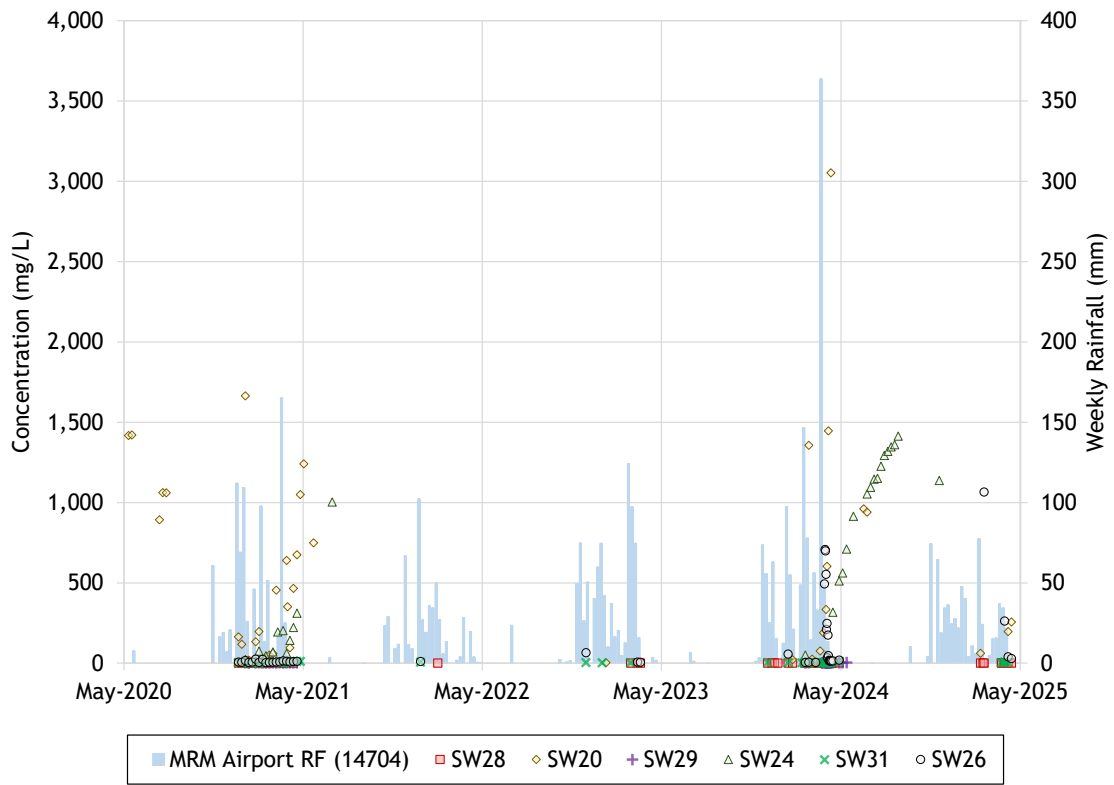


Chart 45: Past Five Years of Sulphate and Weekly Rainfall – Local Creeks Monitoring Sites

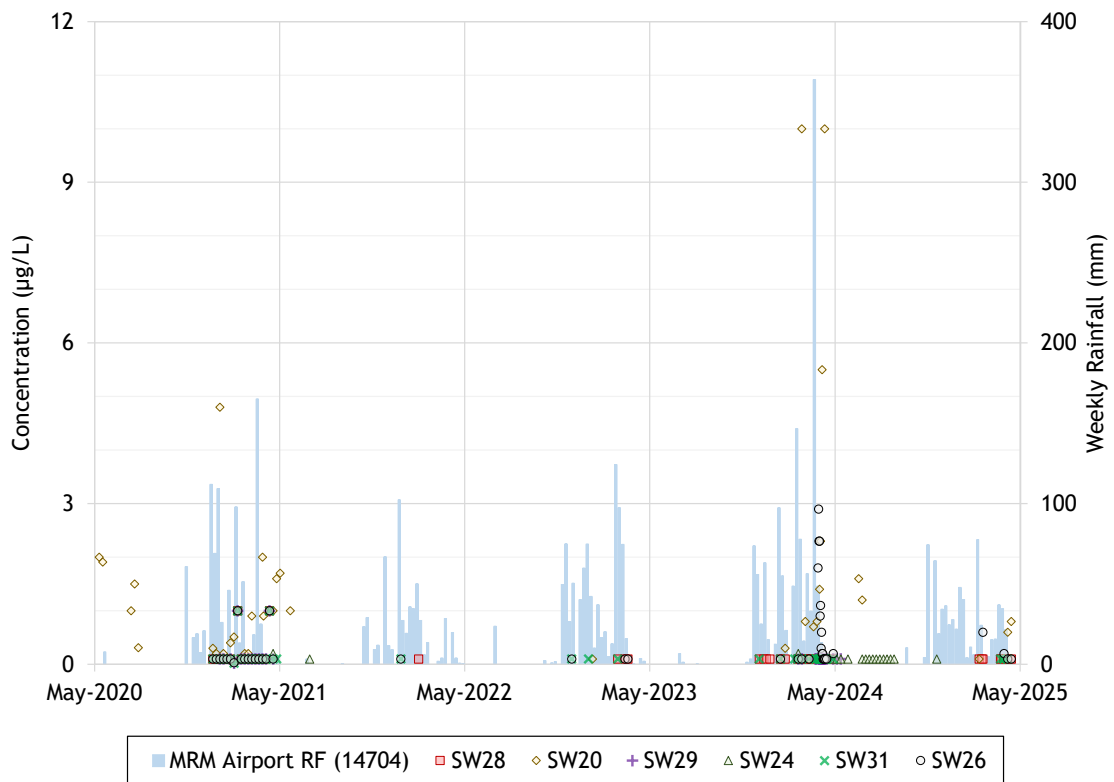


Chart 46: Past Five Years of Filtered TI and Weekly Rainfall – Local Creeks Monitoring Sites

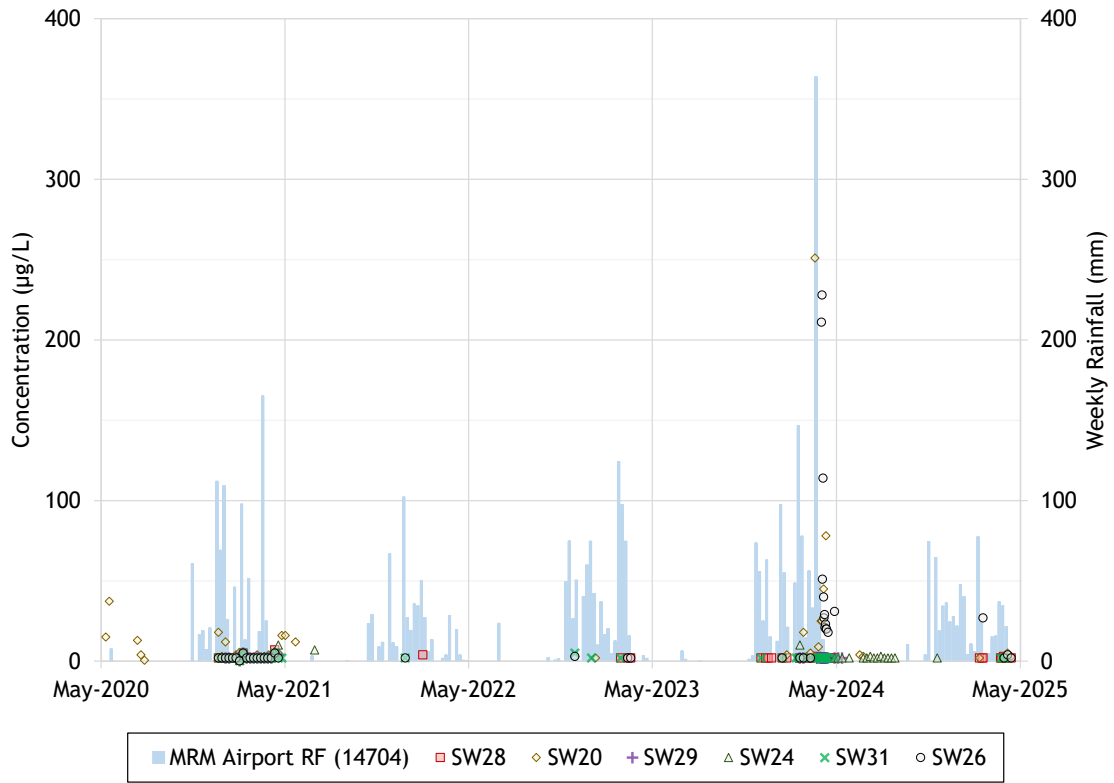


Chart 47: Past Five Years of Filtered Zn and Weekly Rainfall – Local Creeks Monitoring Sites

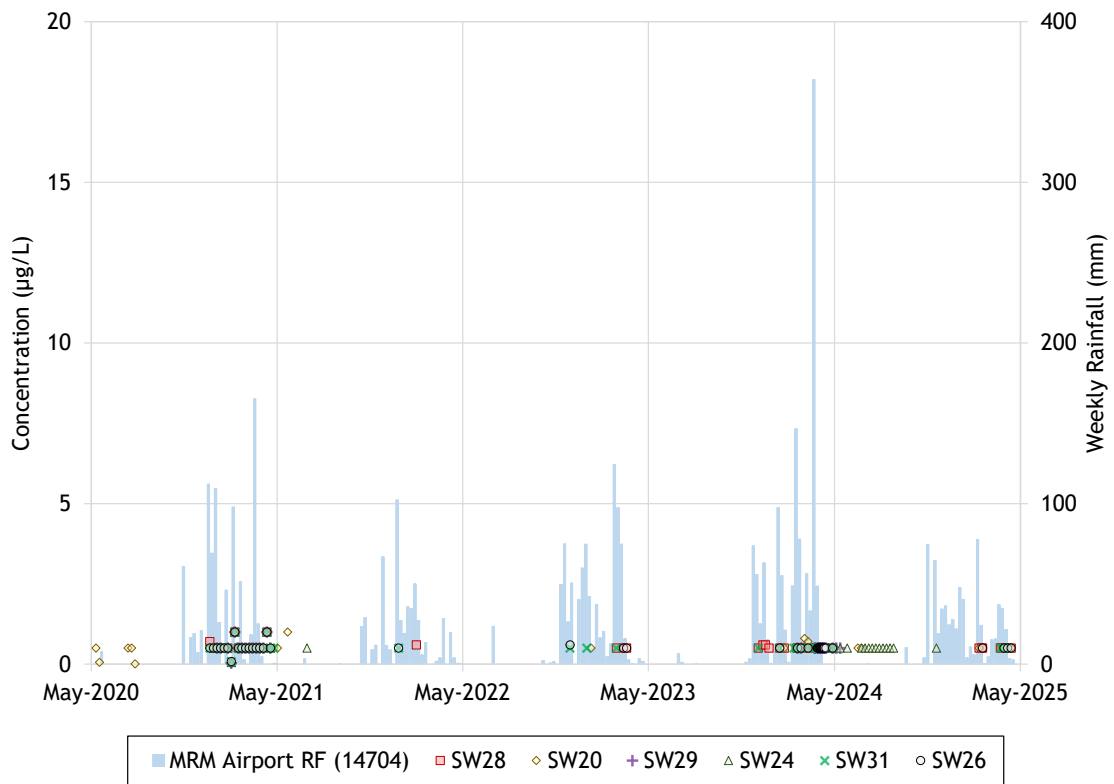


Chart 48: Past Five Years of Filtered Pb and Weekly Rainfall – Local Creeks Monitoring Sites

4.9 Artificial Surface Water Quality Discharged During the Reporting Period

As discussed in Section 4.1.2, during the reporting period, Mine water was treated with hydrated lime in the NOEF SEPROD. When treated water volumes exceeded operational requirements, surplus water was transferred via OP P2 to the TSF WMD for storage and potential discharge. Water quality at NOEF SEPROD, TSF WMD, and OP P2 is influenced by the characteristics of input waters, the treatment process (including cycle times and transfers rates), storage volumes, evapoconcentration during dry periods, and dilution from rainfall and runoff during wet periods.

Chart 49 to Chart 54 presents the water quality in NOEF SEPROD, OP P2 and TSF WMD source waters for the following key analytes:

- pH;
- EC;
- SO₄,
- Filtered TI;
- Filtered Zn; and
- Filtered Pb.

Source waters from NOEF SEL1 were not directly discharged via the SEL1 DP during the reporting period; therefore, NOEF SEL1 water quality is not discussed further. Similarly, the OP NC1A storage remained dry for the entire reporting period and no data is available for inclusion in the following charts and analysis.

The following sections summarise the water quality at the managed release source waters during the reporting period.

4.9.1 South-Eastern Perimeter Runoff Dam

- The NOEF SEPROD had a median water class of 4b over the reporting period. Class 4b is *Good Quality* managed release water under the Mine Water Classification System. The limiting analytes were generally EC and SO₄.
- pH levels varied throughout the reporting period, ranging generally from around 7 to 9.5. pH samples tended to be more alkaline from August 2024. During the managed release events in February 2025 the pH level was on average 8.3.
- EC levels and SO₄ concentrations varied periodically throughout the year, with distinct peaks (mid-May 2024, mid-November 2024 and May 2025) and troughs (July 2024 and mid-February 2025).
- Filtered TI concentrations were less than 50 µg/L during most of the dry season. Filtered TI concentrations increased to almost 150 µg/L at the end of October due to transfers from NOEF SEPROD. Concentrations were generally between 50 and 100 µg/L for the remainder of the reporting period.
- Filtered Zn concentrations were below 400 µg/L during the reporting period with exception of two samples taken in late May to mid-July 2024.
- Filtered Pb concentrations were below 10 µg/L throughout the reporting period.

4.9.2 Pond 2

- The OP P2 had a median water class of 4b over the reporting period. Class 4b is *Good Quality* managed release water under the Mine Water Classification System. The limiting analytes were generally EC, SO₄ and filtered Zn.

- pH levels varied at the beginning of the reporting period (between 6 and 8.5), becoming more stable and alkaline over the course of the reporting period.
- EC levels and SO₄ concentrations varied periodically throughout the year, like NOEF SEPROD, with distinct peaks (mid-May 2024, mid-November 2024 and May 2025) and troughs (July 2024 and mid-February 2025).
- Filtered Tl concentrations were less than 50 µg/L during the dry season but increased at the end of October due to NOEF SEPROD transfers with elevated filtered Tl concentrations. Concentrations were generally between 50 and 75 µg/L for the remainder of the reporting period.
- Filtered Zn concentrations were elevated at the beginning of the dry season, likely due to NOEF SEPROD transfers. In July 2024, filtered Zn concentrations increased sharply from mid-August to early September, peaking at 1,145 µg/L. This is potentially due to a combination of reduced water levels, inflows from OP sumps and reduced NOEF SEPROD inflows. Filtered Zn concentrations reduced significantly from mid-September and remained below 300 µg/L for the remainder of the reporting period.
- Filtered Pb concentrations remained below 10 µg/L for the duration of the reporting period, with exception to one aberrant reading (19 µg/L) in mid-August 2024.

4.9.3 Water Management Dam

- The TSF WMD also had a median water class of 4b over the reporting period. Class 4b is *Good Quality* managed release water under the Mine Water Classification System. Like NOEF SEPROD, the limiting analytes were generally EC and SO₄.
- pH levels fluctuated at the beginning of the dry season, likely due to NOEF SEPROD inflows and the low dam water levels, becoming more stable over the course of the reporting period. pH levels tended to become more alkaline as the reporting period progressed.
- EC levels and SO₄ concentrations remained at relatively consistent levels throughout the reporting period with decreases in EC levels and SO₄ concentrations relating to increases in TSF WMD water levels.
- Filtered Tl concentrations were relatively constant throughout the reporting period with concentrations generally between 25 and 50 µg/L during the dry season and 10 to 25 µg/L during the wet season.
- Filtered Zn concentrations increased dramatically in late June due to OP P2 inflows and low dam water levels. Filtered Zn concentrations reduce steadily from mid-July as transfers from OP P2 decreased. Filtered Zn concentrations were low at 10 µg/L when managed releases from TSF WMD began in late December 2024.
- Filtered Pb concentrations were low during the reporting period.

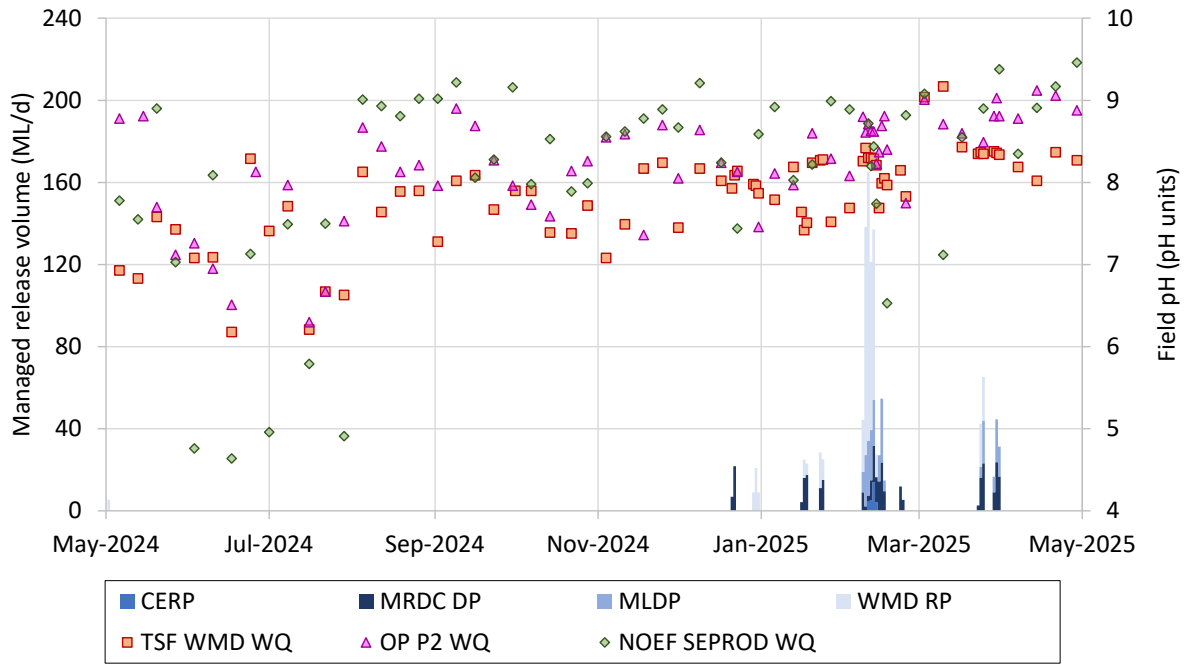


Chart 49: Reporting Period Field pH for OP P2, OP NC1A, NOEF SEPROD, OP NC1A and TSF WMD with managed release volumes

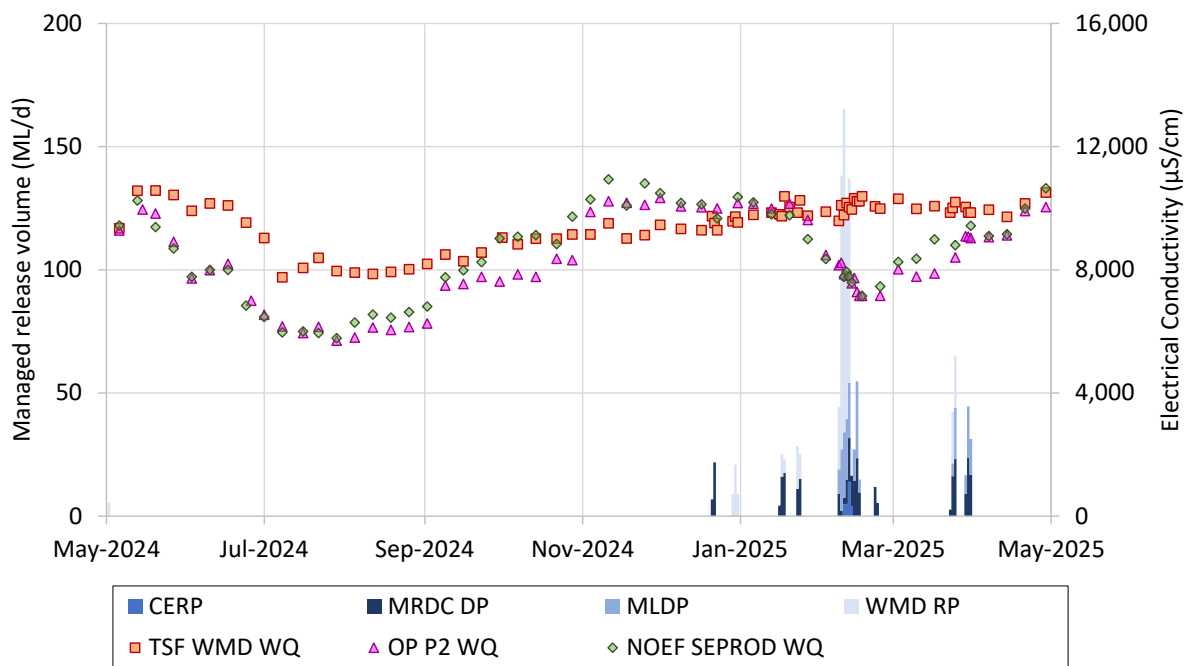


Chart 50: Reporting Period EC for OP P2, OP NC1A, NOEF SEPROD, OP NC1A and TSF WMD with managed release volumes

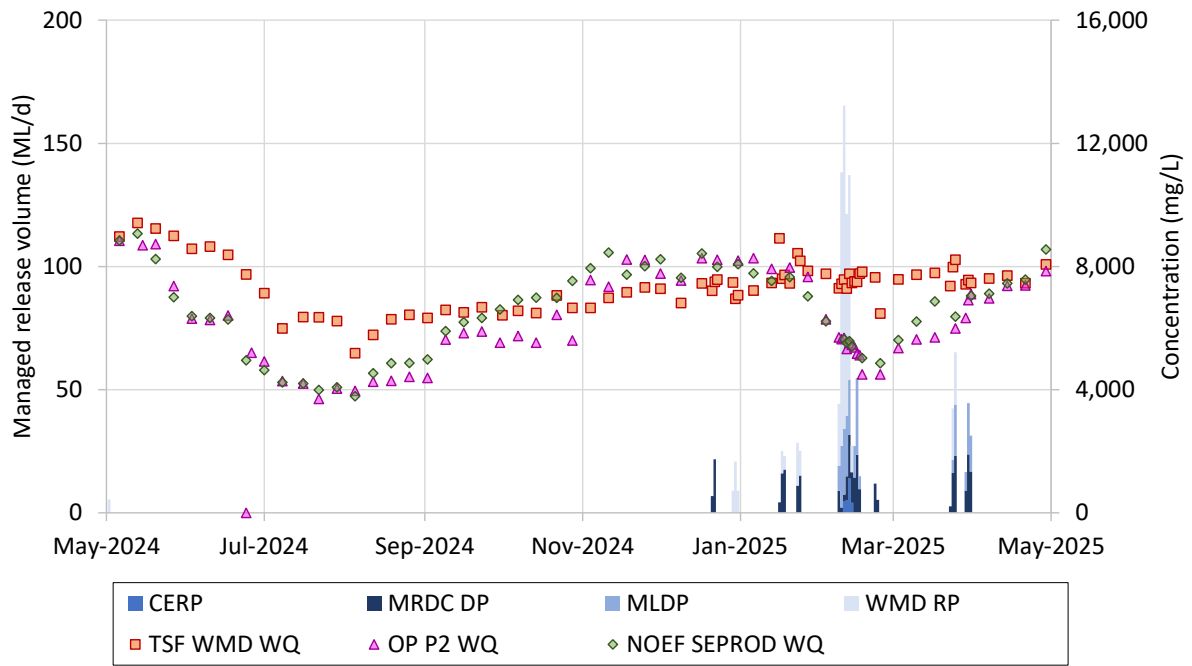


Chart 51: Reporting Period SO₄ for OP P2, OP NC1A, NOEF SEPROD, OP NC1A and TSF WMD with managed release volumes

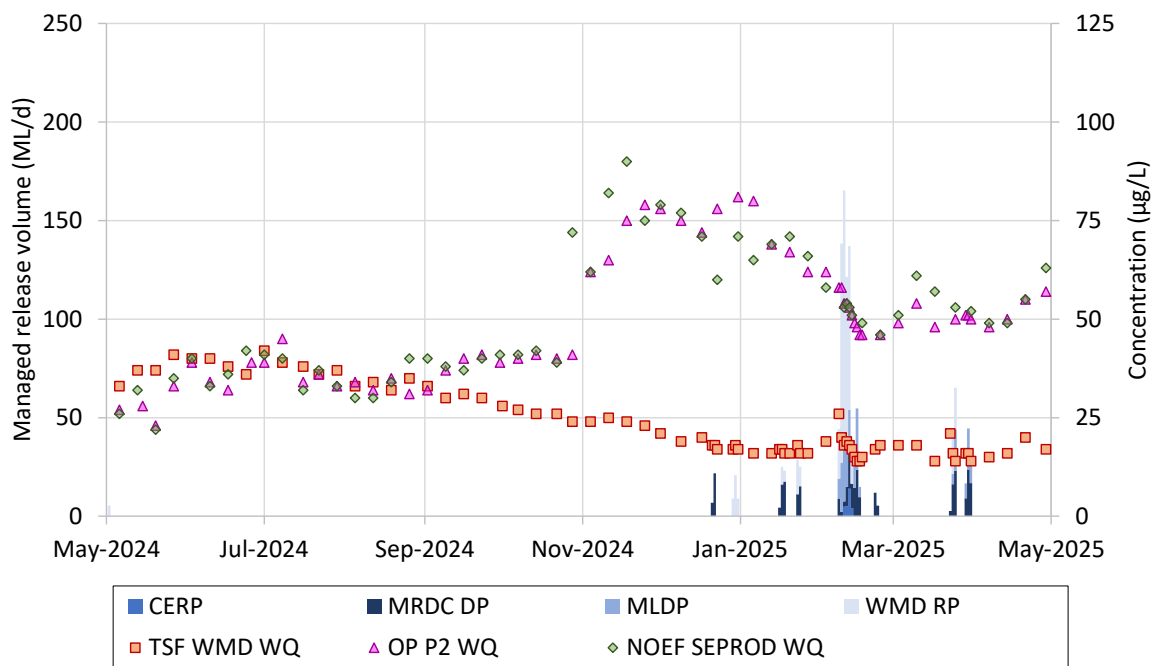


Chart 52: Reporting Period Filtered TI for OP P2, OP NC1A, NOEF SEPROD, OP NC1A and TSF WMD with managed release volumes

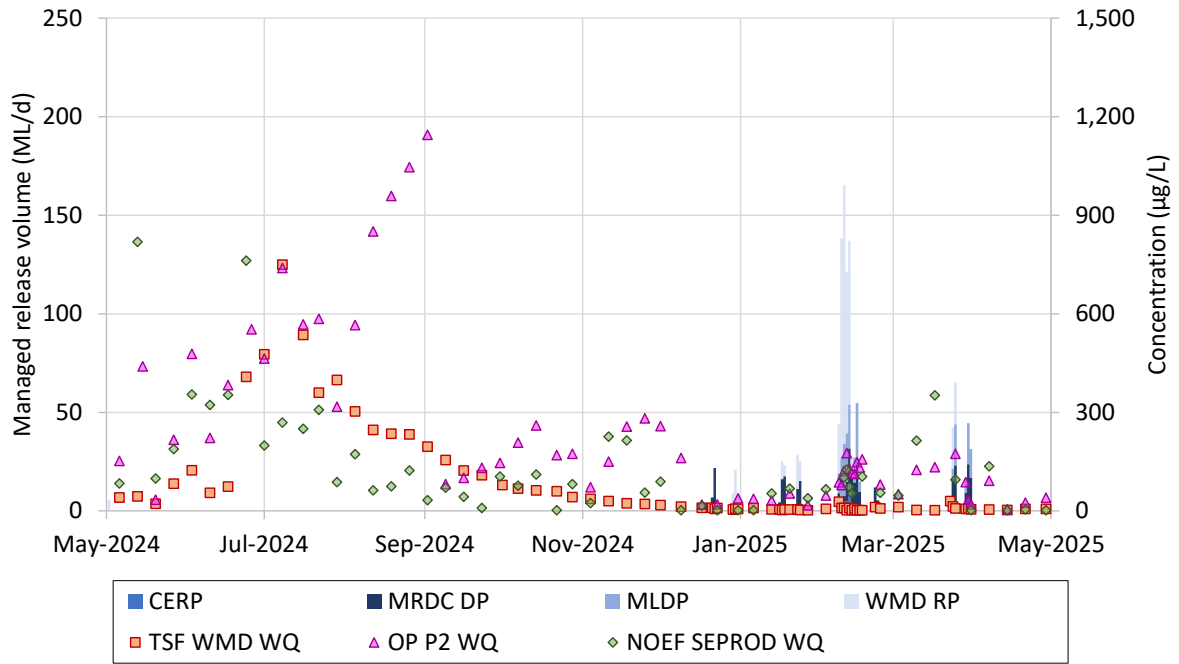


Chart 53: Reporting Period Filtered Zn for OP P2, OP NC1A, NOEF SEPROD, OP NC1A and TSF WMD with managed release volumes

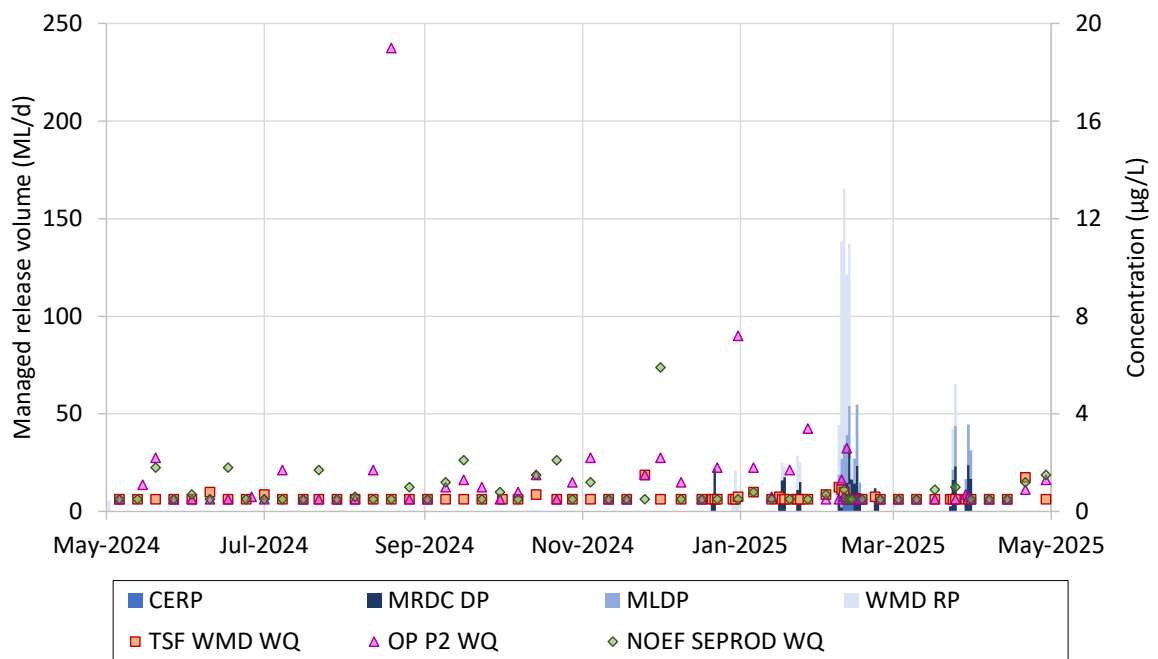


Chart 54: Reporting Period Filtered Pb for OP P2, OP NC1A, NOEF SEPROD, OP NC1A and TSF WMD with managed release volumes

5 Analyte Loads

5.1 Methodology

Analyte loads were estimated for the period between 1 May 2024 and 30 April 2025 by WRM (2025b). The full assessment report is provided in Attachment 2, with a summary of key information and findings provided below.

The loads assessment was undertaken to:

- estimate the mine derived loads discharged to the McArthur River in managed releases during the reporting period;
- compare the annual managed release loads discharged to the McArthur River since the 2017/18 reporting period; and
- compare the managed release loads to the background loads in McArthur River (at SW21) and Glyde River (at SW09) during the reporting period.

Analyte loads for the reporting period were estimated using the following methodology:

1. Daily managed release volumes:
 - a. Daily managed release volumes were obtained from the flowmeters used to monitor the various discharge and release points.
2. Daily surface water volumes:
 - a. Daily streamflow volumes at the MIM Pump gauging station were obtained from the NT Government website and applied to calculations at SW21; and
 - b. Glyde River flow was derived by subtracting flow at SW21 (McArthur River upstream), SW02 (Surprise Creek), SW04 (Barney Creek) and SW31 (Emu Creek) from the flow at the SW11 (McArthur River downstream) gauging station.
3. Daily analyte concentrations:
 - a. Analyte concentrations at monitoring points (e.g., source waters or creeks and rivers) were typically recorded on a daily timestep when managed releases occurred and a weekly timestep when managed releases were not occurring. Where daily concentrations were unavailable, linear interpolation between the recorded data points was used; and
 - b. Water quality values that were listed as below the LOR were assumed to be equal to the LOR value, which likely overestimated the concentration (and therefore the estimated loads).
4. Annual analyte load estimation:
 - a. The annual analyte loads for a given period were estimated by:
 - i. Multiplying the interpolated daily concentrations by the interpolated daily volumes to give an estimated daily load; and
 - ii. Summing the estimated daily loads over the annual reporting period.

In load assessments, total concentrations (dissolved plus particulate) are considered more environmentally relevant, particularly for analytes that may settle into bed sediments, where they pose a risk of bioaccumulation in sediment-ingesting biota and subsequent biomagnification through the aquatic food chain.

5.2 Background and Managed Release Loads

5.2.1 2024/25 load estimates

Loads estimates are presented in Table 8, and include the McArthur River and Glyde River upstream of the Mine (at SW21 and SW09 respectively), and the mine derived loads discharged to the McArthur River in managed releases.

Given the array of inherent uncertainties in the calculation of loads in natural systems such as the McArthur River, there are a number of limitations in the current assessment. These include (WRM, 2025b):

- There is a naturally high uncertainty in estimating loads in natural systems due to their dynamic nature and natural variability. Weekly or even daily water quality measurements may not capture a number of the natural processes that affect water quality during a flow event. Hence, there is a level of uncertainty in the loads estimated, particularly those for natural surface water reporting locations; and
- It is very difficult to accurately measure every source of water in a dynamic system such as the McArthur River and the Mine to the point that the sum of pre-mine analyte loads and mine derived analyte loads will equal the post-mine loads. As such, it is considered impossible to achieve an accurate metal balance.

The following observations can be made from WRM (2025b):

- The McArthur River flow volume passing the SW11 gauging station was approximately 2.5 % higher than the flow volume passing the pre-mine gauging stations of SW21 and SW09 for the reporting period. This is mainly due to the contribution of natural surface water sources including the Barney Creek, Surprise Creek, Emu Creek and Bull Creek.
- Increases in the McArthur River loads due to managed releases from the Mine were generally less than 10 % except for analytes filtered boron (B), filtered Mn, total and filtered Tl; the major ions calcium (Ca), chloride (Cl), magnesium (Mg), sodium (Na), and SO₄; and total dissolved solids (TDS).
- The estimated managed release loads of total Pb and total Zn discharged to the McArthur River during the reporting period were notably lower than those recorded in the 2017/18 baseline year, consistent with Recommendation 3 of the NT Environment Protection Authority (EPA) Assessment Report 86.
- The natural background (pre-mine) total lead load transported by the McArthur River during the reporting period was estimated at 2,236 kg. The total lead released to the McArthur River in managed release (3.3 kg) represents 0.15 % of the total load transported from the background McArthur River.
- The natural background (pre-mine) total zinc load transported by the McArthur River during the reporting period was estimated at 8,401 kg. The total zinc released to the McArthur River in managed release (87 kg) represents 1.04 % of the total load transported from the background McArthur River.

TABLE 8: REPORTING PERIOD BACKGROUND AND MANAGED RELEASE LOADS

Parameter	Unit	SW21 + SW09 (pre-mine)	Managed Releases from the Mine	Percentage Increase
Total Flow	ML	560,124	1,129.5	0.20%
Filtered Al	kg	28,735	8.3	0.03%
Total Al	kg	5,435,311	64.0	0.00%
Filtered As	kg	323	1.9	0.57%
Total As	kg	1,283	2.9	0.22%
Filtered Sb	kg	112	1.9	1.66%
Total Sb	kg	158	2.1	1.30%
Filtered Ba	kg	41,278	26.9	0.07%
Total Ba	kg	72,010	26.6	0.04%
Filtered B	kg	10,587	1,070.0	10.11%
Total B	kg	16,168	1,194.8	7.39%
Filtered Cd	kg	112	0.3	0.25%
Total Cd	kg	112	0.3	0.29%
Filtered Cr	kg	280	1.9	0.67%
Total Cr	kg	6,137	5.7	0.09%
Filtered Co	kg	560	1.3	0.24%
Total Co	kg	1,600	1.4	0.09%
Filtered Cu	kg	564	1.1	0.20%
Total Cu	kg	2,505	1.1	0.05%
Filtered Fe	kg	56,704	8.4	0.01%
Total Fe	kg	5,124,323	70.7	0.00%
Filtered Pb	kg	280	0.8	0.27%
Total Pb	kg	2,236	3.3	0.15%
Filtered Mn	kg	1,112	203.8	18.33%
Total Mn	kg	46,781	252.5	0.54%
Filtered Hg	kg	6	0.01	0.21%
Total Hg	kg	28	0.1	0.20%
Filtered Mo	kg	126	8.6	6.79%
Total Mo	kg	560	8.6	1.53%
Filtered Ni	kg	562	1.5	0.27%
Total Ni	kg	2,897	2.0	0.07%
Filtered Ag	kg	280	0.6	0.20%
Total Ag	kg	560	1.1	0.20%
Filtered Tl	kg	56	29.1	51.92%
Total Tl	kg	78	29.1	37.31%
Filtered U	kg	560	1.1	0.20%
Total U	kg	560	1.1	0.20%
Filtered V	kg	1,018	1.1	0.11%
Total V	kg	12,470	2.8	0.02%
Filtered Zn	kg	1,124	35.5	3.16%
Total Zn	kg	8,401	87.0	1.04%
Ca	tonnes	5,440	591.9	10.88%
Cl	tonnes	2,602	351.3	13.50%
K	tonnes	1,641	69.1	4.21%
Na	tonnes	1,687	482.8	28.62%
NO ₃	tonnes	191	0.5	0.28%
Mg	tonnes	4,637	1,605.6	34.63%
SO ₄	tonnes	1,215	8,132.6	669.28%
Bicarbonate	tonnes	31,501	83.1	0.26%
Carbonate	tonnes	1,671	19.5	1.17%
TDS	tonnes	44,374	12,948.6	29.18%
TSS	tonnes	97,796	13.0	0.01%

kg = kilograms, TDS = total dissolved solids, TSS = total suspended solids

5.2.2 Comparison of 2017/18 Managed Release Loads

The NT EPA Assessment Report 86 (under Recommendation 3) recommended that the annual loads of Pb and Zn released to the McArthur River each year should not be elevated beyond the loads released over the 2017/18 period (see WRM, 2019), considering seasonal variations in rainfall and subject to future annual load calculations. Load limits on total Zn and total Pb in managed release waters are therefore provided as a commitment in the Mine's environmental management plans.

The annual managed release loads for total Pb and total Zn for the previous five years have been compared to the managed release loads for the 2017/18 period (Chart 55). The following is of note regarding the managed releases loads during the reporting period:

- The total lead load (3.3 kg) discharged in managed release waters over the 2024/25 reporting period was lower than the load discharged in the 2017/18 reporting year (15.8 kg); and
- The total zinc load (87 kg) discharged in managed release waters over the 2024/25 reporting period was lower than the load discharged in the 2017/18 reporting year (3,429 kg).

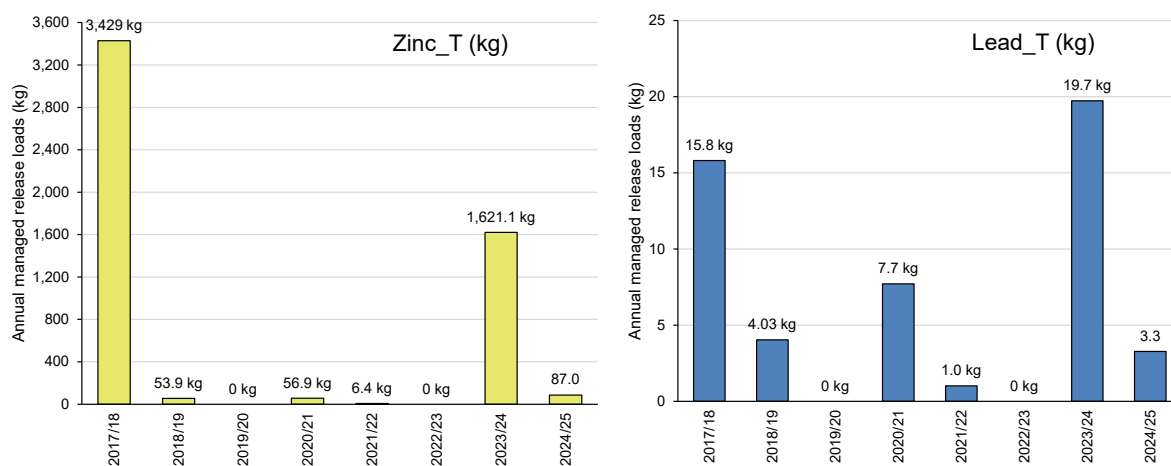


Chart 55: Comparison of Total Zinc and Total Lead Loads in managed releases from 2017/18 to 2024/25

6 Discussion

During the reporting period, all water quality results collected at the compliance monitoring points were compared to the relevant SSTVs in the WDL. Any results beyond the SSTVs at the compliance points were investigated to determine the contributing factors and potential environmental risk. Factors investigated included:

- whether managed release was occurring at the time;
- other potential contributions from MRM's operations; and
- comparison to water quality results at upstream control sites (e.g. catchments unaffected by the Mine, such as the Glyde River and the upstream McArthur River).

In addition, any water quality results that triggered a notifiable incident under Schedule 1 Item 10 of the WDL required the investigation report to be submitted to the NT DLPE.

During the reporting period there were four (4) instances when measured concentrations at SW11 were beyond the SSTVs (Table 9). These instances were related to DO and pH. None of these events constituted notifiable incidents under the conditions of the WDL, as no sample exceeded three times its SSTV, nor were there any exceedances of an SSTV on three consecutive sampling occasions.

At the BBDDP, there were no samples obtained due to cease to flow conditions. Hence, there were no instances when measured concentrations were beyond the SSTVs during the reporting period.

6.1 Review of SW11 Monitoring Data and SSTVs

The section below provides further details on the analytes for which concentrations were elevated beyond the SSTVs at SW11 (pH and DO).

During the reporting period, there were two instances when a measured concentration was beyond the SSTV at SW11 while managed releases were occurring (Table 9). However, subsequent investigations determined that managed releases did not contribute to the results beyond the SSTVs at SW11. WRM (2025a) reviewed the relevant investigations and agreed with the findings.

6.1.1 McArthur River pH

pH at SW11 was measured outside the SSTV range on one (1) occasion during the reporting period (14 Jul 2024), with the measured value above the maximum SSTV (8.5) by 0.05 pH units. This occasion did not trigger a notifiable incident under Schedule 1 Item 10 of the WDL, and managed releases were not occurring at the time.

An investigation of available information indicated that the result beyond the SSTV could not be attributed to MRM or its operations. A review of the available data demonstrated that natural river processes can cause pH in the McArthur River and its tributaries to vary, resulting, in this case, with a pH slightly higher than the upper limit of the WDL trigger. This is supported by the long-term dataset (see Section 4.5.1).

6.1.2 McArthur River Dissolved Oxygen

DO saturations at SW11 were measured outside the SSTV range on three (3) occasions during the reporting period (24 Nov 2024, 13 Feb 2025, 25 Mar 2025). The first value was above the upper SSTV limit of 120 % saturation, while the second two values respectively were less than the lower SSTV limit of 85 % saturation. None of these events triggered a notifiable incident under Schedule 1 Item 10 of the WDL.

An investigation of the available information determined that the SW11 result measured above the upper SSTV limit could not be attributed to MRM or its operations. No managed releases were occurring at the time, and the monitoring data indicated that DO saturations in the McArthur and Glyde rivers were highly variable on the

sampling date. Upstream sites recorded values both above and below the SSTV range. In general, upper control sites (e.g., SW21 and SW09) exhibited DO saturations below the SSTV, whereas sites along the Diversion Channel recorded values slightly above the upper SSTV limit, consistent with the SW11 result. The observed variability is likely associated with natural catchment-scale processes. At the time, the system was recovering from an early flush event at the onset of the wet season, which likely contributed to the inconsistent DO saturations recorded across the different sites, including at the SW11 compliance point.

Investigations of the available information also determined that the SW11 results measured below the lower SSTV limit could not be attributed to MRM or its operations. Although managed releases were occurring at these times, DO saturations in all discharge source waters were within the SSTV range, indicating that these releases were unlikely to be contributing factors.

A review of monitoring data showed that DO saturations below the SSTV were frequently recorded at multiple sites along the McArthur and Glyde rivers during certain stages of the wet season (see Section 4.5.3), including sites located outside the influence of the Mine (e.g., SW21 and SW09). The two low DO results at SW11 were not sustained, with readings returning to within the SSTV range during subsequent sampling events. These results indicate that the observed DO triggers at SW11 were most likely associated with natural catchment variation.

6.2 Review of BBDDP Monitoring Data and SSTVs

As described in the WDL, the dredge spoil perimeter drain exit point (i.e., the authorised discharge and compliance monitoring point BBDDP) is located on the tidal mudflats to the east of the BBLF. The dredge spoil perimeter drain is constructed around the external boundary of the DSEA to intercept saline water (i.e., runoff or seepage from the dredge spoil emplacement area). The drain receives minimal water outside periods of active dredge slurry emplacement, particularly during below average rainfall years.

6.2.1 Bing Bong Loading Facility Surface water monitoring

The BBDDP is required to be sampled weekly during active dredging. No dredging occurred during the reporting period and therefore weekly sampling was not required. The BBDDP was inspected monthly in accordance with WDL 174-16, however, samples were not taken due to the sample point being dry or having no observed flow.

TABLE 9: REVIEW OF ANALYTE RESULTS AGAINST WDL SSTVS

Site	Sample Date	Analyte Result		Occurred during Managed Release?	Related to Managed Release?	Notifiable Incident Triggered?	Related to MRM Operations?
	Water Quality Parameter	DO	pH				
		% sat	pH units				
SSTV	85 – 120	8.0 – 8.4					
SW11	14 July 2024	-	8.55	No	No	No	No
SW11	24 November 2024	123.9	-	No	No	No	No
SW11	13 February 2025	82.7	-	Yes	No	No	No
SW11	25 March 2025	80.4	-	Yes	No	No	No

7 Conclusion

This Monitoring Report has been submitted in accordance with Schedule 1 Item 13 of WDL 174-16 and covers the reporting period 1 May 2024 to 30 April 2025. Site surface water monitoring data and mine derived loads for the reporting period have been assessed by WRM (2025a and 2025b respectively).

In addition to addressing the requirements of WDL 174-16, the objectives of the monitoring programs are to help inform the assessment of MRM's performance against its key environmental objectives, which are as follows:

- Protect the McArthur River's beneficial uses and community values from mining impacts;
- Facilitate development of the ecosystems and their functions along the McArthur River Diversion Channel for terrestrial and aquatic flora and fauna;
- Achieve a recovering trend in the water quality and ecosystem function in creeks on the Mine site within 20 years of cessation of mining;
- Minimise air quality related impacts from the Mine's operations with respect to community health and environment; and
- Protect the community values and beneficial uses adjacent to the BBLF and transshipment corridor.

During the reporting period:

- Natural flow in the McArthur River at the SW11 compliance point persisted throughout the dry season, mainly due to the record catchment rainfall and runoff received in the previous reporting period from Ex-TC Megan;
- A total of 10,758 t of hydrated lime was used to treat 5,650 ML of mine waters;
- Due to excess site water, a total of 1,129.5 ML of water was released to the McArthur River in accordance with conditions of the WDL and DML;
- Investigations determined that results recorded at SW11 outside the SSTVs during managed release events were unrelated to managed release activities;
- Dredging did not occur over the reporting period and dredge spoil was not actively emplaced at the BBLF; and
- The BBDDP compliance point experienced cease to flow or dry conditions for all the scheduled sampling events during the reporting period.

Throughout the reporting period, pH in the McArthur River was circa neutral to slightly alkaline across all monitoring locations, with results generally consistent between upstream and downstream sites relative to the Mine. All EC and SO₄ results at the SW11 compliance point remained below their respective SSTVs during the reporting period. Filtered metal concentrations in the McArthur River were consistently low, including for key metals of potential concern. At SW11, all filtered metal results also remained below their respective SSTVs.

At SW11, one pH measurement and three dissolved oxygen measurements were recorded outside the SSTV ranges. None triggered a notifiable incident under the WDL conditions. Each result was investigated and determined to be unrelated to mining activities, with monitoring data indicating influences from upstream catchments (McArthur and Glyde rivers), consistent with previous years' results.

Managed release and background McArthur River loads were assessed during the reporting period. The assessment indicated that load increases attributable to managed releases from the Mine were generally less than 10 %, except for analytes filtered B, filtered Mn and total and filtered TI; the major ions Ca, Cl, Mg, Na, and SO₄; and TDS.

The estimated managed release loads of total lead (3.3 kg) and total zinc (87 kg) discharged to the McArthur River during the reporting period were notably lower than those recorded in the 2017/18 baseline year, consistent with Recommendation 3 of the NT Environment Protection Authority (EPA) Assessment Report 86.

The natural background (pre-mine) total lead load transported by the McArthur River during the reporting period was estimated at 2,236 kg, with managed releases contributing an additional 0.15 % to the background load. For total zinc, the natural background load was estimated at 8,401 kg, with the managed release contributing an additional 1.04 % to the background load.

Based on the review of surface water quality monitoring data between 1 May 2024 and 30 April 2025, WRM (2025a) concluded that:

MRM continued to implement effective controls to minimise the risk of environmental harm of downstream receiving waters due to Mine operations. The review concluded that, during the reporting period, the beneficial uses and community values of the McArthur River were protected from potential mine derived impacts.

...

There were no mine derived SSTV exceedances or notifiable incidents recorded at the SW11 compliance point in the McArthur River during the reporting period. The SSTV exceedances recorded at SW11 during the reporting period were unrelated to mine activities and were a result of natural river processes and contributions from sources upstream of the Mine.

MRM will continue to implement the existing monitoring program in accordance with conditions of the current WDL and DML.

8 Certification

I, Ben McTavish, have reviewed this report and I confirm that to the best of my knowledge and ability all the information provided in the report is true and accurate.

A handwritten signature in black ink, appearing to read 'B. McTavish', with a long horizontal flourish extending to the right.

Ben McTavish
Superintendent - Environment
McArthur River Mining Pty Ltd

27/8/2025

9 References

Australian and New Zealand Environment and Conservation Council and the Agriculture and Resource Management Council of Australia and New Zealand (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*.

Australian and New Zealand Governments (2018) *ANZ Guidelines for Fresh and Marine Water Quality*.

Department of Environment and Science (2018) *Environmental Protection (Water) Policy – Monitoring and Sampling Manual: Sampling design and preparation*.

Indo-Pacific Environmental (2019) Memorandum; *Recommendations on potential bund heights within the Barney Creek Channel*.

Northern Territory Environmental Protection Authority (2013) *Guidelines on Mixing Zones*.

Northern Territory Environmental Protection Authority (2018) *McArthur River Mining Pty Ltd – McArthur River Mine Overburden Management Project Assessment Report 86*.

WRM Water & Environment Pty Ltd (2019) *Mine Derived Analyte Loads Assessment 2017/18*.

WRM Water & Environment Pty Ltd (2025a) *Surface Water Monitoring Report 2024/25*.

WRM Water & Environment Pty Ltd (2025b) *Mine Derived Analyte Loads Assessment 2024/25*.

10 Abbreviations

Acronym	Definition
%	Percent
ANZECC	Australian and New Zealand Environment and Conservation Council
ANZG	Australian and New Zealand Governments
BBDDP	Bing Bong Dredge Spoil Discharge Point
BBLF	Bing Bong Loading Facility
CERP	Central East Release Point
DLPE	Department of Lands, Planning and Environment
DML	Deemed Mining Licence
DP	Discharge point
EMR	Environmental Monitoring Report
EPA	Environment Protection Authority
IPE	Indo-Pacific Environment
kg	Kilograms
km	Kilometres
L/s	Litres per second
LOR	Limit of reporting
m	Metres
m ³ /s	Cubic metres per second
mg/L	Milligrams per litre
ML	Megalitres
MLDP	Mine Levee Discharge Point
MLN	Mineral Lease Northern
MRDC DP	McArthur River Diversion Channel Discharge Point
MRM	McArthur River Mining Pty Ltd
NOEF	Northern Overburden Emplacement Facility
NOEF SEL1	South-East Levee 1
NOEF SEPROD	South-Eastern Perimeter Runoff Dam
NOEF SPROD	South Perimeter Runoff Dam
NT	Northern Territory
OP P2	Pond 2
OP NC1A	Northern Crossing 1A
RP	Release Point
RPD	Relative percentage difference
SEL1 DP	South-East Levee 1 Discharge Point
SOCS	sites of conservation significance
SSTV	Site-specific trigger values
the Mine	McArthur River Mine
TSF WMD	Water Management Dam
WDL	Waste Discharge Licence
WRM	WRM Water & Environment Pty Ltd
µg/L	micrograms per litre
µS/cm	Microsiemens per centimetre

Appendix A
Quality Assurance

All surface water samples have been collected according to MRM management plans and procedures and the requirements of WDL 174-16 (Conditions 32, 33 and 35), which includes:

- Collection of samples in accordance with the Monitoring Program or in connection with the Licensed Action or this licence, are obtained by, or under the supervision of a qualified sampler;
- All samples are analysed at a laboratory with current NATA accreditation or equivalent; and
- Detection and reporting limits are appropriate to determine compliance with this licence.

The following information is recorded for each sample collected:

- Date on which the sample was collected;
- Time at which the sample was collected;
- Location at which the sample was collected;
- Name of the person who collected the sample;
- Chain of custody forms relating to the sample;
- Field measurements (if any) and analytical results (if any) relating to the sample; and
- Laboratory quality assurance and quality control documentation.

Quality assurance and quality control is routinely undertaken as part of the natural surface water monitoring program. This includes collection of duplicate samples and analysis of both field and laboratory 'blank' samples. Quality assurance and quality control undertaken for the natural surface water monitoring program was assessed in WRM (2025a).

To monitor the consistency of the laboratory instruments used to measure water quality and examine the variability introduced during sample collection and preparation, MRM frequently collects duplicate water samples as part of the monitoring program. The relative percentage difference (RPD) between these duplicate analyses and the original analytical result provides a useful measure of instrumental consistency.

The relationship between concentrations of analytes (i.e., filtered primary metals, total primary metals and major ions) in the original samples and concentrations of the analytes in the blind duplicate samples are presented on Chart A1 to Chart A3. These charts also show the generally acceptable upper and lower bands for duplicate variability. According to DES (2018), samples with RPD values $\leq 20\%$ indicate an acceptable result. However, for samples that are at or close to the limit of reporting (LOR) (less than 10 times the LOR), DES (2018) permits the RPD to exceed 20 %.

The following is of note regarding the duplicate sample analysis undertaken across the entire natural surface water monitoring network during the reporting period:

- For primary filtered metals, a total of 75 duplicate samples (1,500 analyte measurements) were collected during the reporting period. Of the 1,500 analyte measurements, 123 were beyond 20 % of the RPD. However, only 33 of these measurements had concentrations greater than ten times the LOR. The 33 instances were:
 - Filtered Aluminium in 1 duplicate sample;
 - Filtered Barium in 1 duplicate sample;
 - Filtered Boron in 13 duplicate samples;
 - Filtered Iron in 10 duplicate samples; and
 - Filtered Manganese in 8 duplicate samples.
- For primary total metals, a total of 75 duplicate samples (1,500 analyte measurements) were collected for primary total metals during the reporting period. Of the 1,500 analyte measurements, 216 were beyond 20 % of the RPD. However, only 69 of these measurements had concentrations greater than ten times the LOR. The 69 instances were:

- Total Aluminium in 14 duplicate samples;
- Total Barium in 1 duplicate sample;
- Total Boron in 17 duplicate samples;
- Total Chromium in 1 duplicate sample;
- Total Iron in 19 duplicate samples;
- Total Manganese in 13 duplicate samples;
- Total Lead in 1 duplicate sample;
- Total Vanadium in 2 duplicate samples; and
- Total Zinc in 1 duplicate sample.

For major ions, a total of 75 duplicate samples (525 analyte measurements) were collected for major ions during the reporting period. Of the 525 analyte measurements, 45 were beyond 20 % of the RPD. However, only 8 of these measurements had concentrations greater than ten times the LOR. The 8 instances were:

- Sulphate in 2 duplicate samples;
- Chloride in 4 duplicate samples;
- Nitrate in 1 duplicate sample; and
- Sodium in 1 duplicate sample.

None of these results are indicative of instrument malfunction or procedural errors, and the analytical reproducibility indicated is adequate for monitoring of natural surface water. Overall, the duplicate results show low variability which provides a high degree of confidence in the monitoring program data.

Blank water samples are routinely analysed to check that the analytical instruments are not reporting erroneously high values (e.g. due to contamination or instrument malfunction). 148 blank samples were prepared and sent for analysis from the surface water monitoring program during the reporting period. In general, the quality of the blanks was very high, with most target analytes below the limit of detection. The results provide further confidence in the monitoring program data. Further details of the quality assurance results are provided in WRM (2025a) in Attachment 2.

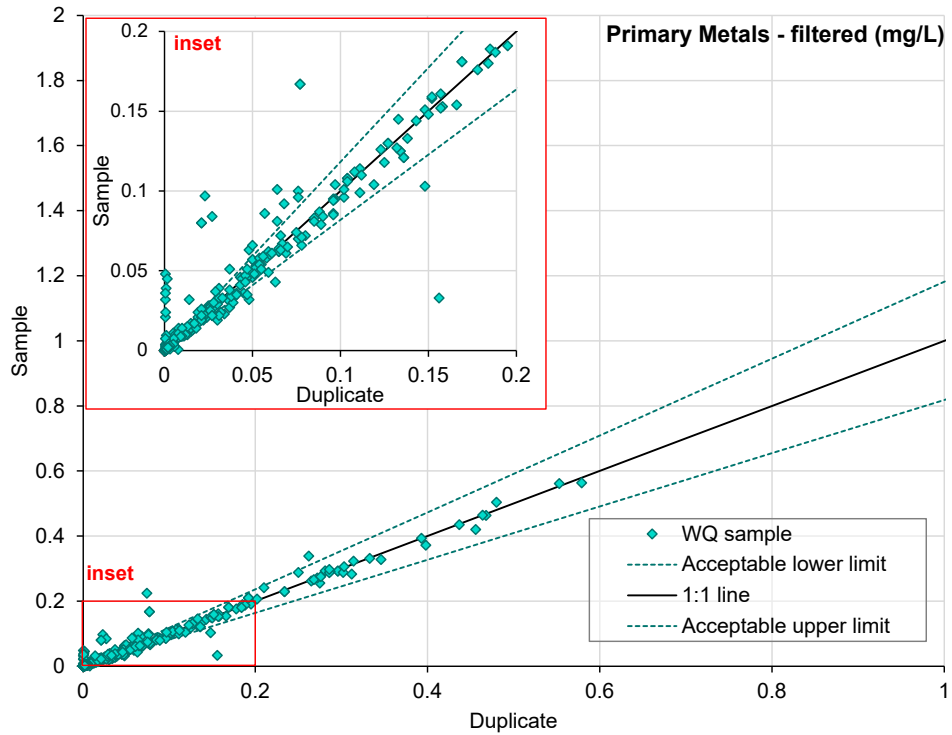


Chart A1: Relationship Between Filtered Primary Metal Concentrations in Samples and Blind Duplicates

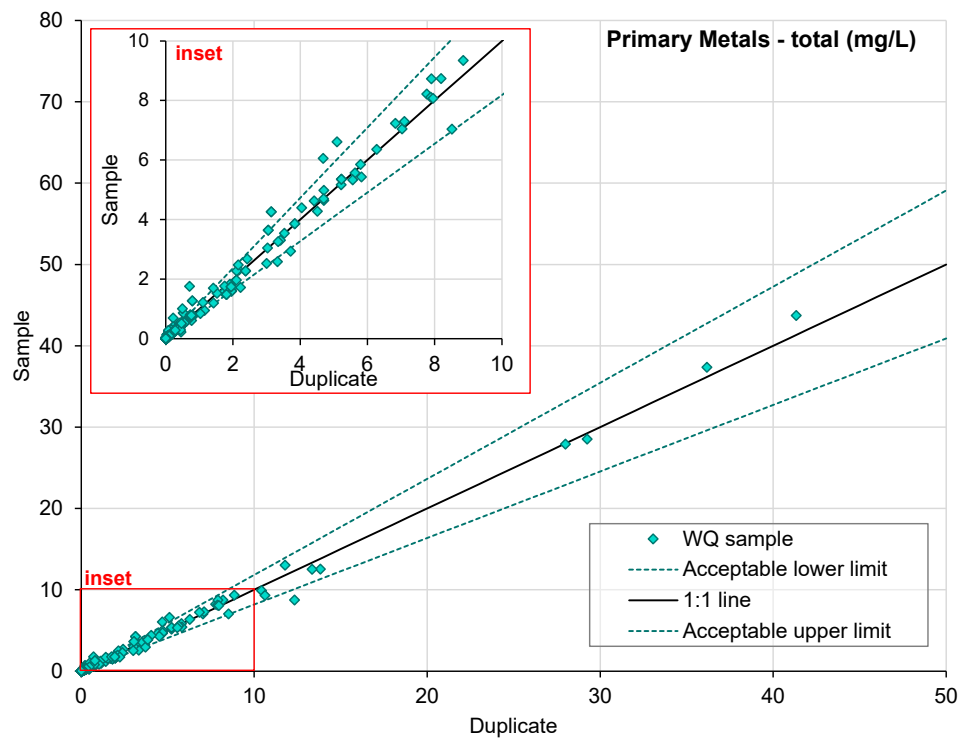


Chart A2: Relationship Between Total Primary Metal Concentrations in Samples and Blind Duplicates

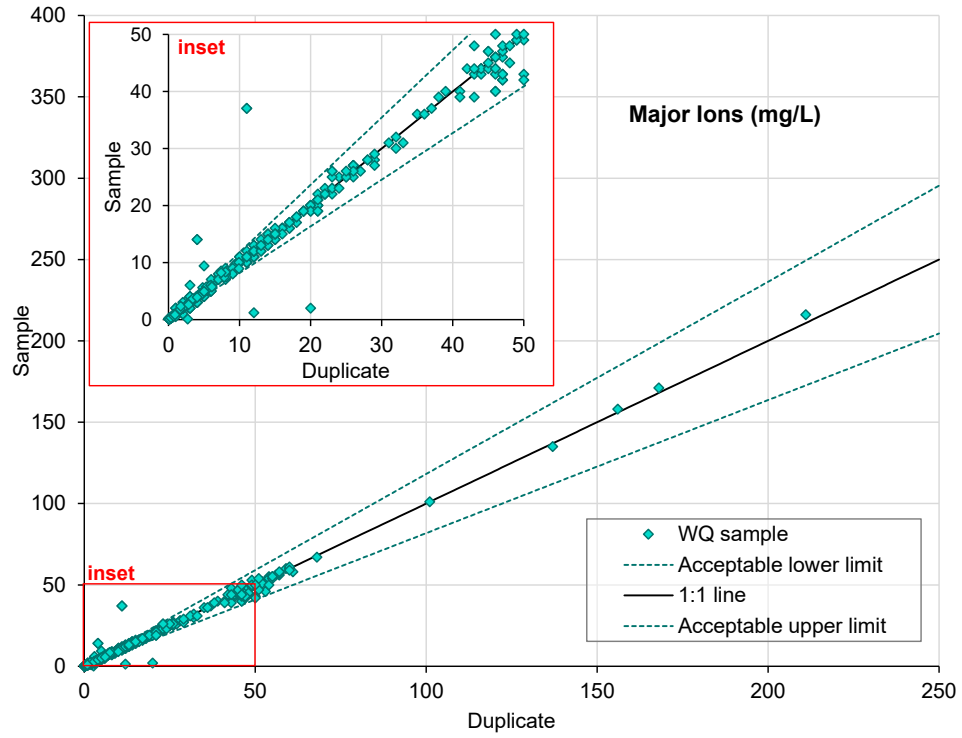


Chart A3: Relationship Between Major Ion Concentrations in Samples and Blind Duplicates

Attachment 1

Waste Discharge Licence 174-16



Northern
Territory
Government

WASTE DISCHARGE LICENCE

(Pursuant to section 74 of the *Water Act 1992*)

Licensee	McArthur River Mining Pty Ltd
Licence Number:	WDL174-16
Registered Business Address:	Level 44, 1 Macquarie Place Sydney NSW 2000
ACN:	008 167 815
ABN:	90 008 167 815
Commencement Date:	26 May 2023
Amendment Date:	17 November 2024
Expiry Date:	25 May 2025
Licensed Action:	Controlled discharge of mine-affected wastewater from <ul style="list-style-type: none">• Mine Lease Northern (MLN) 1121, 1122, 1123, 1124 into the McArthur River; and• MLN 1126 into marine waters at the Bing Bong Loading Facility. subject to the conditions of this licence.

WASTE DISCHARGE LICENCE (WDL174-16)

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WASTE DISCHARGE LICENCE (WDL174-16)

INFORMATION ABOUT THIS LICENCE

This waste discharge licence is granted pursuant to section 74 of the *Water Act 1992* (NT) (Water Act), which empowers the Controller of Water Resources to, in accordance with the Water Act, grant a licence to a person to carry out an action that would otherwise be an offence against this Act.

Responsibilities of Licensee

- In addition to the conditions set out in this licence, general responsibilities of Licensees are set out in the *Waste Management and Pollution Control Act 1998* (NT) (WMPC Act), the Water Act and the Water Regulations 1992 (NT) (Water Regulations).
- It is an offence under the Water Act, if the holder of a waste discharge licence contravene or cause, suffer or permit a person to contravene a term or condition to which the waste discharge licence is subject (s 76 Water Act).
- Except as expressly provided for in this licence or applicable law, it is an offence under section 16 of the Water Act to wilfully cause or cause, directly or indirectly:
 - waste to come into contact with water; or
 - water to be polluted.

Duration of Licence

- This licence will remain in force until its Expiry Date, it is surrendered by the Licensee, or until it is suspended or revoked by the Controller of Water Resources.
- A Licensee may surrender its licence at any time (s 94 Water Act).
- If the Licensee wishes to surrender its licence it should complete the notification form available from the Administering Agency.
- Once a licence is surrendered, the authority to allow waste to come into contact with water or water to be polluted ends, and causing waste to come into contact with water or water to be polluted is an offence pursuant to section 16 of the Water Act.

Amendment, Modification or Revocation of Licence

- As set out in section 93 of the Water Act, the Controller of Water Resources may, by notice served on the holder of the licence:
 - amend or modify the terms and conditions of a licence; or
 - where the Controller of Water Resources is satisfied that the holder of the licence has contravened or failed to comply with a term or condition of the licence or of any other licence previously held by the person for a similar purpose during the 12 months immediately preceding the grant of the first-mentioned licence, the Controller of Water Resources may:
 - revoke a licence; or
 - suspend a licence.

Transfer of Licence

- Where a waste discharge licence is granted to a person in relation to the person's use of land and, during the period of this licence, the person's interest in the land is transferred to another person, the waste discharge licence shall be deemed to have also been transferred to the other person (s 92 Water Act).

WASTE DISCHARGE LICENCE (WDL174-16)

- The Licensee must ensure the contact details recorded with the Administering Agency for the licence are correct at all times in accordance with condition 6. Accordingly, it is recommended the transferee complete the notification of transfer of a waste discharge licence form available from the Administering Agency.

Public Register

- A copy of this Licence will be placed on the Register in accordance with section 95 of the Water Act.
- A copy of plans for environmental management, reports, submissions or documents provided at Schedule 1 Item 14 will be placed on the Register.
- The Register is freely available from the Northern Territory Environment Protection Authority (NT EPA) website.

Water Quality Standards

- The Administrator may declare, by notice in the *Gazette*, a beneficial use, quality standard, criteria or objectives which apply in relation to any waste or class of waste, or water or class of water (s 73 Water Act).
- A water or waste beneficial use, quality standard, criteria or objectives declared under s 73 of the Act and in force is an Environment Protection Objective for the purposes of the WMPC Act (s 18 WMPC Act).
- An Environment Protection Objective is a statutory instrument to establish principles on which:
 - Environmental quality is to be maintained, enhanced, managed or protected;
 - Pollution, or environmental harm resulting from pollution, is to be assessed, prevented, reduced, controlled, rectified or cleaned up; or
 - Effective waste management is to be implemented or evaluated.
- Schedule 1 Item 1 specifies the beneficial use, quality standard, criteria or objective relevant to this licence at the date of issue.

Environmental Interests

- Environmentally sensitive or significant areas may be captured by and protected under the *Environment Protection Act 2019* (NT) and/or the *Environment Protection and Biodiversity Conservation Act 1999* (Cth). As such, and to best protect and regulate our waterways, waste discharge licences must identify the sensitivity of the environment surrounding the location of the Licensed Action.
- Schedule 1 Item 2 specifies the sites of conservation significance (if any) relevant to this licence at the date of issue.
- Schedule 1 Item 3 specifies the Ramsar wetlands (if any) relevant to this licence at the date of issue.

Cultural Interests

- Under Commonwealth and Northern Territory laws it can be an offence to enter or remain on or damage a sacred site.
- Sites of Aboriginal significance including registered and recorded Aboriginal sacred sites may exist in the vicinity of the Licensed Action.
- It is the Licensee's responsibility to contact the Aboriginal Areas Protection Authority, appropriate land council or other governing body and ensure that any authority certificates required as a result of conducting the Licensed Action are obtained and complied with.
- Further specific advice on any cultural requirement or implication of the Licensed Action should be sought from the relevant land council and the Aboriginal Areas Protection Authority.

WASTE DISCHARGE LICENCE (WDL174-16)

END NOTES

WDL174-1 was issued on 14 December 2010.

WDL174-2 was a renewal and superseded WDL 174-1, and was issued on 21 December 2011.

WDL174-3 was an amendment and replaced WDL 174-2, and was issued on 17 August 2012.

WDL174-04 was a renewal and superseded WDL 174-3, and was issued on 4 January 2013.

WDL174-05 was an amendment and replaced WDL 174-04, and was issued in January 2013.

WDL174-06 was an amendment and replaced WDL 174-05, and was issued on 19 March 2014.

WDL174-07 was a renewal and superseded WDL 174-06, and was issued on 16 January 2015.

WDL174-08 was an amendment and replaced WDL 174-07, and was issued on 17 March 2016.

WDL174-09 was a renewal and superseded WDL 174-08, and was issued on 28 October 2016.

WDL174-10 was a renewal and superseded WDL 174-09, and was issued on 28 April 2017.

WDL174-11 was a renewal and superseded WDL174-10, and was issued on 27 May 2019.

WDL174-12 was a renewal and superseded WDL174-11, and was issued on 25 May 2021.

WDL174-13 was an amendment that replaced WDL174-12, and was issued on 10 March 2022.

WDL174-14 was a renewal and superseded WDL174-13, and was issued on 25 May 2023.

WDL174-15 was an amendment that replaced WDL174-14, and was issued on 27 March 2024.

This licence is an amendment and replaces WDL 174-15.

The end notes are to assist with historical records.

WASTE DISCHARGE LICENCE (WDL174-16)

SCHEDULE 1 - ITEMS

Item	Detail	
1. Beneficial uses (condition 19)	<p><u>Marine and tidal waters:</u> McArthur River Area: Aquatic ecosystem protection, recreational water quality and aesthetics (Gazette G9 11 March 1998 and G20 27 May 1998 (corrigendum)).</p> <p><u>McArthur River catchment:</u> McArthur River Catchment Area: Environment, cultural and riparian (Gazette G10 14 March 2001).</p>	
2. Sites of conservation significance (condition 19)	SOCS Number 33: Sir Edward Pellew Island group; SOCS Number 34: McArthur River coastal floodplain; and SOCS Number 35: Borroloola area.	
3. Ramsar wetlands (condition 19)	Not applicable	
4. Licence Documents (condition 13)	(a) Emergency Response Plan McArthur River Mining (b) Communication Plan Waste Discharge Licence (WDL174) (c) Adaptive Management Plan McArthur River Mine	
5. Authorised Discharge Points (condition 20)	Authorised discharge points as listed in Appendix 2:	
	Mine Levee Discharge Point (MLDP)	Latitude: -16.427423 Longitude: 136.111403
	South-East Levee 1 Discharge Point (SEL1 DP)	Latitude: -16.423824 Longitude: 136.108302
	McArthur River Diversion Channel Discharge Point(s) (MRDC DP)	Latitude: -16.435385 Longitude: 136.120196
	Bing Bong Dredge Discharge Point (BBDDP)	Latitude: -15.629683 Longitude: 136.394778
6. Sources of waste (condition 21)	Mine Levee Discharge Point (MLDP)	<ol style="list-style-type: none"> 1. Water from the Water Management Dam. 2. Treated water from the Water Treatment Plant via Pond 2 (P2). 3. Groundwater from dewatering bores around main pit collected in and then discharged from Pond 2 (P2). 4. Rain water collecting in the old McArthur River Channel (NC1A) inside the Mine levee.
	South-East Levee 1 Discharge Point (SEL1 DP)	Rainwater runoff, separated from all contaminated seepages, collected in, and discharged from the South-East Levee 1.

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Item	Detail	
	McArthur River Diversion Channel Discharge Point(s) (MRDC DP)	<ol style="list-style-type: none"> 1. Water from the Water Management Dam. 2. Treated water from the Water Treatment Plant via Pond 2 (P2). 3. Groundwater from dewatering bores around main pit collected in and then discharged from Pond 2 (P2)
	Bing Bong Dredge Discharge Point (BBDDP)	<p>The Bing Bong Dredge Discharge Point (BBDDP) receives overflow from:</p> <ol style="list-style-type: none"> 1. the final dredge spoil emplacement area cell when in operation; 2. saline water from the perimeter drain which surrounds the dredge spoil emplacement area. <p>For the purposes of clarity, this licence does not authorise dredging and/or pumping or disposal of dredge slurry to the Dredge Spoil Emplacement Area.</p>
7. Trigger values (condition 21)	The limits for parameters listed in Appendix 3.	
8. Compliance points (condition 21)	SW11 as shown on the plan at Appendix 2, Figure 3.	Latitude: -16.407386 Longitude: 136.144785
	BBDDP as shown on the plan at Appendix 2, Figure 5.	Latitude: -15.629683 Longitude: 136.394778
9. Limitations on discharge (condition 21)	Authorised discharge must only occur in accordance with MRM Waste Discharge Procedure PRO-OP-0008-2200035. Discharge from SEL1 DP can only occur when flow as measured in the McArthur River at the downstream gauging station (SW11) is in excess of 20m ³ /s.	
10. Notifiable incidents (conditions 25 and 26)	<ol style="list-style-type: none"> (a) An exceedance of a trigger value specified in Item 7 at the compliance point in Item 8, on three consecutive sampling occasions; (b) A measurement outside the range for pH or dissolved oxygen specified in Item 7 at the compliance point in Item 8, on three consecutive sampling occasions; (c) An exceedance of three or more times a trigger value specified in Item 7 at the compliance point in Item 8; (d) A discharge of mine-affected water at a point not specified in Item 5 or authorised by another relevant regulatory approval; (e) A discharge of mine-affected water from a source not specified in Item 6 or authorised by another relevant regulatory approval; or (f) A failure to comply with condition 23. 	

WASTE DISCHARGE LICENCE (WDL174-16)

Item	Detail
11. Monitoring Program (condition 27)	<p>The Monitoring Program includes:</p> <ul style="list-style-type: none"> (a) Surface water monitoring in accordance with Appendices 4 and 5; (b) Fluvial sediment monitoring in accordance with Appendices 6 and 7; and (c) Biota monitoring in accordance with Appendix 8.
12. Annual Return (condition 38)	<p>The Annual Return is due on 31 August each year for the preceding 12-month period ending 31 July during the term (or part thereof).</p>
13. Monitoring Report (condition 39)	<p>The Monitoring Report is due on:</p> <ul style="list-style-type: none"> (a) 31 August each year for the preceding period 1 May to 30 April, and (b) the Expiry Date of this licence; and (c) in the event the Licensee applies to renew the licence, 90 days prior to the Expiry Date.
14. Documents placed on Register (condition 42)	<p>The following documents will be placed on the Register:</p> <ul style="list-style-type: none"> (a) The Licence Documents specified in Item 4; (b) The Monitoring Report provided in accordance with condition 39; and (c) The Annual Return in accordance with condition 38.
15. Special conditions (condition 43)	<p>Dredging</p> <ol style="list-style-type: none"> 1. The licensee must submit a Dredging and Dredge Spoil Management Plan to the Administering Agency 20 business days prior to the commencement of any dredging activities; 2. The licensee must comply with the Dredging and Dredge Spoil Management Plan. <p>Investigation Reports</p> <p>Any investigation report provided in accordance with condition 26 must include, in addition to the requirements of condition 26</p> <ol style="list-style-type: none"> 3. all water quality monitoring data collected in accordance with Appendix 4 for monitoring sites SW08, SW09, SW11, SW12, SW21, SW28, SW29, SW31 and SW32 (as shown in Appendix 2) collected for the date the notifiable incident was triggered and three sampling rounds prior to the notifiable incident being detected; 4. available flow rates for the McArthur River, Barney Creek, Surprise Creek, Emu Creek and Glyde River and flow rate at SW11 to demonstrate any influence these creeks and rivers may have had on the notifiable incident. <p>Monitoring Reports</p> <p>In addition to the requirements in condition 40, the licensee must ensure that each Monitoring Report is prepared in the format described in the National Water Quality Management Strategy, Australian Guidelines for Water Quality Monitoring and Reporting, Chapter 7 and must include:</p> <ol style="list-style-type: none"> 5. a data analysis and interpretation using the National Water Quality Management Strategy, Australian Guidelines for Water Quality Monitoring and Reporting, Chapter 6; 6. a tabulation of all monitoring data collected as required as a condition of this licence and any additional data used as part of the analysis and interpretation undertaken in the report, to be submitted in electronic Microsoft Excel format;

WASTE DISCHARGE LICENCE (WDL174-16)

Item	Detail
	<p>7. includes total mine-derived loads entering the McArthur River from the mine site for the contaminants listed in Appendix 3 Table 1;</p> <p>8. a comparison between the mine-derived load for each contaminant listed in Appendix 3 table 1 and the background loads in the McArthur River (SW11 and SW21) and Glyde River (SW09);</p> <p>9. a comparison of the mine-derived contaminant loads, referred to in paragraph 7 of this item, against contaminant loads reporting to the McArthur River from July 2017 to June 2018;</p> <p>10. an assessment of all monitoring data (including flow rate and calculated volume from each river contributing to water quality at SW11) and whether the activity has been conducted in a manner that has ensured the McArthur River is being protected at all times from mine related impacts.</p> <p>Temporary Permitted Discharges</p> <p>11. The licensee may discharge in accordance with the conditions set out in Appendix 9 for the period 15 November 2024 to 25 May 2025 inclusive.</p> <p>During this period all other licence conditions apply.</p>

WASTE DISCHARGE LICENCE (WDL174-16)

LICENCE CONDITIONS

RULES FOR INTERPRETING THE CONDITIONS OF THIS LICENCE

1. Where there is a discrepancy between the conditions of this licence and any plan, standard, guideline or other document referred to in this licence, the conditions of this licence prevail to the extent of the inconsistency.
2. Any reference to any standard, guideline or code of practice (Australian or international) in this licence means the relevant parts of the current version of that standard, guideline or code of practice.
3. In this licence, unless the contrary intention appears, words that are defined in the Water Act are intended to have the meaning given to them in that Act.
4. In this licence, unless a contrary intention appears, terms are defined in the Definitions at the end of this licence.
5. In this licence a reference to an Item is a reference to an Item specified in Schedule 1.

GENERAL

6. The Licensee must ensure the contact details recorded with the Administering Agency for this licence are correct at all times.
7. The Licensee must at all times have a 24 hour emergency contact.
8. The Licensee must notify the Administering Agency prior to making any operational change that will cause, or is likely to cause, an increase in the potential for environmental harm.
9. The Licensee must display clear and legible signage, in English, in a prominent location at each public entrance to the premises of the Licensed Action that includes the following details:
 - 9.1. waste discharge licence number issued under the Water Act; and
 - 9.2. 24 hour emergency contact details.
10. The Licensee must cause a hard copy of this licence to be available for inspection, at the premises of the Licensed Action, by any person on request.
11. Unless otherwise specified, within 10 business days of a request, the Licensee must provide to the Administering Agency a copy of any record, document, monitoring data or other information in relation to the Licensed Action in electronic form by emailing environmentalregulation@nt.gov.au.
12. All notices, reports, documents or other correspondence required to be provided as a condition of this licence, unless otherwise specified as a condition of this licence, must be provided in electronic form by emailing environmentalregulation@nt.gov.au.
13. The Licensee must maintain, implement and comply with the current version of the documents specified in Item 4.
14. Within 10 business days of any amendment being made to a document listed specified in Item 4, the Licensee must provide the amended document to the Administering Agency, along with:
 - 14.1. a tabulated summary of the amendment(s) with document references;
 - 14.2. reasons for the amendment(s); and
 - 14.3. an assessment of environmental risk associated with the amendment(s).
15. The Administering Agency may require the Licensee to revise or amend and resubmit any document provided in accordance with this licence. Where the Administering Agency requires any document to be revised or amended, the Licensee must submit it to the Administering Agency by the date specified by the Administering Agency.

WASTE DISCHARGE LICENCE (WDL174-16)

16. The Licensee must operate and maintain a community feedback telephone number enabling members of the public to contact, at any time, a person or voice mail system that can accept, on behalf of the Licensee, enquiries or complaints about the Licensed Action, and to which the Licensee must respond. The community feedback telephone number must be displayed:
 - 16.1. where the Licensee has a website, in a prominent location on the Licensee's website;
 - 16.2. in the Consultation and Communication Plan; and
 - 16.3. in other publicly available documents relating to the Licensed Action.
17. The Licensee must maintain a register of complaints that records the details of each complaint received in relation to the Licensed Action and provide a copy to the Administering Agency on request. Details of the complaints must (as is reasonably practicable) include the following information:
 - 17.1. the person to whom the complaint was made;
 - 17.2. the person responsible for managing the complaint;
 - 17.3. the date and time the complaint was reported;
 - 17.4. the date and time of the event(s) that led to the complaint;
 - 17.5. the contact details of the complainant if known, or where no details are provided a note to that effect;
 - 17.6. the nature of the complaint;
 - 17.7. the nature of event(s) giving rise to the complaint;
 - 17.8. prevailing weather conditions at the time (where relevant to the complaint);
 - 17.9. the action taken in relation to the complaint, including any follow-up contact with the complainant; and
 - 17.10. if no action was taken, why no action was taken.

OPERATIONAL

18. Without limiting the conditions of this licence, in conducting the Licensed Action, the Licensee must do all things reasonable and practicable to:
 - 18.1. minimise the likelihood of waste coming into contact with water or water being polluted as a result of, or in connection with, the Licensed Action;
 - 18.2. prevent and minimise the likelihood of environmental harm occurring as a result, or in connection with, the Licensed Action;
 - 18.3. effectively investigate, monitor and report on water being polluted as a result of, or in connection with, the Licensed Action;
 - 18.4. effectively investigate, monitor and report on environmental harm and the risk of environmental harm occurring as a result of or in connection with the Licensed Action; and
 - 18.5. apply the principles of ecologically sustainable development.
19. The Licensee must, without limiting any other condition of this licence, in conducting the Licensed Action do all things reasonable and practicable to minimise adverse effects to any:
 - 19.1. declared beneficial use, quality, standard or objectives declared under section 73 of the Water Act;
 - 19.2. sites of conservation significance; or
 - 19.3. designated Ramsar wetlands,including, but not limited to, those specified in Items 1, 2 and 3.

WASTE DISCHARGE LICENCE (WDL174-16)

DISCHARGES

20. The Licensee must only discharge waste to water from the authorised discharge points specified in Item 5.
21. Discharges from each authorised discharge point must:
 - 21.1. consist only of waste from the source(s) specified in Item 6;
 - 21.2. not exceed the trigger value limits specified in Item 7 at the compliance point specified in Item 8; and
 - 21.3. comply with the limitations specified in Item 9.
22. The Licensee must, for authorised discharge points MLDP, SEL1 DP, abs MRDC DP install, operate and maintain a device to measure and record, for each discharge event:
 - 22.1. the time the discharge commenced and the duration of the discharge;
 - 22.2. the discharge rate of flow; and
 - 22.3. the discharge volume.
23. Discharges from each authorised discharge point must not:
 - 23.1. contain any floating debris, oil, grease, petroleum hydrocarbon sheen, scum, litter or other objectionable matter;
 - 23.2. cause or generate odours which would adversely affect the use and amenity of surrounding waters;
 - 23.3. cause algal blooms in the receiving water;
 - 23.4. pollute groundwater;
 - 23.5. cause visible change in the behaviour of fish or other aquatic organisms in the receiving water;
 - 23.6. cause mortality of fish or other aquatic organisms;
 - 23.7. cause erosion or degradation to the beds and banks of a watercourse; or
 - 23.8. cause adverse impacts on plants or animals.

INVESTIGATIONS AND NOTIFICATIONS

24. Following any exceedance of a trigger value limit specified in Item 7 at the compliance points specified in Item 8, the Licensee must:
 - 24.1. investigate the exceedance, including undertaking targeted monitoring, in addition to routine monitoring; and
 - 24.2. take corrective action to mitigate any environmental harm and ensure the exceedance does not reoccur; and
 - 24.3. make a record of:
 - 24.3.1. when the exceedance was detected and by whom;
 - 24.3.2. the date and time of the exceedance;
 - 24.3.3. the actual and potential causes and contributing factors to the exceedance;
 - 24.3.4. the risk of environmental harm arising from the exceedance;
 - 24.3.5. exceedances and details of the investigation and corrective action taken; and
 - 24.3.6. if no action was taken, why no action was taken.

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25. If one of the incidents specified in Item 10 occurs, the Licensee must notify the Administering Agency by emailing environmentalregulation@nt.gov.au as soon as practicable after (and in any case within 24 hours after) first becoming aware of the incident, including the following information:
 - 25.1. when the incident was detected and by whom;
 - 25.2. the date and time of the incident;
 - 25.3. whether discharge was occurring at the time of the incident and the source of the discharge;
 - 25.4. whether discharge is still occurring; and
 - 25.5. a date (within 10 business days of the incident) when an investigation report will be submitted to the Administering Agency.
26. Within 10 business days of notifying the Administering Agency of an incident specified in Item 10, the Licensee must provide the Administering Agency an investigation report that includes:
 - 26.1. when the incident was detected and by whom;
 - 26.2. the date and time of the incident;
 - 26.3. whether discharge was occurring at the time of the incident and the source of the discharge;
 - 26.4. the actual and potential causes and contributing factors to the incident;
 - 26.5. monitoring data of the discharge, and upstream and downstream water of the incident, collected for the date the incident was detected and three sampling rounds prior;
 - 26.6. available flow rates to demonstrate any influence streams and rivers may have had on the incident;
 - 26.7. rainfall recorded at the site prior to the incident;
 - 26.8. the risk of environmental harm arising from the incident;
 - 26.9. the action(s) that have or will be undertaken to mitigate any environmental harm arising from the incident;
 - 26.10. corrective actions that have or will be undertaken to ensure the incident does not reoccur; and
 - 26.11. if no action was taken, why no action was taken.

MONITORING

27. From the Commencement Date of this licence, the Licensee must implement and comply with the Monitoring Program specified in Item 11.
28. The Licensee must, to the extent practicable, collect samples that are representative of discharge conditions that maximises the ability to detect potential impact from the Licenced Action, including collecting samples at sampling points.
29. In implementing the Monitoring Program the Licensee must, to the extent practicable, that samples collected at the sampling points are collected:
 - 29.1. on the same date as discharge event; and
 - 29.2. from the part of the waterway that provides representative (well mixed) samples.
30. If a sample is missed or cannot be collected at a sampling point at a frequency set in the Monitoring Program for any reason, the Licensee must revisit the sampling point to collect a sample as soon as possible after the missed collection.
31. The Licensee must ensure that all samples and field environmental data are collected in accordance with recognised Australian Standards and guidelines (such as AS/NZS 5667.1 1998, ANZG (2018), as updated from time to time).

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32. For the parameters that require analysis at a laboratory, the Licensee must ensure that:
 - 32.1. all samples are analysed at a laboratory with current NATA accreditation or equivalent; and
 - 32.2. detection and reporting limits are appropriate to determine compliance with this licence.
33. The Licensee must ensure any samples collected in accordance with the Monitoring Program or in connection with the Licensed Action or this licence, are obtained by, or under the supervision of a qualified sampler.
34. The Licensee must ensure any plant and equipment used by the Licensee in conducting the Monitoring Program:
 - 34.1. is reasonably fit for the purpose and use to which it is put, including that it is properly calibrated;
 - 34.2. is maintained and operational; and
 - 34.3. is operated by a person trained to use the plant and equipment.
35. The Licensee must ensure that, for each sample collected in accordance with the Monitoring Program or the Licensed Action, the following information must be recorded and retained:
 - 35.1. the date on which the sample was collected;
 - 35.2. the time at which the sample was collected;
 - 35.3. the location at which the sample was collected;
 - 35.4. the name of the person who collected the sample;
 - 35.5. the chain of custody forms relating to the sample;
 - 35.6. the field measurements (if any) and analytical results (if any) relating to the sample; and
 - 35.7. laboratory quality assurance and quality control documentation.
36. The Licensee must for all land based monitoring points specified in the Monitoring Program:
 - 36.1. install and maintain appropriate identification signage so that they are reasonably identifiable at all times; and
 - 36.2. maintain safe access and egress, as is reasonably practicable.

RECORDING AND REPORTING

37. The Licensee must keep records of all contraventions with this licence. These records must be adequate to enable the Licensee to comply with the notification and reporting conditions of this licence.
38. The Licensee must submit a completed Annual Return, by emailing environmentalregulation@nt.gov.au as specified in Item 12.
39. The Licensee must complete and provide to the Administering Agency a report of data and information obtained through the implementation and performance of the Monitoring Program (the Monitoring Report), as prescribed by this licence, on the dates specified in Item 13.
40. The Licensee must ensure that each Monitoring Report:
 - 40.1. is prepared in accordance with the requirements of the Administering Agency 'Guideline for Reporting on Environmental Monitoring' (or any other guideline as adopted by the Administering Agency from time to time);
 - 40.2. includes a tabulation, in Microsoft ® Excel ® format or another format requested by the Administering Agency, of all monitoring data required to be collected in accordance with this licence for the preceding 12 month period;

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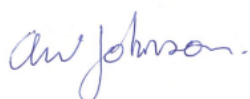
- 40.3. includes a tabulation of monthly and annual contaminant loads discharged from the authorised discharge point specified in Item 5 for the preceding 12 month period. Contaminant loads must be calculated for metals, metalloids, nutrients and other parameters (excluding field parameters) listed in the monitoring program specified in Item 11. The calculations must be based on the daily discharge volume and the concentration of contaminant present in the discharge on that day. On the days when a sample was not taken then the concentration of the contaminant must be estimated using Linear Interpolation methodology;
 - 40.4. includes long term trend analysis of monitoring data to demonstrate any environmental impact associated with the Licensed Action over a minimum period of three years (of part thereof);
 - 40.5. includes a summary of any investigations undertaken by the Licensee in accordance with this licence for the preceding 12 month period; and
 - 40.6. includes an assessment of environmental impact from the Licensed Action.
41. If the licence expires or is otherwise surrendered, suspended or revoked and the licence contained a condition that the Licensee provide a notice, report, record or other information after that date, the Licensee must provide any report, record, information or data available to the Licensee up to and including the date the licence expired or was surrendered, suspended or revoked.
 42. A copy of the documents listed specified in Item 14 will be placed on the Register.

SPECIAL CONDITIONS

43. The Licensee must comply with the conditions specified in Item 15.

END OF LICENCE CONDITIONS

This licence is not valid unless signed below:



ANDREW JOHNSON
Controller of Water Resources

Dated the 17 November 2024

WASTE DISCHARGE LICENCE (WDL174-16)

DEFINITIONS

In this licence, unless a contrary intention appears:

Term	Definition
24 hour emergency contact	the phone number of a person who can be contacted at any time and be capable of responding to and providing information about any incident associated with the Licensed Action.
Administering Agency	means the NT Government Department with responsibility for administering the Water Act.
Anniversary Date	annual anniversary of the Commencement Date.
Annual Return	an Administering Agency prescribed format for demonstrating and reporting compliance with the conditions of this licence.
ANZG (2018)	Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia. Available at http://www.waterquality.gov.au/anz-guidelines .
business days	a day not Saturday, Sunday or a public holiday, in Darwin, Northern Territory.
Consultation and Communication Plan	a written plan documenting proposed consultation and communications for the Licensed Action before, during and after the Licensed Action which includes a strategy for communicating with members of the public who are likely to have a real interest in, or be affected by, the Licensed Action.
contact details	includes the 24 hour emergency contact, and name, position title and phone number of a representative of the Licensee who can be contacted about the licence and Licensed Action.
discharge	releasing or allowing a liquid, gas or other substance to flow out from where it has been confined.
dry season	means 1 May to 31 October.
Emergency Response Plan	a written plan documenting the Licensee's procedures for responding to emergencies caused by, resulting from or associated with the Licensed Action and that may cause environmental harm.
Licensed Action	the Licensed Action as described on the covering page of this licence.
Linear Interpolation	a method to construct new data points within the range of known data points. $y = y1 + ((x - x1) * ((y2 - y1) / (x2 - x1)))$ <p>y is the unknown concentration between known concentrations y1 and y2 y1 is the first known concentration y2 is the second known concentration x is the day of the unknown concentration y x1 is the day of the first known concentration y1 x2 is the day of the second known concentration y2</p>
litter	litter, garbage, rubbish, refuse or waste matter, and includes the body of a dead animal.

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Term	Definition
NATA	National Association of Testing Authorities, Australia.
plant and equipment	all material items used in association with the Licensed Action, including (but not limited to) storage vessels and containers, pipe work and hosing, vehicles (including vessels), tools, and measuring equipment.
pollution	has the same meaning as <i>pollute</i> as defined in section 4 of the Water Act.
public entrance	access to the licensed premises that is utilised by the public.
qualified sampler	a person who has training and experience in obtaining samples from the relevant environmental medium.
Register	the register available at the website of the Northern Territory Environment Protection Authority (NT EPA).
wastewater	water that contains a waste.
Water Act	<i>Water Act 1992</i> (NT).
wet season	means 1 November to 30 April.

WASTE DISCHARGE LICENCE (WDL174-16)

APPENDIX 1: McArthur River Mining Tenements and Features

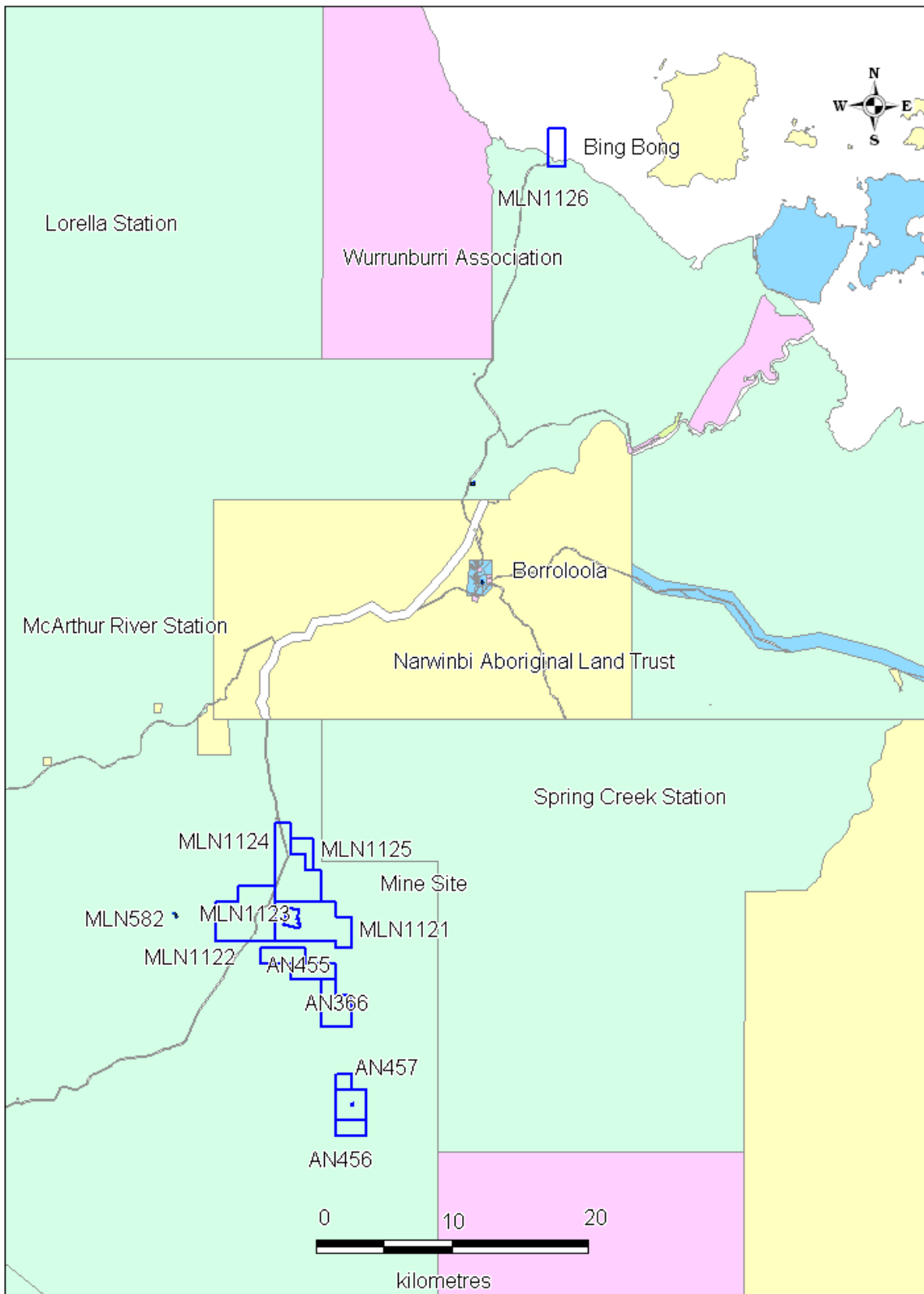


Figure 1. Overview of mine tenements

WASTE DISCHARGE LICENCE (WDL174-16)



Figure 2. McArthur River Mine Site Overview

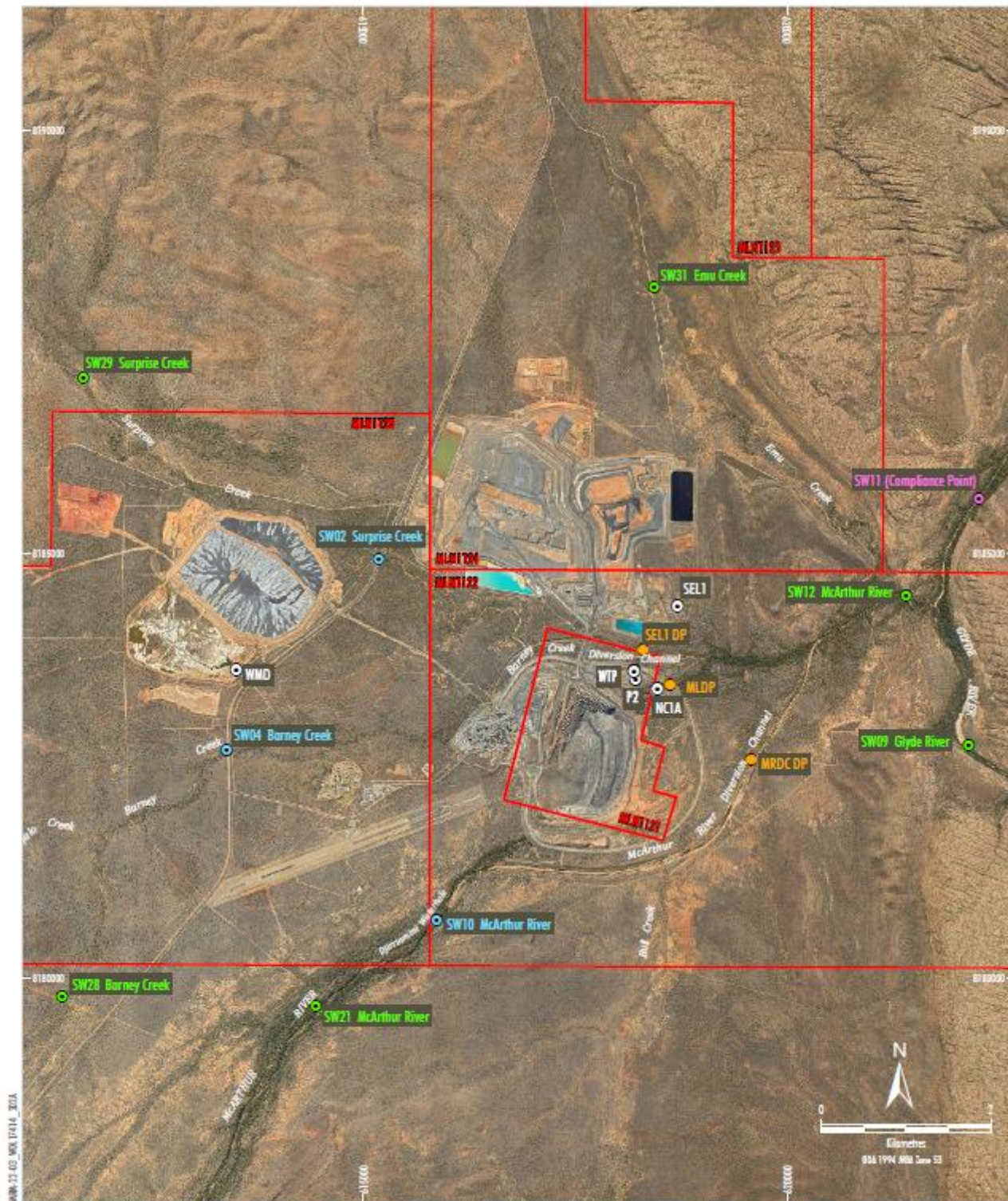
WASTE DISCHARGE LICENCE (WDL174-16)

APPENDIX 2: Authorised Discharge Points, Compliance Point and Environmental Monitoring Sites

Table 1. Discharge and Monitoring Point Locations

Type	Site Name	Description	Latitude	Longitude
Authorised Discharge Points	MLDP	Mine Levee Discharge Point.	-16.427432	136.111403
	SEL1 DP	South-East Levee 1 Discharge Point into Barney Creek Diversion Channel.	-16.423824	136.108302
	MRDC DP	McArthur River Diversion Channel Discharge Point	-16.435385	136.120196
	BBDDP	Bing Bong Dredge Discharge Point Located on the tidal mudflats to the east of the facility.	-15.629683	136.394778
Compliance Point	SW11	McArthur River downstream of Glyde River confluence	-16.407386	136.144785
	BBDDP	Bing Bong Dredge Discharge Point Located on the tidal mudflats to the east of the facility.	-15.629683	136.394778
On-site source monitoring points	P2	Pond 2. Wastewater storage pond near discharge point MLDP	-16.426849	136.107195
	NC1A	Old McArthur River channel inside mine levee	-16.427975	136.109599
	WMD	Water Management Dam	-16.426201	136.063025
	WTP	Wastewater Treatment Plant	-16.426073	136.106985
	SEL1	South East Levee 1	-16.419124	136.111740
Environmental Monitoring Points	SW21	McArthur River upstream mine area	-16.461901	136.072418
	SW28	Barney Creek upstream of mine area	-16.461004	136.044125
	SW29	Surprise Creek upstream of mine area	-16.395102	136.045992
	SW31	Emu Creek upstream of mine area	-16.385029	136.108588
	SW09	Glyde River upstream of McArthur River confluence	-16.433686	136.143628
	SW12	McArthur River upstream of Glyde River confluence	-16.417868	136.137036
	SW32	McArthur River approx. 40km downstream of Compliance Point	-16.135812	136.313906
	SW08	McArthur River approx.. 48 km downstream of Compliance Point, at Woologorang Rd crossing	-16.081766	136.316411
	SW10	Flow Monitoring site McArthur River upstream	-16.452897	136.085125
	SW04	Flow monitoring site Barney Creek	-16.43485	136.061433
	SW02	Flow monitoring site Surprise Creek	-16.414181	136.078483

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LEGEND

- Mining Lease
- Authorised Discharge Point
- ⊙ Compliance Point
- Monitoring Site (water & sediment)
- ⊙ Monitoring Site (flow)
- ⊙ Monitoring Site (water)

Source: Orthophoto *NRM* (2022); Department of Environment and Natural Resources (2016); *NRM* (2020)

Figure 3. McArthur River Mine Discharge, Compliance and Environmental Monitoring Points

WASTE DISCHARGE LICENCE (WDL174-16)

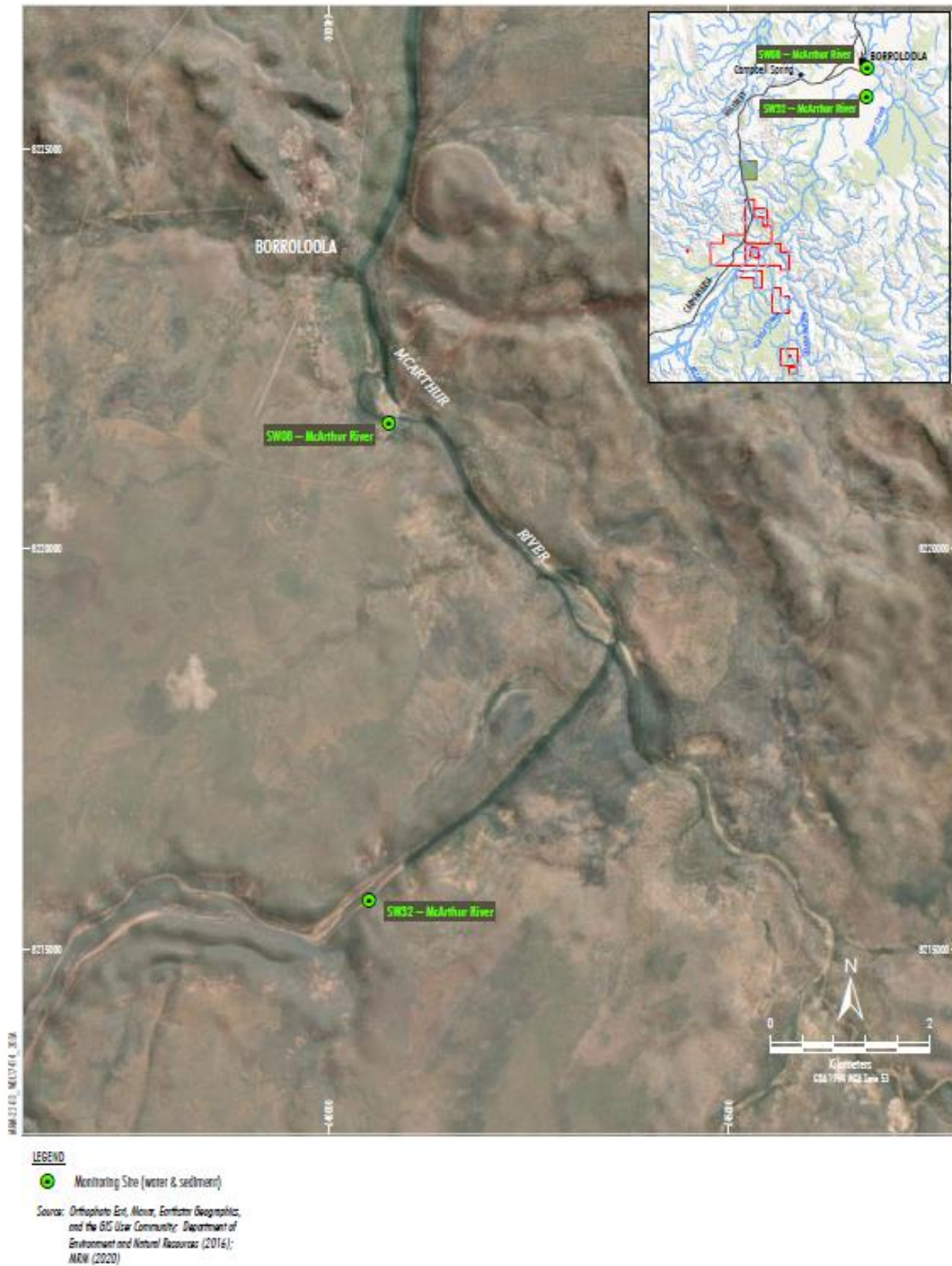


Figure 4. McArthur River Mine – Location of downstream monitoring points

WASTE DISCHARGE LICENCE (WDL174-16)



Figure 5. Bing Bong Loading Facility - Site Plan and Authorised Discharge Point

WASTE DISCHARGE LICENCE (WDL174-16)

APPENDIX 3: Site Specific Trigger Values

All trigger values for metals and metalloids are applicable to filtered samples.

				Site Code	SW11	BBDDP
				Latitude	-16.4074	-15.6297
				Longitude	136.145	136.395
Parameter	Abbr	Units	Analysis	SSTVs	Trigger Value (ANZG (2018) [†])	
Field Measurements						
pH	pH	pH units	In situ	6.0-8.5 ^a	8.0-8.4 ^s	
Electrical Conductivity	EC	µS/cm		1000 ^b	NR	
Dissolved Oxygen	DO	% saturation		85-120 ^c	NR	
Metals and Metalloids						
Aluminium	Al	µg/L	Filtered (0.45 µm)	269 ^d	0.5 ^u	
Arsenic	As			24 ^e	2.3 ^u	
Cadmium	Cd			1.73 ^f	5.5	
Cobalt	Co			1.4 ^g	NR	
Copper	Cu			9 ^h	1.3	
Iron	Fe			347 ⁱ	NR	
Lead	Pb			17 ^j	4.4	
Manganese	Mn			1900 ^k	80	
Nickel	Ni			11 ^l	70	
Thallium	Tl			58 ^m	NR	
Zinc	Zn			32 ⁿ	15 ^v	
Total Petroleum Hydrocarbons (TPH)						
Benzene	NA	µg/L		10 ^o	500 ^w	
TPH Fraction C6-C9	NA			600 ^p	600 ^x	
C10-C14						
C15-C28						
C29-C36						
Other						
Sulphate	SO ₄	mg/L		1000 ^q	NR	
Nitrate	NO ₃	mg/L		10.6 ^r	NR	

WASTE DISCHARGE LICENCE (WDL174-16)

KEY:

Trigger Value Derivation

- a - Trigger value approved by Administering Agency 2011.
- b - Guideline value for livestock drinking water from (ANZECC & ARMCANZ, 2000).
- c - Default trigger values for tropical Australia Lowland River, Table 3.3.4 (ANZECC & ARMCANZ, 2000).
- d - 80th percentile from reference data from McArthur River Reference Water Quality Assessment (WRM, 2021).
- e - Default guideline value from ANZG (2018), 95 % species protection (As III) in freshwater.
- f - Hardness Modified Trigger Value (HMTV) from the *MRM Sustainable Development Water Management Plan 2010-2011*.
- g - Default guideline value from ANZG (2018), unknown species protection (Co) in freshwater.
- h - 95 % species protection level from McArthur River Wet Season Site-Specific Guideline Values: Copper (MLC, 2021).
- i - 80th percentile from reference data from McArthur River Reference Water Quality Assessment (WRM, 2021).
- j - 99 % species protection level from McArthur River Wet Season Site-Specific Guideline Values: Lead (MLC, 2021).
- k - Default guideline value from ANZG (2018), 95 % species protection (Mn) in freshwater.
- l - Default guideline value from ANZG (2018), 95 % species protection (Ni) in freshwater.
- m - 99 % species protection level from McArthur River Wet Season Site-Specific Guideline Values: Thallium (MLC, 2021).
- n - 95 % species protection level from McArthur River Wet Season Site-Specific Guideline Values: Zinc (MLC, 2021).
- o - Screening levels for chemical hazards in recreational water, calculated from Table 9.3 (NHMRC, 2008).
- p - Aqueous solubility of mineral oils, Intervention Value outlined in the Environmental Quality Objectives in the Netherlands (1994).
- q - Guideline value for livestock drinking water from Section 4.3.3.4 (ANZECC & ARMCANZ, 2000).
- r - 95 % species protection level from *Updating nitrate toxicity effects on freshwater aquatic species* (NIWA, 2013) as recommended by ANZG (2018).
- s - Default trigger values for tropical Australia Marine Inshore, Table 3.3.4 (ANZECC & ARMCANZ, 2000).
- t - Default guideline value from ANZG (2018), 95 % species protection in marine water (unless otherwise specified).
- u - Low reliability marine trigger value (ANZECC & ARMCANZ, 2000).
- v - Default guideline value for 95 % species protection in marine water (ANZECC & ARMCANZ, 2000).
- w - Default guideline value from ANZG (2018), 99 % species protection in marine water.
- x - TV approved by Administering Agency 2013 (see WDL 174-05).

Other

NR: not required

WASTE DISCHARGE LICENCE (WDL174-16)

APPENDIX 4: Surface Water Monitoring Program – McArthur River Mine area

				Water Quality Monitoring Discharge Sources					Compliance Point	Upstream McArthur River	Upstream Barney Creek	Upstream Surprise Creek	Upstream Emu Creek	Upstream Glyde River	McArthur River Downstream of mine site								
Site Code				P2	NC 1A	WMD	WTP	SEL 1	SW11	SW21	SW28	SW29	SW31	SW09	SW12	SW32	SW08						
PARAMETER	Abbrev.	Units	Analysis	FREQUENCY																			
Environmental Field Data																							
Water level	-	m AHD	-	C	C	C	C	C	C	C [†]	C [#]	C [^]	C	C	-	-	-						
River flow	-	L/s	-	-	-	-	-	-	C	C [†]	C [#]	C [^]	C	C	-	-	-						
Volume pumped in/out (include source/destination)	-	L	-	C	C	C	C	C	-	-	-	-	-	-	-	-	-						
pH*	pH	pH	In situ/ laboratory	S	S	S	S	S	MR	MR	TR	TR	TR	TR	TR	TR	M	M					
Electrical conductivity*	EC	µS/cm							MR, C	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Dissolved oxygen*	DO	% sat.							MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Temperature*	Temp	°C							MR, C	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Turbidity	NTU	NTU							MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Total suspended solids	TSS	mg/L							MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Total dissolved solids	TDS	mg/L							MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Hardness	-	mg/L							MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Metals and Metalloids																							
Aluminium	Al	µg/L	Total and	S	S	S	S	S	MR	MR	TR	TR	TR	TR	TR	TR	M	M					
Arsenic	As								MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M

WASTE DISCHARGE LICENCE (WDL174-16)

				Water Quality Monitoring Discharge Sources					Compliance Point	Upstream McArthur River	Upstream Barney Creek	Upstream Surprise Creek	Upstream Emu Creek	Upstream Glyde River	McArthur River Downstream of mine site		
Site Code				P2	NC 1A	WM D	WTP	SEL 1	SW11	SW21	SW28	SW29	SW31	SW09	SW12	SW32	SW08
PARAMETER	Abbrev.	Units	Analysis	FREQUENCY													
Cadmium	Cd		Filtered (0.45 µm)						MR	MR	TR	TR	TR	TR	TR	M	M
Copper	Cu			MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Iron	Fe			MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Lead	Pb			MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Manganese	Mn			MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Mercury	Hg			MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Nickel	Ni			MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Zinc	Zn			MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Antimony	Sb			MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Barium	Ba			MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Boron	B			MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Chromium	Cr			MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Cobalt	Co			MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Molybdenum	Mo			MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Silver	Ag			MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Thallium	Tl			MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Uranium	U		MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M	
Vanadium	V		MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M	
Total Petroleum Hydrocarbons																	
TPH	TPH	µg/L	Total	-	-	-	-	-	M	-	-	-	-	-	-	-	-
Benzene									M	-	-	-	-	-	-	-	-

WASTE DISCHARGE LICENCE (WDL174-16)

				Water Quality Monitoring Discharge Sources					Compliance Point	Upstream McArthur River	Upstream Barney Creek	Upstream Surprise Creek	Upstream Emu Creek	Upstream Glyde River	McArthur River Downstream of mine site									
Site Code				P2	NC 1A	WMD	WTP	SEL 1	SW11	SW21	SW28	SW29	SW31	SW09	SW12	SW32	SW08							
PARAMETER	Abbrev.	Units	Analysis	FREQUENCY																				
TPH Fraction C6-C9									M	-	-	-	-	-	-	-	-							
TPH Fraction C10-C14									M	-	-	-	-	-	-	-	-							
TPH Fraction C15-C28									M	-	-	-	-	-	-	-	-							
TPH Fraction C29-C36									M	-	-	-	-	-	-	-	-							
Other																								
Sulphate	SO ₄	mg/L	Filtered (0.45 µm)	S	S	S	S	S	MR	MR	TR	TR	TR	TR	TR	TR	M	M						
Nitrate	NO ₃								MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Calcium	Ca								MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Chloride	Cl								MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Sodium	Na								MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Potassium	K								MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Magnesium	Mg								MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Carbonate	CO ₃								MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M
Bicarbonate	HCO ₃								MR	MR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	TR	M	M

Key:

MR = Weekly when no discharge is occurring **and**, within 24 hours of commencement of discharge (timing of sample to approximate when discharge waters could have reached SW11) **and** daily during discharge

TR = Weekly **and** within 2 hours of a commencement of discharge.

M = Monthly **and** weekly during discharge

WASTE DISCHARGE LICENCE (WDL174-16)

S = Weekly **and** upon the commencement of discharge from that discharge source

C = Continuous monitoring to achieve greater or equal to 90% data capture rate

* = Field Parameters

† = using gauging station at SW10

= using gauge station at SW04

^ = using gauge station at SW02

WASTE DISCHARGE LICENCE (WDL174-16)

APPENDIX 5: Surface Water Monitoring Program – Bing Bong Loading Facility

	Surface Water			
	Site Code			BBDDP
PARAMETER	Abbreviation	Units	Analysis	Frequency
Environmental Parameters				
pH**	pH	pH	In situ/ laboratory	W M
Electrical conductivity**	EC	µS/cm		
Dissolved oxygen**	DO	% sat.		
Temperature**	Temp	°C		
Turbidity	NTU	NTU		
Total suspended solids	TSS	mg/L		
Total dissolved solids	TDS	mg/L		
Metals and Metalloids				
Aluminium	Al	µg/L	Filtered (0.45 µm)	W M
Arsenic	As			
Boron	Bo			
Cadmium	Cd			
Cobalt	Co			
Copper	Cu			
Iron	Fe			
Lead	Pb			
Manganese	Mn			
Mercury	Hg			
Nickel	Ni			
Thallium	Tl			
Zinc	Zn			
Total Petroleum Hydrocarbons				
TPH	TPH	µg/L	Total	W
Benzene				
Fraction C6-C9				
Fraction C10-C14				
Fraction C15-C28				
Fraction C29-C36				
Other				
Sulphate	SO ₄	mg/L	Filtered (0.45 µm)	W M
Nitrate	NO ₃	µg/L		
Calcium	Ca	mg/L		
Magnesium	Mg	mg/L		
Sodium	Na	mg/L		

WASTE DISCHARGE LICENCE (WDL174-16)

Potassium	K	mg/L		
Carbonate	CO ₃	mg/L		
Bicarbonate	HCO ₃	mg/L		
Chloride	Cl	mg/L		

Key: W = weekly when active dredge disposal is occurring

M = monthly when flowing

** Parameters measured in situ

WASTE DISCHARGE LICENCE (WDL174-16)

APPENDIX 6: Fluvial Sediment Monitoring – McArthur River Mine

				Compliance Point	Upstream McArthur River	Upstream Barney Creek	Upstream Surprise Creek	Upstream Emu Creek	Upstream Glyde River	McArthur River Downstream of Discharge Points			
Site Code				SW11	SW21	SW28	SW29	SW31	SW09	SW12	SW32	SW08	
Latitude				-16.4074	-16.4619	-16.4610	-16.3951	-16.3850	-16.4337	-16.4179	-16.1358	-16.0818	
Longitude				136.145	136.072	136.044	136.046	136.109	136.144	136.137	136.314	136.316	
PARAMETER	Abbrev.	Units	Analysis										
Environmental Field Data													
pH	pH	pH		A	A	A	A	A	A	A	A	A	
Electrical conductivity	EC	µS/cm		A	A	A	A	A	A	A	A	A	
Moisture content		%		A	A	A	A	A	A	A	A	A	
Particle size distribution	PSD	%	< 63 µm ≥ 63 µm & ≤ 2 mm > 2 mm	A	A	A	A	A	A	A	A	A	
Metals and Metalloids													
Aluminium	Al	mg/kg dry weight	< 63 µm sediment fraction	A	A	A	A	A	A	A	A	A	
Antimony	Sb			A	A	A	A	A	A	A	A	A	A
Arsenic	As			A	A	A	A	A	A	A	A	A	A
Barium	Ba			A	A	A	A	A	A	A	A	A	A
Beryllium	Be			A	A	A	A	A	A	A	A	A	A
Bismuth	Bi			A	A	A	A	A	A	A	A	A	A
Boron	B			A	A	A	A	A	A	A	A	A	A
Cadmium	Cd			A	A	A	A	A	A	A	A	A	A
Chromium	Cr			A	A	A	A	A	A	A	A	A	A
Cobalt	Co			A	A	A	A	A	A	A	A	A	A
Copper	Cu			A	A	A	A	A	A	A	A	A	A
Iron	Fe			A	A	A	A	A	A	A	A	A	A

WASTE DISCHARGE LICENCE (WDL174-16)

				Compliance Point	Upstream McArthur River	Upstream Barney Creek	Upstream Surprise Creek	Upstream Emu Creek	Upstream Glyde River	McArthur River Downstream of Discharge Points			
Site Code				SW11	SW21	SW28	SW29	SW31	SW09	SW12	SW32	SW08	
Latitude				-16.4074	-16.4619	-16.4610	-16.3951	-16.3850	-16.4337	-16.4179	-16.1358	-16.0818	
Longitude				136.145	136.072	136.044	136.046	136.109	136.144	136.137	136.314	136.316	
PARAMETER	Abbrev.	Units	Analysis										
Lead	Pb			A	A	A	A	A	A	A	A	A	
Manganese	Mn			A	A	A	A	A	A	A	A	A	A
Mercury	Hg			A	A	A	A	A	A	A	A	A	A
Molybdenum	Mo			A	A	A	A	A	A	A	A	A	A
Nickel	Ni			A	A	A	A	A	A	A	A	A	A
Selenium	Se			A	A	A	A	A	A	A	A	A	A
Silver	Ag			A	A	A	A	A	A	A	A	A	A
Thallium	Tl			A	A	A	A	A	A	A	A	A	A
Uranium	U			A	A	A	A	A	A	A	A	A	A
Vanadium	V			A	A	A	A	A	A	A	A	A	A
Zinc	Zn			A	A	A	A	A	A	A	A	A	A
Lead Isotope Ratio	PbIR					A	A	A	A	A	A	A	A
Other													
Calcium	Ca	mg/kg dry weight	Soluble ion extract	A	A	A	A	A	A	A	A	A	
Magnesium	Mg			A	A	A	A	A	A	A	A	A	A
Sodium	Na			A	A	A	A	A	A	A	A	A	A
Potassium	K			A	A	A	A	A	A	A	A	A	A
Chloride	Cl			A	A	A	A	A	A	A	A	A	A
Sulphate	SO ₄			A	A	A	A	A	A	A	A	A	A

A – Annual sampling.

WASTE DISCHARGE LICENCE (WDL174-16)

APPENDIX 7: Fluvial Sediment Monitoring – Bing Bong Loading Facility

Fluvial Sediment				
Site Code				BBDDP
PARAMETER	Abbr.	Units	Analysis	FREQUENCY
Environmental Parameters				
pH	pH	pH		A
Electrical conductivity	EC	µS/cm		A
Moisture content		%		A
Metals and Metalloids				
Aluminium	Al	mg/kg dry weight	< 63 µm sediment fraction	A
Antimony	Sb			A
Arsenic	As			A
Boron	Bo			A
Barium	Ba			A
Beryllium	Be			A
Bismuth	Bi			A
Cadmium	Cd			A
Cobalt	Co			A
Chromium	Cr			A
Copper	Cu			A
Iron	Fe			A
Lead	Pb			A
Manganese	Mn			A
Mercury	Hg			A
Molybdenum	Mo			A
Nickel	Ni			A
Selenium	Se			A
Silver	Ag			A
Thallium	Tl			A
Uranium	U	A		
Vanadium	V	A		
Zinc	Zn	A		
Other				
Sulphate	SO ₄	mg/kg dry weight	Soluble ion extract	A
Calcium	Ca			A
Magnesium	Mg			A
Sodium	Na			A
Potassium	K			A
Chloride	Cl			A

Key: A – Annual sample.

WASTE DISCHARGE LICENCE (WDL174-16)

APPENDIX 8: Biota Monitoring for McArthur River Mine and Bing Bong Loading Facility

Project Name	Locations	Project Description	Report Frequency
Bing Bong Diffuse Gradients in Thin Films	Bing Bong Loading Facility Gulf of Carpentaria	Diffusive Gradients in Thin Films (DGT) are deployed in the marine environment at sites adjacent to the Bing Bong Loading Facility. This includes sites located in the Bing Bong Swing Basin and Navigation Channel. The DGTs are deployed quarterly in the water column to accumulate metals over several days. The DGTs provide time-integrated average concentrations of bioavailable metals over the deployment period. The metal concentrations are compared, where applicable, to relevant marine water quality guidelines.	Annually
Annual Marine Monitoring Program	Bing Bong Loading Facility Gulf of Carpentaria	Collection of marine biota, sediment and water samples for analysis of potentially mine derived metals and metalloids. Collection targets the area adjacent the Bing Bong Loading Facility as well as sites in the Gulf of Carpentaria to the northwest and southeast of the Loading Facility. Metal concentrations in commonly consumed species are compared to Maximum Permitted Concentrations with data also used to calculate safe daily consumption amounts where relevant. Marine water and sediment metal concentrations are used to quantify the potential impact from the Loading Facility and are compared to relevant quality guidelines.	Annually
Metals in Freshwater Biota	McArthur River Surprise Creek Barney Creek Emu Creek Robinson River Limmen River	Collection of freshwater biota samples for analysis of mine derived metals. Collection targets both lower order indicator species and higher order commonly consumed species. Samples are collected from upstream and downstream McArthur River and throughout the mine catchments such as Barney Creek and Surprise Creek. Samples are also taken from regional reference sites such as the Limmen and Robinson Rivers. Metal concentrations in commonly consumed species are compared to Maximum Permitted Concentrations. Concentrations are also used to calculate safe daily consumption amounts where relevant.	Annually
Seagrass Assessment	Bing Bong Loading Facility Gulf of Carpentaria	Seagrass monitoring to determine whether any observed change in seagrass distribution or composition has occurred in the marine waters adjacent the Bing Bong Loading Facility. Monitoring also aims to determine whether any change identified is naturally occurring or related to the Loading Facility operations.	Annually
Vegetation Monitoring	Bing Bong	Monitoring of the vegetation adjacent the Bing Bong Dredge Spoil Emplacement Facility to determine if hyper saline seepage from the facility is impacting nearby vegetation communities.	Every 3 Years
Aquatic Fauna Abundance & Diversity - McArthur River Catchment	McArthur River Barney Creek Surprise Creek	Survey of the abundance and diversity of aquatic fauna along the McArthur River, McArthur River Diversion Channel, Barney Creek and Surprise Creek. Data is used to monitor potential impacts from mine operations and to determine the effectiveness of rehabilitation works along the McArthur River Diversion Channel by comparing data to control sites.	Biannually (early and late dry season)
Macro Invertebrates - McArthur River Catchment	McArthur River Surprise Creek Barney Creek Glyde River	Survey of macro-invertebrate abundance and diversity in aquatic ecosystems. Data is used to monitor potential impacts from mine operations and to determine the effectiveness of rehabilitation works along the McArthur River Diversion Channel. Sampling is conducted annually during the recessional flow period.	Annually (late wet season/early dry season)

WASTE DISCHARGE LICENCE (WDL174-16)

APPENDIX 9: Temporary licence conditions

44. Discharge from the source water body specified in Table 2 is permitted through the temporary discharge location specified in Table 2 and shown in Figure 6.

Table 2. Temporary discharge location and source water body.

Location	Source water body	Discharge location latitude	Discharge location longitude
Central East Release Point (CERP)	South-Eastern Perimeter Runoff Dam (SEPROD)	-16.423233	136.107667

45. In addition to the monitoring required by condition 27 of this licence, while any discharges through Temporary Discharge Location are occurring, the licensee must:
- 45.1. Apply the water quality monitoring requirements set out in Appendix 4 for the Water Management Dam (WMD) to SEPROD; and
 - 45.2. Monitor discharge flow rates and volumes from the temporary discharge location.



Figure 6. Temporary discharge location and source water body.

Attachment 2

McArthur River Mine 2024 – 2025 Environmental Monitoring Report

(download link to documents provided separately)

Attachment 3

Tabulated Monitoring Data for the 2024/25 Period



PO Box 36821 · Winnellie · Northern Territory 0821 · Australia
34a Bishop Street · Stuart Park · Northern Territory 0820 · Australia
Tel +61 8 8975 8179 · Fax +61 8 8975 8170 · Web www.mcarthurrivermine.com.au

A GLENCORE Company

McArthur River Mining Pty Ltd ABN 90 008 167 815