



GINKGO MINERAL SANDS MINE AND CRAYFISH EXPANSION



ANNUAL REVIEW REPORT
2023

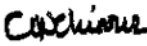
Ginkgo Minerals Sands Mine and Crayfish Expansion	
Name of operator	Tronox Mining Australia Ltd
Development consent / project approval	Development Consent DA 251-09-01
Name of holder of development consent / project approval	Tronox Mining Australia Ltd
Mining lease(s)	ML 1504 & ML 1735
Name of holder of mining lease	Tronox Mining Australia Ltd
Water licence	WAL27915
Name of holder of water licence	Tronox Mining Australia Ltd
Annual Review start date	1 January 2023
Annual Review end date	31 December 2023
I, Chaka Chirozva, certify that this audit report is a true and accurate record of the compliance status of Ginkgo and Crayfish Expansion Mine for the period 1 January 2023 to 31 December 2023 and that I am authorised to make this statement on behalf of Tronox Mining Australia. <i>Note.</i> a) The Annual Review is an 'environmental audit' for the purposes of section 122B (2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000. b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5 years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2 years imprisonment or \$22,000, or both).	
Name of authorised reporting officer	Chaka Chirozva
Title of authorised reporting officer	Environmental Lead
Signature of authorised reporting officer	
Date	31/03/2024

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1 STATEMENT OF COMPLIANCE

1.1 Statement of compliance

Table 1 – Statement of compliance

Were all conditions of the relevant approval(s) complied with?	
Development Consent (DA 251-09-01)	Yes
Mining Lease (ML 1504)	Yes
Mining Lease (ML 1735)	Yes
Environment Protection Licence (12264)	No
Mining Amendment (Standard Conditions of Mining Leases – Rehabilitation) Regulation 2021	Yes

1.2 Non-compliances

Table 2 – Compliance status key

Risk Level	Description
High	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence.
Medium	Non-compliance with: - potential for serious environmental consequences, but is unlikely to occur; or - potential for moderate environmental consequences, but is likely to occur
Low	Non-compliance with: - potential for moderate environmental consequences, but is unlikely to occur; or - potential for low environmental consequences, but is likely to occur
Administrative non-compliance	Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions)

Table 3 – Non-compliances

Relevant approval	Condition Number	Condition description (summary)	Compliance risk status	Comment
Environmental Protection Authority (EPA) Licence (12264)	5 Monitoring and Recording Conditions; 5 M2.3 Water and/or land monitoring requirements	Requirement for Water Point 2, 3, 4, 6, 7, 9, 10, 11, 12 and 13 to be monitored quarterly (standing water level and total dissolved solids)	Low	Water Points 2, 3, 4, 6, 7, 9, 10, 11, 12 and 13 were not monitored during Q1 due to environmental constraints – wet weather prevented access to monitoring sites. No adverse effects of non-compliance. Monitoring resumed once environmental constraints improved.

2 INTRODUCTION

2.1 Scope of Annual Review

This Annual Review Report (ARR) focuses on environmental and community performance of Ginkgo Mineral Sands Mine and Crayfish Expansion.

This Report has been prepared in accordance with *ESG3: Mining Operations Plan (MOP) Guidelines, September 2013* published by the NSW Resource Regulator and the Annual Review Guideline published by the Department of Planning, Industry and Environment NSW, dated October 2015. This Report describes environmental and community performance for the 2023 reporting period, and is intended to satisfy the requirements of:

- Ginkgo Mineral Sands Project Development Consent (DA 251-09-01) Conditions issued by the Department of Planning under Part IV of the *Environmental Planning & Assessment Act*.
- Mining Leases (ML) 1504 & 1735 conditions set by the NSW Resource Regulator under the *Mining Act 1992*.

This report is distributed to:

- Department of Regional NSW (Mining, Energy and Geoscience (MEG));
- NSW Department of Planning, Housing and Infrastructure (DPHI);
- Heritage NSW - within the Department of Premier and Cabinet;
- NSW Environment Protection Authority (EPA);
- NSW Land Registry Services (LRS);
- NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW)
- Wentworth Shire Council (WSC); and
- Local Leaseholders

2.2 Key Statutory Approvals

The key statutory approvals that apply to operations of the Ginkgo and Crayfish Expansion Mineral Sands Mine are listed in .

Table 4 – Main Development Approvals and Licences

Statutory Approval	Granted	Expires	Approval Authority
Mining Lease ML 1504	March 2002	5 March 2044	Department of Regional NSW - Mining Energy and Geoscience (MEG)
Mining Lease ML 1735	April 2016	27 April 2037	
Development Consent DA 251-09-01	January 2002	31 December 2025	NSW Department of Planning, Housing and Infrastructure (formerly NSW Department of Planning and Environment)
- Modification 1	September 2003		
- Modification 2	May 2005		
- Modification 3	April 2006		
- Modification 4	May 2007		
- Modification 5	December 2008		
- Modification 6	April 2009		

Statutory Approval	Granted	Expires	Approval Authority
- Modification 7	December 2009		
- Modification 8	October 2010		
- Modification 9	March 2015		
- Modification 10	October 2014		
- Modification 11	August 2015		
- Modification 12	April 2016		
- Modification 13	December 2017		
- Modification 14	March 2021		
-Modification 15	July 2022		
Environment Protection Licence No. 12264	December 2004	Renewed Annually	NSW Environment Protection Authority (EPA)
- Variation	May 2006		
- Variation	October 2006		
- Variation	December 2007		
- Variation	December 2007		
- Variation	December 2015		
- Variation	August 2019		
- Variation	September 2013		
- Variation	August 2019		
- Variation	September 2020		
- Variation	March 2021		

2.3 Ancillary Statutory Approvals

Additional approvals have also been granted to allow specific activities to be undertaken at or in relation to the mine site. These approvals in addition to the relevant legislation and the approval authority are listed below.

NSW DPE Water

Part 3A Permits (Rivers and Foreshores Improvement Act 1948)

Water Licence (Water Act 1912)

Bore Licences (Water Act 1912)

NSW Heritage

Section 90 Consent (National Parks & Wildlife Act 1974)

Section 87 Permit (National Parks & Wildlife Act 1974)

Aboriginal Heritage Impact Permit #C0001358 (National Parks & Wildlife Act 1974)

NSW Department of Primary Industries - Lands

Occupation Licence LI495150 - Anabranh Bridge (Peter Withers Bridge) Remediation works.

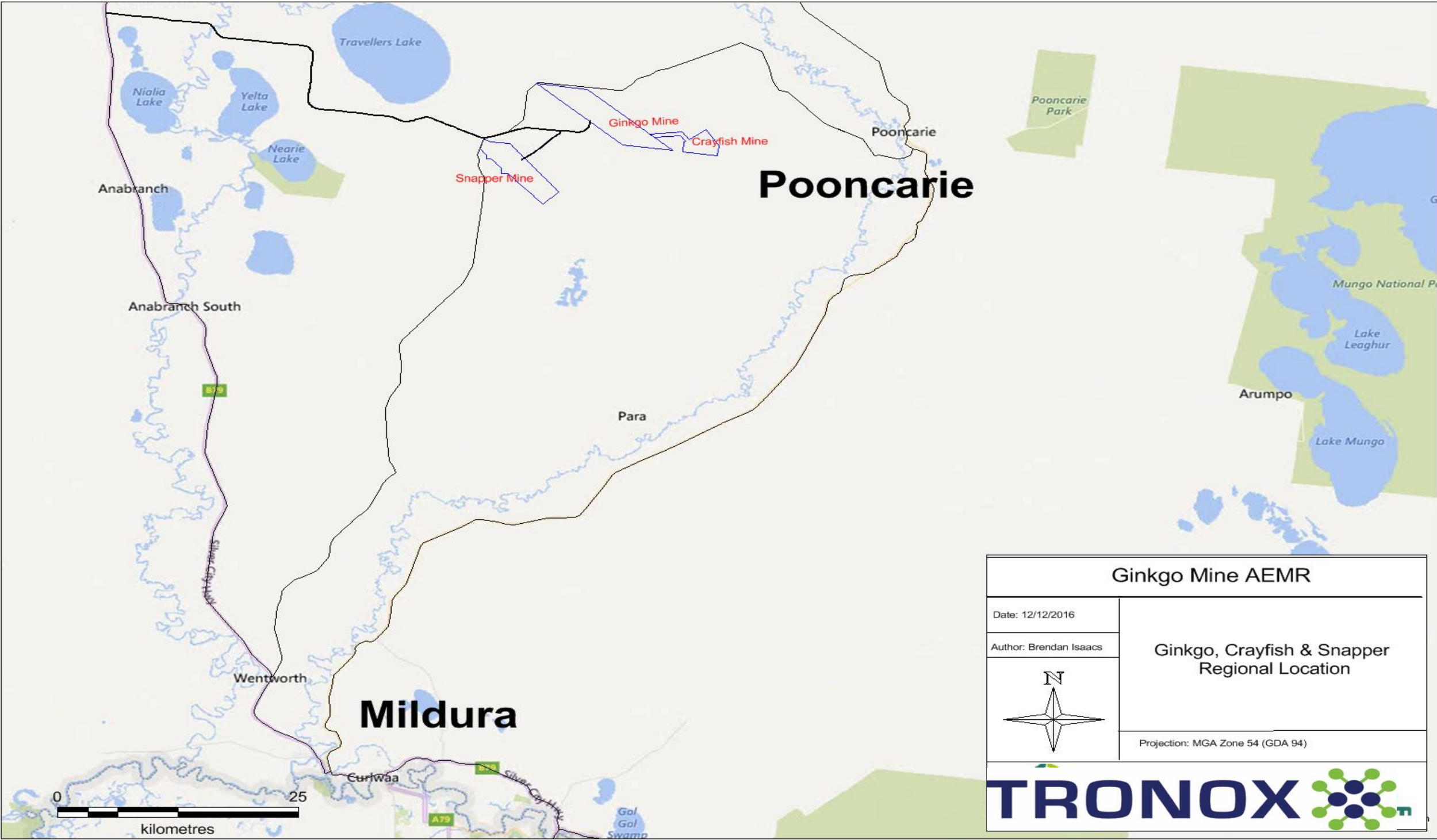


Figure 1 – Regional location of the Ginkgo and Crayfish Mines

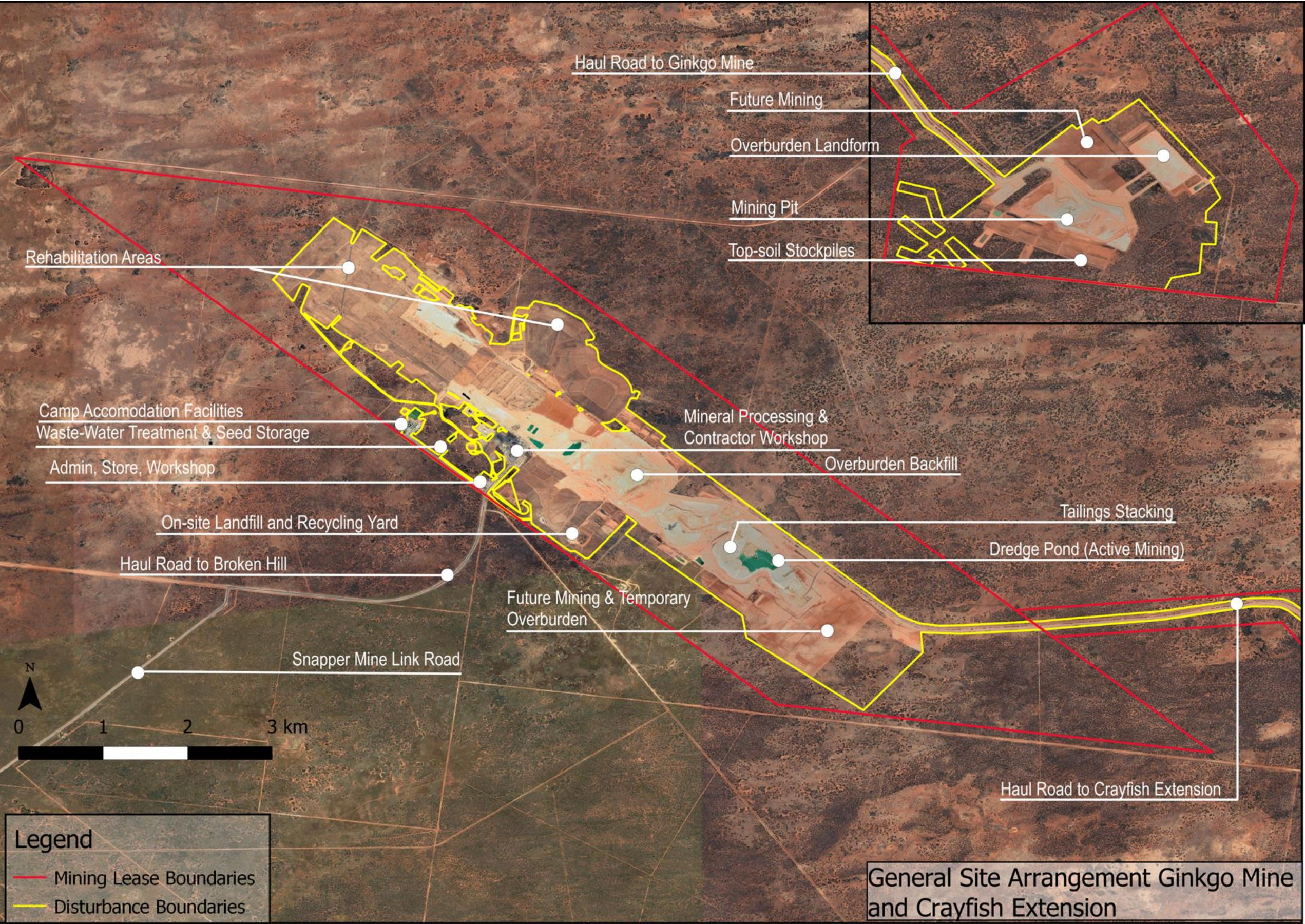


Figure 2 – Site Arrangement at the Ginkgo and Crayfish Mines

2.4 Amendments to Development Consent

Development Consent for the Ginkgo Mineral Sands Project was granted by NSW Department of Planning and Environment in January 2002. Since the issue of the consent fifteen (15) amendments have been approved for the development as shown in .

Table 5 – Summary of Modifications to the Original Development Consent

Modification	Approval Date	Description of Change
Mod 1	September 2003	• Realignment of sections of the Highway Access Road (HAR) • Realignment of the Electricity Transmission Line (ETL).
Mod 2	May 2005	Additional infrastructure components included: • A heavy mineral concentrate treatment facility which includes a wet high intensity magnetic separation (WHIMS) circuit, salt washing facility and reverse osmosis (RO) plant. • Ilmenite, leucoxene, and non-magnetic concentrate stockpiles; and • A Reverse Osmosis plant for potable water.
Mod 3	April 2006	• Modification of the method of overburden replacement. • Revision of the classification of waste materials to be transported from the Broken Hill MSP along the Ginkgo HAR for disposal at the Ginkgo Mine.
Mod 4	May 2007	• Extension of the dredge pond. • Extension of the initial sand residue dam (approved but not constructed). • Secondary overburden emplacement. • Additional soil stockpiles; and • Treatment of process water in a series of water treatment dams or in the sand residue dam.
Mod 5	December 2008	• Amendment of three development consent conditions.
Mod 6	April 2009	• Development approval was granted for a 1 metre capping (down from 3 metre) on the Overburden Slurry Dam.
Mod 7	December 2009	• Temporary approval to transport 2Mt of ore from Snapper to Ginkgo.
Mod 8	October 2010	• The key components of the October 2010 Modification No 8 are an increase in Ginkgo total ore mined from 128Mt to 145Mt, with an increase of mine life from 12 years to 14 years.
Mod 9	March 2015	• Crayfish Extension development and associated works.
Mod 10	October 2014	• Ginkgo and Snapper mines can now accept up to 300,000 tonnes per annum of mineral sand waste treated at the Broken Hill Mineral Separation Plant that originated from Ginkgo, Snapper, Atlas and Campaspe.
Mod 11	August 2015	• The modification allows up to 300t of general household waste from the camp and offices of

Modification	Approval Date	Description of Change
		Ginkgo, Snapper and Crayfish operations to be disposed of in the constructed landfill.
Mod 12	April 2016	This modification was approved on the 6th of April 2016 to allow for increased disturbance on the Ginkgo mining lease (ML 1504) for the mining of several small satellite deposits.
Mod 13	December 2017	- minor reduction to the extent of the approved Ginkgo deposit mine path to reflect the outcomes of geological test work. - an additional overburden emplacement. - expanded soil stockpile areas. - an additional water dam; and - the extension of other supporting infrastructure.
Mod 14	March 2021	Expansion of the Ginkgo mine. The additional area of disturbance approved is 244Ha.
Mod 15	July 2022	Short term Ore Transport and Processing Modification. Ore from Atlas Mine transported via approved Atlas-Campaspe Mineral Concentrate Transport Route to Broken Hill MSP. Ore is stockpiled and transport to Ginkgo Mine.

2.5 Amendments to Environment Protection Licence

No amendments were made during the reporting period.

2.5.1 Independent Environmental Audits

An Independent Environmental Audit (IEA) was conducted in December 2021 to determine compliance to the Ginkgo/Crayfish Development Consent (DA). The DA audit assessed compliance over the previous three years of operation. The Audit was conducted by Maurice Pignatelli (Certified Lead Environmental Auditor) of OptimE Pty Ltd, whose appointment was endorsed by the Secretary of Department of Planning, Housing and Infrastructure (formerly Department of Planning and Environment). Findings from the audit indicated that Tronox was non-compliant with three (3) conditions of DA 06_0168. Ten (10) opportunities for improvement were identified.

A summary of non-compliances (NC), opportunities for improvement (OFI) and the actions completed are provided in Table 6.

Table 6 - Summary of 2021 Independent Environmental Audit findings and actions completed to date

DA Condition	IEA Finding	IEA Recommendation	Tronox Response & Proposed Actions	Proposed Action Target Date	Status
S2 C13 - New Buildings and Structures	Non-compliant Tronox advised that a small demountable safety office has been constructed in the main administration area. No other buildings were constructed during the audit period. The building was observed to be installed with safe access and lighting (Photo 2). No further assessment was undertaken on the building at the time of the audit. Tronox advised that they were not aware of whether a construction or occupation certificate had been obtained for the building and therefore were not able to demonstrate compliance with the relevant requirements of BCA.	Recommendation R-01: Assess and confirm that the small demountable safety office complies with the relevant requirements of the BCA. <i>Note: The references to the EP&A Act in the notes of this condition are Out Of date and should be updated at the next modification Of the Approval.</i>	Tronox have not been able to locate the required certification for the office building and will engage the services of a Private Certifier to attend the site and provide a certification.	31-Mar-22	Not completed. No details of the building certification could be obtained. This is an opportunity for improvement to keep records of processes.
53 C11 Water Management Plan	Compliant with Improvement Opportunity A review Of the Ginkgo Monthly Environmental Inspection Sheet confirmed that erosion and sediment controls were inspected (around stockpiles) however additional prompts would be warranted to provide greater assurance Of structural integrity and effectiveness Of critical erosion and sediment control structures on-site, particularly for pre and post rainfall events.	Improvement Opportunity IO-2a: Review the Monthly Environmental Inspection Sheet to prompt more detailed Observations associated with erosion and sediment controls. These additional observations should be prompted by forecast rain and post rainfall events.	Tronox will update the monthly inspection sheet to ensure that more detailed inspections are undertaken and will also look to incorporate erosion and sediment control inspections in the site Trigger and Response Plans to ensure that appropriate proactive and reactive controls are in place to manage erosion and sediment.	30-Apr-22	Ongoing Erosion control was a priority in current period. Corrective measures were applied in heavily eroded areas and additional prompts now included in monitoring checklists

DA Condition	IEA Finding	IEA Recommendation	Tronox Response & Proposed Actions	Proposed Action Target Date	Status
	Compliant with Improvement Opportunity Quarterly TDS and water level monitoring was also undertaken of the 5 internal bores, however, the WMP specifies that this monitoring should be undertaken monthly. Tronox advised that monthly monitoring was not warranted as there is limited variation in TDS and water level between monitoring events. (Refer to tables in Section 4.3.2 Of the 2020 AEMR).	Improvement Opportunity IO-02b: Amend Water Management Plan to reflect quarterly monitoring of groundwater for Internal TDS and water levels, subject to DPIE approval.	The water management plan will be revised to reflect the current frequency of groundwater monitoring.	16-May-22 (3-months from audit report submission)	In Progress: Amendment to be added to Revision in consultation with DPHI. WMP will be reviewed following hydrogeological assessments for the Ginkgo and Snapper Landforms in support of closure activities.
S3 C18 Biodiversity Offset Strategy	Compliant with Improvement Opportunity The Murray Basin Mines Offset Management Plan was updated in July 2019 to incorporate DPIE comments. It is noted however that the Murray Basin Mines Offset Management Plan has not been updated with the requirements Of Schedule 3, Conditions 18A and 18B.	Improvement opportunity IO-03: Amend the Offset Management Plan to incorporate the requirements Of Schedule 3, Conditions 18A and 18B.	The Biodiversity Offset Management Plan will be revised to reflect the Current frequency of groundwater monitoring.	16 May 2022 (3-months from audit report submission)	In Progress Offset Management Plan under revision. To be finalised by 30 June 2024.
S3 C22 - Flora and Fauna Management	Compliant with Improvement Opportunity In correspondence to the auditor, BCD advised that "The requirement to quantify the amount of the threatened plants <i>Swainsona flavicarinata</i> and <i>Swainsona adenophylla</i> in vegetation clearance situations and to describe threatened species management measures for them are now recognised by BCD to be unnecessary given the low likelihood of the occurrence of either species in the area". On this basis, an improvement opportunity has been raised to remove this requirement from the FFMP.	Improvement Opportunity IO-04: Consider whether ongoing monitoring should be undertaken to quantify the amount of the threatened plants <i>Swainsona flavicarinota</i> and <i>Swainsona adenophylla</i> in vegetation clearance situations and to describe threatened species management measures for them. BCD consider this monitoring to be unnecessary, given the low likelihood of the occurrence of either species in the area.	The next Flora and Fauna Management Plan revision will remove the requirement to monitor for <i>Swainsona flavicarinato</i> and <i>Swainsona adenophylla</i> in accordance with the recommendation.	NA	Noted. Requirement to be removed

DA Condition	IEA Finding	IEA Recommendation	Tronox Response & Proposed Actions	Proposed Action Target Date	Status
S3 C23 Aboriginal Cultural Heritage Management Plan	Compliant with Improvement Opportunity The HMP requires identified heritage sites to be isolated and avoided. Environmental inspection checklist was undertaken quarterly which covered heritage areas. The site inspection confirmed that two heritage areas were "roped" off to prevent inadvertent damage to artefacts. The areas were not signposted (Photos 30 to 31).	Improvement opportunity IO-05: Provide more robust fencing around the aboriginal heritage sites and signage to prevent unauthorised access.	Tronox will add signage and more robust fencing around the sites as recommended.	31-May-22	Completed. Monitoring identified no risks to the Heritage Sites. Fencing may be installed in 2024 to prevent inadvertent disturbance of sites during closure activities
S3 C27 Operating Conditions (Radiation)	Non-compliant with respect to C27 (b) quarterly monitoring data for radiation levels at the Tailings Discharge Area confirmed that radiation levels were below 0.7 µSv/h, except for 2019/Q3, 2019/Q4 and 2020/Q1. As these higher readings were in consecutive quarters, they may have been attributable to blending ratios or operator error. These exceedances were not reported to the relevant agencies.	Recommendation R-03: Report non-compliances against radiation management Operating conditions (C27(b)) to the relevant agencies and develop internal procedures to prevent re-occurrence.	Tronox will investigate the 2019 — 2020 to determine to cause and will update the Radiation Management Plan with additional control strategies to avoid reoccurrence.	16 May 2022 (3-months from audit report submission)	In progress Radiation Management Plan approved in 2020 will be revised together with other subplans
			Tronox will update the radiation monitoring procedures to ensure that any further exceedances of the criteria are reported to the relevant agencies and adequately investigated, and any issues addressed.	16 May 2022	In Progress
S3 C28 - Radiation Management Plan	Compliant with Improvement Opportunity During this audit it was observed that the monitoring requirements Outlined in the RMP do not address the full requirements for Section 3, Condition 27. The status of radiation	Improvement opportunity IO-07: Amend the Radiation Management Plan to document monitoring and reporting requirements against Schedule 3, Condition 27 (a), (b), and (c).	Tronox will update the Radiation Management Plan to document monitoring and	16-May-22	In Progress: Monitoring program will be refined to include

DA Condition	IEA Finding	IEA Recommendation	Tronox Response & Proposed Actions	Proposed Action Target Date	Status
	monitoring against the plan and S3 C27 is Outlined below: - C27 (a) - There is no monitoring requirements in the RMP and monitoring is not undertaken. - C27(b) - There is no monitoring requirements in the RMP however monitoring is undertaken on a quarterly basis. Refer to 53, C27(b) for findings. C27 (c) - There is no monitoring requirements in the RMP and monitoring is not undertaken.		reporting requirements as recommended.		rehabilitation areas
S3 C33	Compliant with Improvement Opportunity The 2020 Ginkgo Mine Rehabilitation Monitoring Report (by Swainsona Seed Services) recommended that Tronox: - Modify the 'hurdle' benchmark targets for rehabilitation areas that have experienced prolonged drought conditions - Monitor the 2018 rehabilitation areas closely and consider re-topsoiling and seeding of it continues to perform poorly - Maintain ongoing active herbivore management Introduce routine monitoring of Burford seeding lines. - Continue trials for increasing water retention and reducing soil erosion, reducing the impact of regular drought conditions.	Improvement Opportunity IO-08: Amend the Rehabilitation Management Plan to: - Document monitoring and reporting requirements against the rehabilitation Objectives Outlined in Schedule 3 Condition 32. - Address the recommendations of the 2020 Ginkgo Mine Rehabilitation Monitoring Report.	Tronox will prepare a Rehabilitation Management Plan, Rehabilitation Risk Assessment, and rehabilitation outcome documents as required by Schedule 8A of the Regulations	2-Jul-22	Completed: Ginkgo RMP published on website Ginkgo and Crayfish ROBJs and FLRPs submitted . Ginkgo Final Landforms being considered for Modification.
S5 C5	Compliant with Improvement Opportunity The following management plans were deemed to require further update. Murray Basin Operations Environmental Management Strategy: Rev4 (Dec 2016) A review Of the EMS confirmed that it has not been updated for 5 years. It was observed that the document was not up to date with respect to:	Improvement Opportunity 10-09: The OEMP and WEMP have not been updated since 2016 and 2015 respectively. Undertake a temporal review of the OEMP and WEMP.	Tronox will review and update the WEMP and OEMP as recommended.	16-May-22	In progress: EMS to be reviewed in current period to include new changes to applicable management plans and

DA Condition	IEA Finding	IEA Recommendation	Tronox Response & Proposed Actions	Proposed Action Target Date	Status
	- Rebranding and description of the reporting Structure to Tronox Mining - Applicable regulatory agencies - Reporting and auditing requirements in the EMS are not consistent with the reporting and auditing requirements of the Approval (as amended by MOD 14) Water Management Plan, Rev F (Oct 2016) A review Of the WMP confirmed that it has not been updated since 2016 (5 years).				monitoring obligations. Revision of hydrogeological assessment being commissioned as part of Ginkgo Landform modification process. WMP to be reviewed and updated
EMS S6.2 Annual Environmental Management Review Meetings	Compliant with Improvement Opportunity Tronox advised that annual meetings are not undertaken between Tronox, and key stakeholders as regular contact is maintained monthly when undertaking dust monitoring and other operational interactions.	Improvement opportunity IO-10: Consult with stakeholders to see whether they would like to participate in an annual meeting to discuss Tronox performance. Amend the EMS to reflect the outcomes of the consultation, subject to DPIE approval.	Tronox will consult stakeholder individually throughout 2022 and will intend to hold a community meeting subject to COVID restrictions.	31-Dec 2022	In Progress Meetings have focused on closure activities and fire management and response

The EMS and all environmental management subplans to be reviewed to incorporate updates on cessation of mining at Snapper, Crayfish and planned cessation of mineral extraction at Ginkgo in 2024.

2.5.2 Non-compliances

There was one (1) non-compliance identified during the reporting period. This related to the water and/or land monitoring requirements as per section 5 M2.3 of the Environmental Protection Authority (EPA) Licence (12264).

2.5.3 Notices

No notices were issued by the Secretary DPHI during the reporting period; however, the NSW Resources Regulator issued notices to commence investigations following Tronox's failure to submit rehabilitation outcome documents as required under Clause 9 of Schedule 8A to the Mining Regulation 2016.

2.6 Mine Contacts

The names and contact details of site personnel responsible for mining, rehabilitation and environmental management, planning and support functions are shown in Table 7.

Table 7 – Mine Contacts

Personnel	Position	Contact Number
Peter Collins	Site Director	(03) 5074 8948
Dennis Hunt	Manager, Mining	04307 388 455
Hennie Kruger	SHEQ Manager	0459 057 794
Chaka Chirozva	Environmental Lead	0437 146 508

2.7 Action Required at Previous Annual Review

No actions were required from the previous Annual Review Report.

2.8 Environmental Incidents

During the reporting period, there were no reportable environmental incidents at Ginkgo and Crayfish Mines.

2.8.1 Regulator Site Inspections

On 10 October 2023, the NSW Resources Regulator Mining Inspectorate conducted a planned inspection at the Ginkgo and Snapper Mines. The assessment primarily focused on the Snapper and Ginkgo going into closure, progress of rehabilitation and progress in preparing rehabilitation outcome documents required under Schedule 8A of the Regulation.

During the visit, the Regulator inspected rehabilitation areas, Ginkgo OB04, Snapper Open Pit, Snapper Mine overburden emplacement areas, topsoil stockpiles. The Regulator recommended a topsoil deficit risk assessment and completion of risk assessment for the final landform at Snapper to ensure that the final landform is stable and safe and capable of supporting final land use of light

intensity grazing. The Regulator was pleased to note the progress on rehabilitation at Ginkgo OB04 as it was backfilled and ready for seeding.

2.8.2 Rehabilitation Outcome Documents

The Regulator has assessed the Ginkgo and Crayfish Rehabilitation Objective Statements (ROBJs) and Final Landform and Rehabilitation Spatial Plans (FLRPs) during this reporting period. These documents were required pursuant to Schedule 8A of the Mining Regulation 2016. The Ginkgo Rehabilitation Management Plan and Ginkgo Forward Program 2023-2026 were published on Tronox website and submitted to the Regulator respectively. Prior to this the Regulator had commenced an investigation into Tronox's failure to publish or submit rehabilitation outcome documents in the form and way required by the Regulator.

Tronox is currently considering modifications to the Ginkgo landforms and exploring design options for ensuring that the final landforms are generally in accordance with the Ginkgo Approvals. Consultations with the DPHI will continue in 2024.

3 OPERATIONS DURING THE REPORTING PERIOD

3.1 Exploration

No exploration occurred during the reporting period.

3.2 Land Preparation

No land preparation occurred during the reporting period.

3.3 Construction

No construction occurred during the reporting period.

3.4 Mining

Ginkgo

Mining activities continued in a south-easterly direction. Overburden was removed from above the ore and stockpiled in a temporary overburden mound on the southern side of the pit or backfilled over the tailings within the pit. Ore continued to be mined with a dredge and minerals separated from the sandy tailings using a floating processing plant on the pit lake. The tailings were pumped back into the mined-out areas to fill the void.

During this period, ore of Atlas was transported to the Ginkgo dredge as processing infrastructure was not complete. Under Modification 3, ore instead of mineral concentrate was transported from Atlas to Ivanhoe and subsequently to Broken Hill. The ore was transported as part of the approved Murray Basin Operations and did not change the existing approvals for these operations. This Modification was only applicable for a short term until the Atlas Mine Wet Plant Concentrator was operational.

Crayfish

Overburden removal at Crayfish began in July 2019 with ore mining commencing in September 2019. Ore was dry mined using a truck and shovel fleet and transported approximately 10km to the Ginkgo mine using dump trucks, where it was placed in front of the dredge for processing through the concentrator.

Vegetation was cleared and stockpiled around the disturbance area. Topsoil and subsoil were stripped ahead of mining and separately stockpiled adjacent to the active mining areas. Overburden was placed in a permanent mound on the eastern side of the disturbance area. Further subsoil and topsoil stripping commenced in late 2021 to progress the pit in a northerly direction until cessation of mining at Crayfish.

Mining ceased at Crayfish Mine in July 2023. The DPE and MEG were notified of the changes at Crayfish Mine.

3.4.1 Topsoil Management

No topsoil removal occurred during the reporting period.

3.4.1 Production

Production statistics, including estimates for the reporting period and subsequent year, are provided in Table 8.

Table 8 – Production Statistics

Material	Units	Annual Review Period					
		2023 (Est.)		2023 (Actual)		2024 (Est.)	
		Ginkgo	Crayfish	Ginkgo	Crayfish	Ginkgo	Crayfish
Topsoil / Subsoil Stripped*	(Kbcm)	0	0	0	0	0	0
Overburden Removal	(Kbcm)	893	773	1211	437	0	0
Ore	(Kt)	8309	included in Ginkgo	7253	included in Ginkgo	4224	included in Ginkgo
Heavy Mineral Concentrate	(Kt)	131	included in Ginkgo	114	included in Ginkgo	50	included in Ginkgo
Sand Residues	(Kt)	8440	included in Ginkgo	7139	included in Ginkgo	4174	included in Ginkgo

*Topsoil removal is based on load counts

Note: Crayfish ore is transported to Ginkgo and processed through the dredge

3.4.2 Dredge Mining Description

Dredge mining was selected as the most efficient method of mining the Ginkgo deposit due to the location of the standing groundwater table, the presence of suitable groundwater resources for additional process requirements and the physical characteristics of the sands that make up the ore body.

The floating dredge mines the ore with a rotating bucket wheel to cut/collect the ore and deposit it at the suction pipe inlet to the dredge pump. The ore is relatively free flowing and forms a slope of approximately 26 degrees below the water. The dredge collects the ore from the base of this slope. The rotating bucket wheel of the dredge is located on a ladder that can be raised or lowered according to the depth of the orebody below the water level and to provide access for maintenance. Movement of the dredge within the pond is achieved by a combination of winches and anchors for lateral movement and use of “spuds” for forward or backward movement within the pond. A spud is a tube that is lowered onto the base of the pond to provide a pivot point for dredge movement.

The dredge discharges ore slurry to the screen and surge bin on the floating plant via a 250 m long pipeline located on a series of pontoons. The pontoons are also used for access between the floating plant and the dredge.

During 2012 the Ginkgo mine completed the turn-around stage of its movement along the mine-path and is currently on its “second pass” of the ore body. Due to the width of the ore

body, Ginkgo was planned as a two-pass operation, this allowed Tronox to begin mining in a high-grade area of the mine, it was also deemed the most efficient means of mining out the ore body.

Dredging is progressing at Ginkgo will mining operations scheduled to end in the first half of 2024.

3.4.3 Mineral Processing Description

Ore Concentrating

Primary separation of the target minerals occurs in a floating plant located behind the dredge within the pond. The floating plant consists of a vibrating screen and surge bin, and a wet concentrator. The dredge delivers the ore slurry containing some 30% solids to the vibrating screen and surge bin located on a floating pontoon adjoining the wet concentrator. The vibrating screen above the surge bin rejects coarse material (> 4 mm), which is returned to the pond behind the floating plant. Material that passes through the vibrating screen flows to a surge bin, which provides buffer storage to maintain consistent feed rate and pulp density to the subsequent wet concentrator circuits.

The ore slurry is transferred to a gravity separation circuit in the wet concentrator by pumps located near the bottom of the surge bin. The wet concentrator is equipped with conventional gravity concentration circuits to separate target minerals from sand residues. The floating plant is connected to the bank of the dredge pond by a pontoon bridge that carries the mineral concentrate pipeline, process water pipeline and provides access from the bank. All electrical power is provided at 22 kV through a trailing cable from a relocatable transformer on land.

The floating plant is manoeuvred in the pond by four winches, one on each corner of the floating plant pontoon. The winch cables are attached to anchors that will be periodically relocated in accordance with plant advance along the mine path.

The floating plant produces a mineral concentrate comprising approximately 95% valuable heavy minerals. The mineral concentrate will principally contain ilmenite, altered ilmenite, leucoxene, rutile, and zircon. The concentrate is pumped ashore to the mineral concentrate stockpile area and dewatered to approximately 6% water content.



Figure 3 – Ginkgo Dredge (Amanda II)

Heavy Mineral Concentrate (HMC) Treatment Facility

The heavy mineral concentrate (HMC) is stockpiled next the HMC Treatment Facility waiting further processing. The HMC Treatment Facility's function is to wash the salt from the HMC and separate the HMC into three products: namely ilmenite, leucoxene, and non-magnetic concentrate. The HMC Treatment Facility commenced operation in January 2006, and is comprised of the following:

- a salt washing facility.
- WHIMS circuit; and
- Reverse Osmosis (RO) plant.

Due to the highly saline nature of the groundwater beneath the Ginkgo Mine site, mineral concentrate pumped from the floating wet plant has a high salt content. Salt contained within the concentrate requires removal to enable efficient subsequent separation techniques during processing. Therefore, the mineral concentrate is washed with desalinated water prior to further processing. The salt washing facility utilises desalinated water provided by the Reverse Osmosis (RO) Plant. Water for the RO Plant is sourced from the bore field that runs along the Ginkgo Camp Road.

Following washing, the mineral concentrate is pumped into the Wet High Intensity Magnetic Separation (WHIMS) circuit. The WHIMS is the preliminary mineral concentrate treatment stage which separates the mineral concentrate into an ilmenite concentrate, a leucoxene concentrate, and non-magnetic concentrate (containing rutile and zircon) utilising the difference in magnetic properties of these minerals. No chemical reagents are used in this process.

A detailed layout of the mine site arrangement is shown in .



Figure 4 – Salt Washing Facility and WHIMS Circuit

3.5 Waste Management

3.5.1 Sand Residue (Tailings)

A total of 7,139,000 tonnes of tailings was produced during the reporting period. All tailings were deposited and contained inside the mine void.

All external tailings dams have been decommissioned and 95% of these have been rehabilitated.

3.5.2 Overburden

A total of 1,648,000 bcm (1,211,000 bcm Ginkgo; 437,000 bcm Crayfish) of overburden was removed at the Ginkgo/Crayfish Mine during the reporting period. This was undertaken using a truck and shovel fleet. The overburden was deposited as backfill behind the Ginkgo dredge pond or stockpiled, to a maximum height of 20 meters, in a designated area adjacent to the mine void.

3.5.3 Back loaded Broken Hill MSP Waste

Monazite from the Ginkgo deposit is separated from the other heavy minerals at the Broken Hill MSP and returned to the mine site for disposal. Back loaded waste from the MSP is deposited in a designated stockpile located at the HMC Treatment Facility. This waste is placed in a shore-based hopper, mixed with wastewater from the salt washing facility, and then transported to the Wet Plant via a slurry pipe. This slurry then joins the sand residue stream and be deposited on the sand residue beach, thereafter, to be covered with up to 35m of overburden.

If the radioactivity levels of the MSP waste are below 0.7 micro-Gray per hour measured 1 metre vertically above the surface of the material being deposited, the waste stream can be deposited directly back into the pit without the need to go through the shore-based hopper.

The waste will then be covered with up to 35m of overburden. The total tonnage of MSP production waste disposed of at the Ginkgo Mine for 2023 is provided in Table 9.

Table 9 – MSP Waste Disposed of at Ginkgo

EP Licence No.	Disposal Limit (t)	Waste Received (t)
12264	300,000	17,828.6

The mineral sand processing waste (MSP waste) will continue to be transported to Ginkgo Mine or Snapper Mine, where is backfilled into extracted areas, until rehabilitation of these mines is completed. Once these mines are rehabilitated, MSP waste will be transported back to Atlas-Campaspe (by rail to Ivanhoe, then by truck to the mine) for use as infill behind the advancing extraction areas.

3.5.4 Rubbish and Recycling

Non-process waste generated at the Ginkgo/Crayfish Mine is managed in accordance with The Murray Darling Basin Mine Landfill and Waste Environmental Management Plan. The primary objective of the plan is to minimise the production and impacts of non-process waste associated with mining operations. This is achieved via implementation of the waste minimisation hierarchy:

Avoid/Reduce ⇒ Reuse/Recycle ⇒ Treat ⇒ Dispose

A summary of non-process waste streams generated from the offices, workshop/store, WHIMS processing plant and ancillary activities at Ginkgo/Crayfish Mine is shown in Table 10. Ancillary activities refer to activities associated with mining operations, including the transportation of mineral concentrate, delivery of materials and operation of mobile equipment.

Table 10 – Non-process waste streams

Waste	Waste Type	Waste Generation Source				Disposal Code
		Offices	Workshop / Store	WHIMS Process	Ancillary Activities	
Non-liquid Waste	Putrescible and inert miscellaneous material.	✓	✓	✓	✓	L + C
	Biodegradable	✓	✓	✓	✓	L
	Sewerage Sludge	✓	✓	✓	✓	WS
	Cans, containers	✓	✓	✓	✓	R
	Packaging-paper/cardboard/plastic	✓	✓	✓	✓	R
	Wood Pallets		✓			L or B
	Wood Misc.		✓			L or B

Waste	Waste Type	Waste Generation Source				Disposal Code
		Offices	Workshop / Store	WHIMS Process	Ancillary Activities	
	Batteries		✓		✓	R
	Scrap Steel		✓	✓		R
	Drums		✓	✓		EB or R
	Tyres		✓	✓	✓	R
	Oil filters, absorbents etc.		✓	✓	✓	R
	HC containers (1000 L pods)		✓	✓	✓	EB or RT
	Oil contaminated soils/silts		✓	✓	✓	OT
Non-liquid Hazardous Waste	Fluorescent lamps	✓	✓		✓	R
	Spray cans		✓		✓	R
	Batteries (to be separated into Nickel cadmium and lithium ion-based)	✓	✓		✓	R
Liquid Waste (all potentially hazardous, depending on treatment and classification)	Human effluent	✓	✓	✓		STP
	Solvents	✓	✓	✓		PW
	Paints/ Preservatives and by products		✓			PW
	Waste oil		✓	✓	✓	PW
	Waste Grease		✓	✓	✓	PW
	Oil/fuel contaminated water		✓	✓	✓	PW
	Paint/metal/solvent contaminated water		✓	✓		PW

L = onsite landfill; C = onsite composting/chickens; R = offsite collection and recycling; WS = Wentworth Shire sewage treatment plant (pumped or trucked); B = burnt (with permit); RT = return to manufacturer; EB = plastic drums, employee buyback; OT = onsite treatment/disposal tails; STP = sewerage treatment plant onsite (treated, Class B water irrigated onsite); PW = prescribed waste facility (transported by licenced contractor offsite).

Volume and weight measurements of materials recycled during the reporting period are shown in Table 11.

Table 11 – Recycling – 2023 Reporting period

Item	Tronox	BSL (Contractor)	Potter (Contractor)
Waste Oil (L)	47450	Included in Tronox	2000
Tyres/Rubber (t)	0	321	4
Rags & Filters (m ³)	0	53	0
Scrap Metal (m ³)	6	35	0
Cardboard (m ³)	57	3	0
Glass, Aluminium & Plastic (m ³)	46	NA	NA

General waste (solid, putrescible and non-putrescible) generated at the Ginkgo/Crayfish Mine is transported to and disposed of at the Ginkgo landfill, which is located approximately 2 km south of the Ginkgo administration building. The Ginkgo landfill was constructed in 2016 and is managed in accordance with the Ginkgo Mineral Sands Mine Waste Management Modification Environmental Assessment August 2015 (DA 251-09-01) and the Environmental Protection Authority Environmental Guidelines: Solid Waste Landfill (2015).

Table 12 – General Waste Disposed at Ginkgo Landfill 2023

EP Licence No.	Disposal Limit (t)	Waste Received (t)
12264	350	126.2

3.6 Water Management

Water at the Snapper Mine is managed in accordance with the Ginkgo and Snapper Mines Water Environmental Management Plan. The primary objective of the plan is to minimise the impacts of mining operations on surface water catchments and groundwater aquifers in the area. This has been achieved by:

- Controlling soil erosion and sediment generation in areas disturbed by mining activities
- Minimising the potential impacts to groundwater (depth of water, quality, hydraulic conductivity and gradients)
- Minimising the potential for mining activities to lower the water quality of downstream watercourses
- Minimising salinisation caused by mining activities
- Containing contaminated/fresh water in onsite dams
- Conserving water resources throughout all areas of the operation; and
- Maximising the reuse/recycling of water to decrease the demand on external water supplies.

3.6.1 Water Balance

Table 13 – Stored Water

Volumes Held (m ³)			
Storage Facility	Start of Reporting Period	At End of Reporting Period	Storage Capacity
Desalinated Process Water	600	600	600
Desalinated Potable Water	90	90	90
Desalinated Water – Wash Bay	100	100	100

3.7 Hazardous Material Management

Hazardous materials on-site are managed in accordance with Material Safety Data Sheets, Work Cover and EPA requirements. Due to the free digging nature of the mining operation and the lack of reagents required in the concentrator plant, the only potentially hazardous materials required in significant volume is diesel and waste oils.

Diesel is classified as a combustible liquid (Class C1) for the purposes of storage and handling but is not classified as a dangerous good by the criteria of the *Australian Dangerous Goods Code for Transport by Road or Rail*. The project diesel storage tanks and bunding has been constructed and operated in accordance with the requirements of the AS 1940 – *The Storage and Handling of Flammable and Combustible Liquids*.

Notification has been given to the Resource Regulator for Schedule 11 hazardous chemicals exceeding the manifest quantities that are stored and used at the site. Only Diesel was identified as exceeding the manifest quantity. There are no explosives stored on site.

4 ENVIRONMENTAL MANAGEMENT AND PERFORMANCE

4.1 Dust

4.1.1 Management

Dust at the Ginkgo/Crayfish Mine is managed in accordance with the Murray Basin Mineral Sands Mine Air Quality Management Plan. The primary objective of the plan is to minimise the impacts of dust emissions associated with mining operations. This is achieved by:

- Identification of major sources of particulate air pollutants
- Identification of relevant health and air quality criteria
- Establishment of mitigation measures for minimising dust and particulate emissions
- Formulation of an air quality monitoring program; and
- Establishment of a contingency plan for elevated air quality impacts.

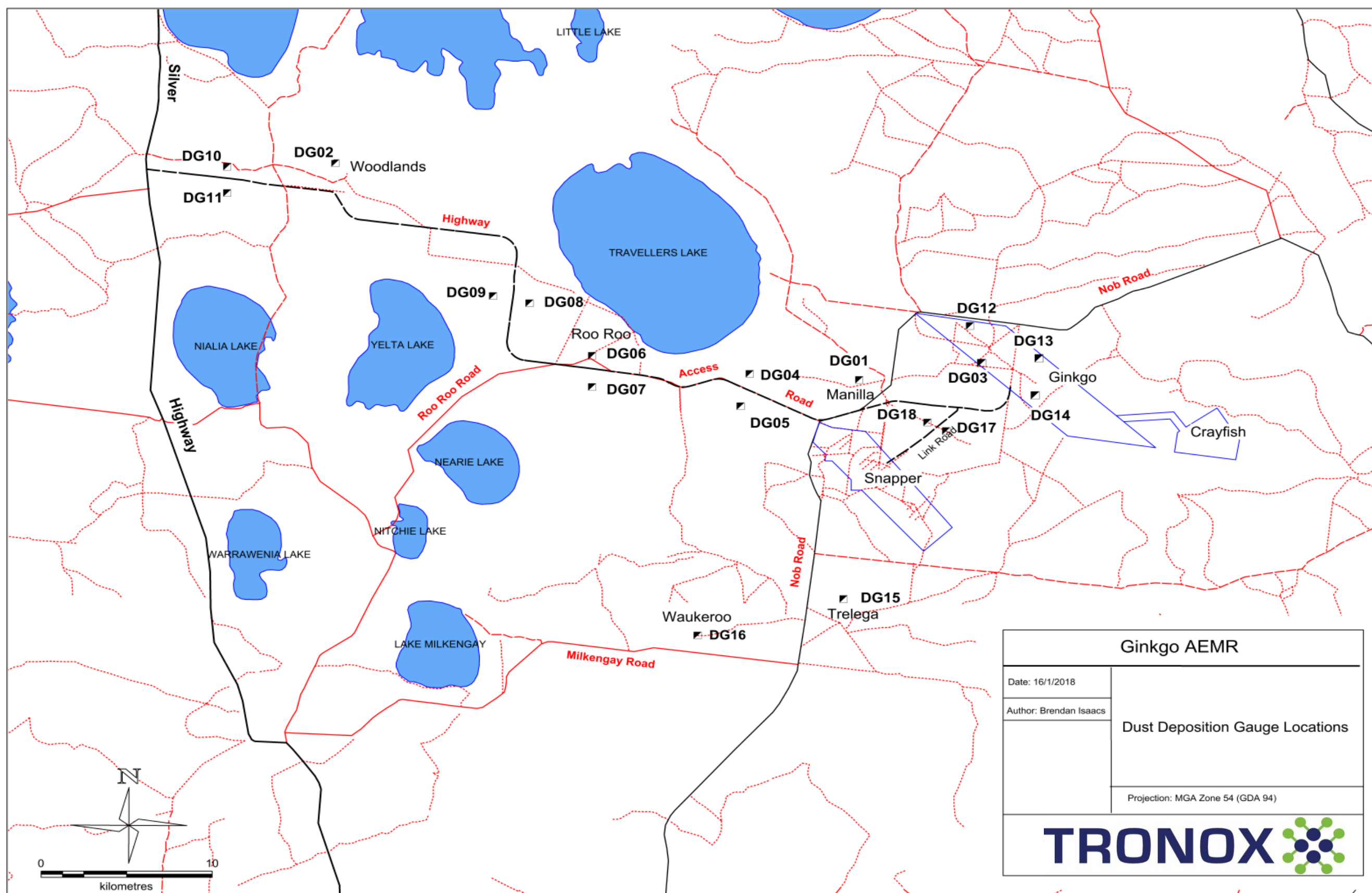


Figure 5 – Dust deposition gauge monitoring locations

4.1.2 Performance

Prior to the commencement of mining operations at the Ginkgo/Crayfish Mine, a risk assessment of the impacts associated with air quality was undertaken. The overall risk was rated as 'low' and it was estimated that the nominal background dust deposition would be less than 2 g/m²/month following the implementation of mitigation measures. The maximum long term dust deposition levels are shown in Table 14.

Table 14 – Long term impact assessment criteria for deposited dust

Pollutant	Averaging period	Maximum increase in deposited dust	Maximum total deposited
Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month

An overview of the dust deposition monitoring undertaken at the mine is provided in Table 15.

Four (4) static dust deposition gauges have been installed at sites located within the vicinity of the Ginkgo/Crayfish Mine. The locations of the gauges are shown in Figure 5. These gauges form part of a network, consisting of 18 dust deposition gauges, that are used to monitor dust levels across the Tronox Murray Basin mining operations.

A total of twelve (12) samples, one sample per month, were collected at each of the sites.

Table 15 – Monitoring summary for dust deposition management

Pollutant	Site ID	Units of Measure and Frequency	Sampling Method
Particulates – Deposited Matter	DG03 (Accommodation Camp)	g/m²/month	Australian Standard 3580.10.1-2003
	DG04 (Manilla)	Monthly	
	DG05 (Carstairs)		
	DG06 (Roo Roo South)		

Average yearly dust deposition levels remained below the DECC limit at all Murray Basin Mine monitoring sites (residential, Ginkgo and Ginkgo HAR), except for DG07, Figure 6. This exceedance was caused by an anomalous result of 36 g/m² during December. All other dust levels at this site remained below the DECC limit during the year.

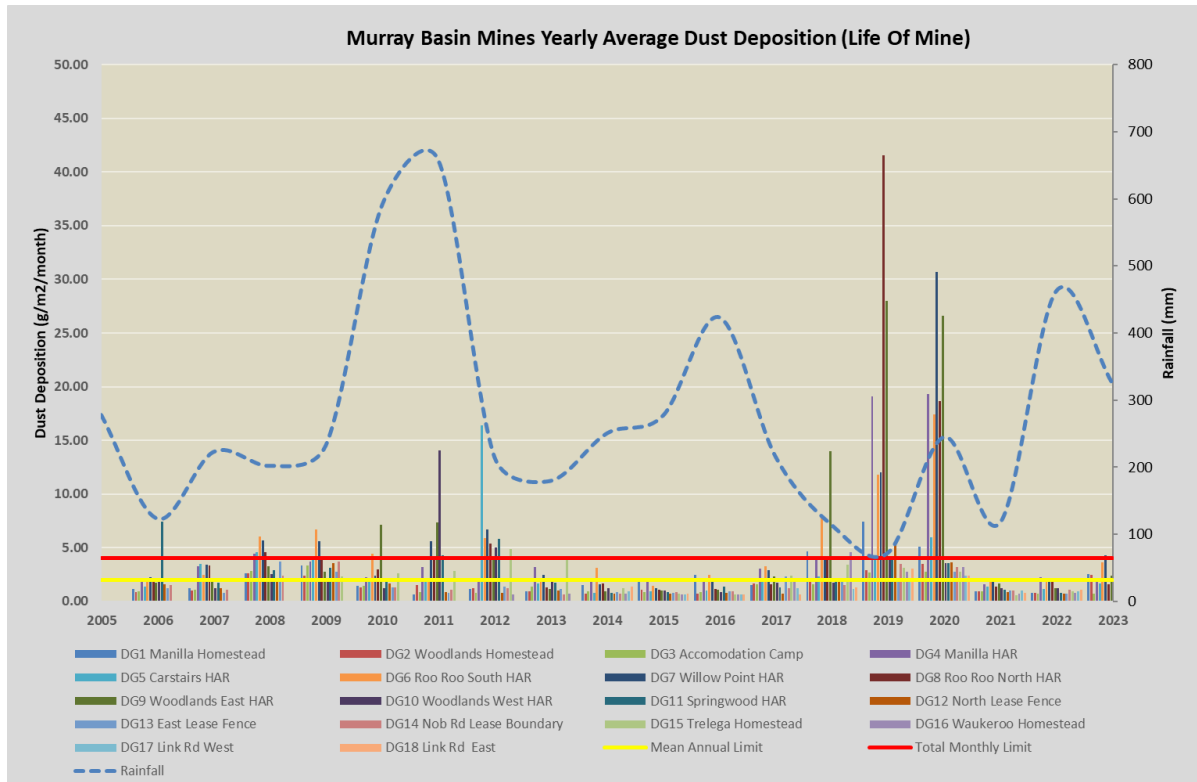


Figure 6 – Murray Basin Mines yearly average dust deposition

Monthly dust deposition levels are shown in Figures 7 to 9. In 2023, there were 12 isolated DECC limit exceedances at 9 of the monitoring sites. These exceedances were likely due to a combination of dry weather conditions and earthworks occurring within the area during the monitoring period.

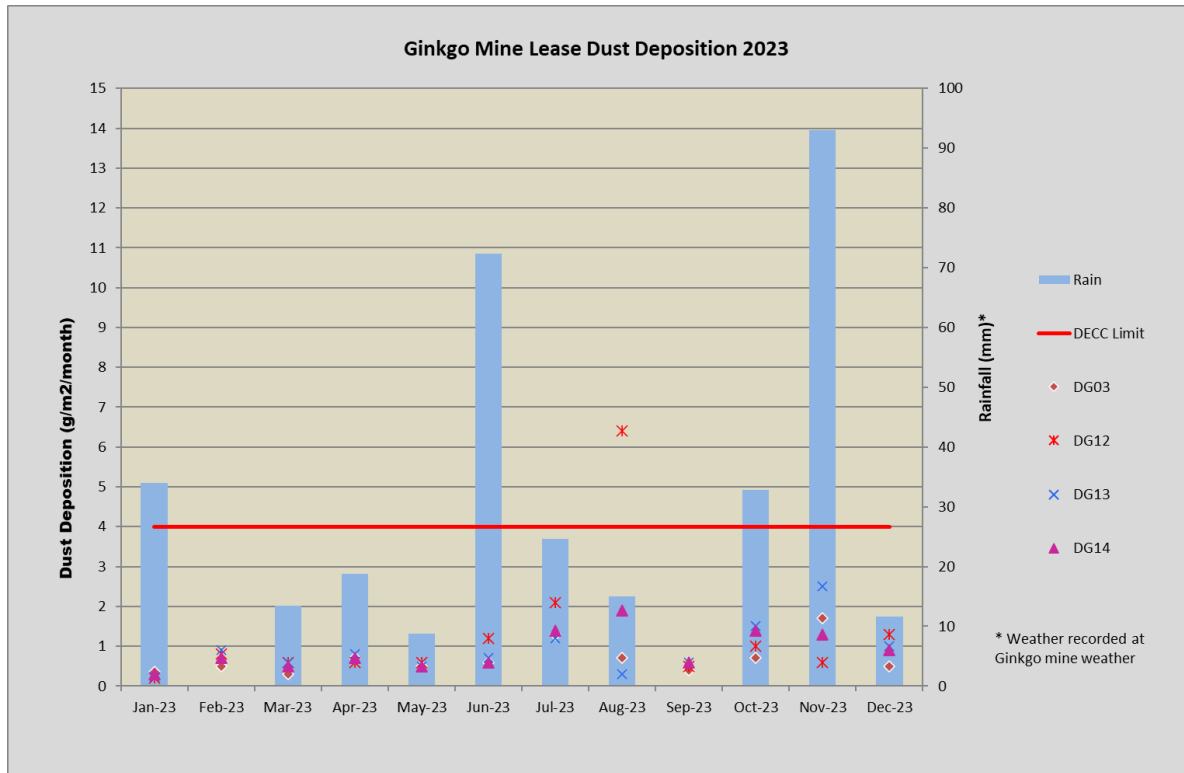


Figure 7 – Ginkgo Mine Lease monthly dust deposition

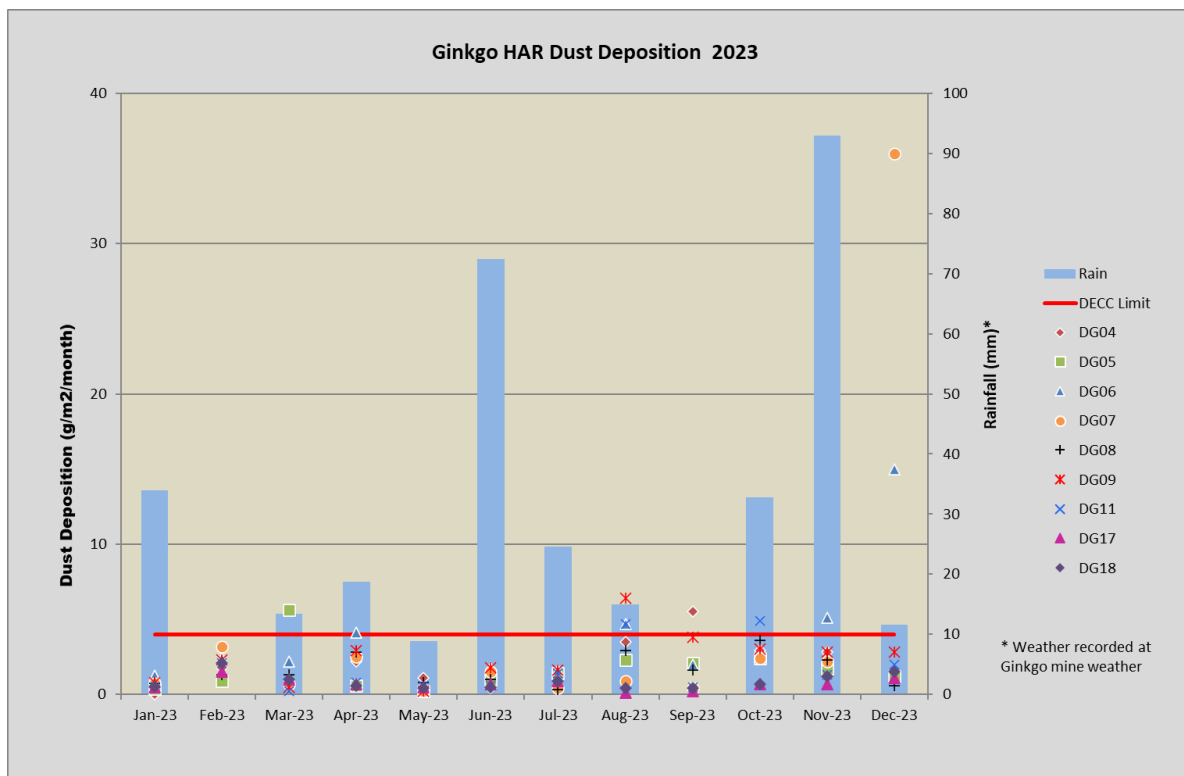


Figure 8 – Ginkgo HAR monthly dust deposition

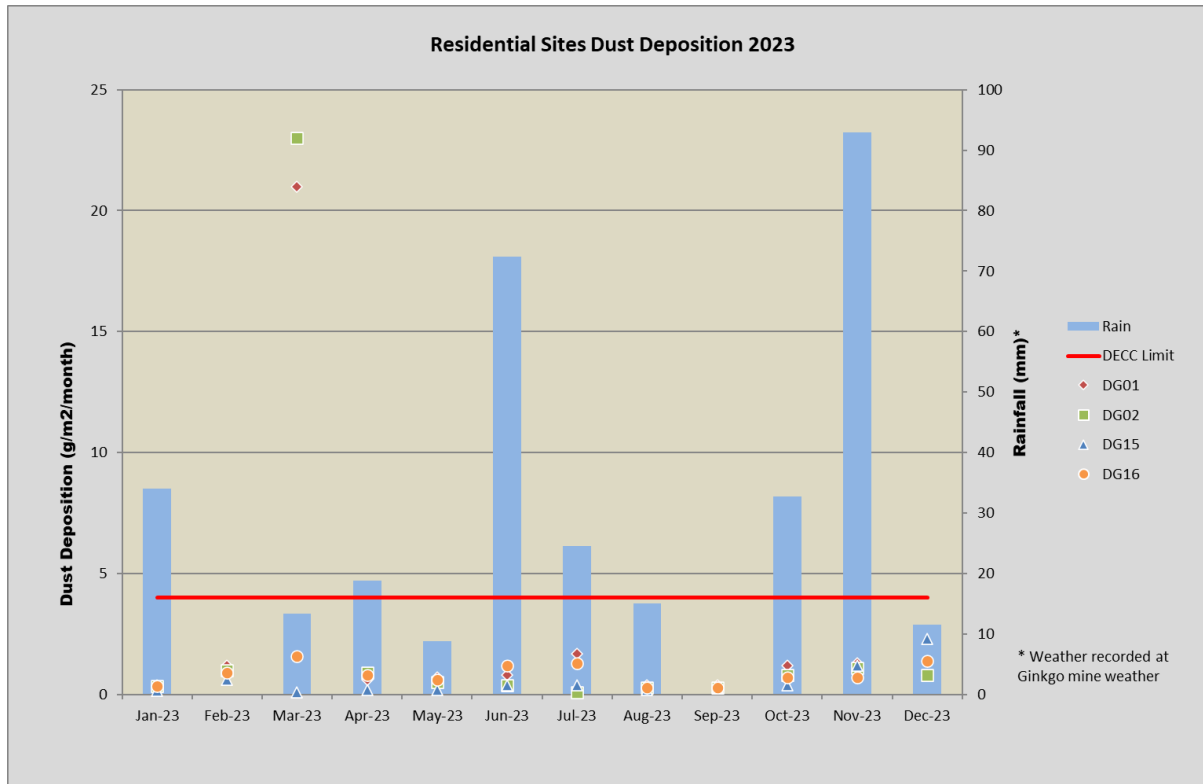


Figure 9 – Residential monthly dust deposition

Dust deposition levels at the Ginkgo/Crayfish Mine monitoring sites can also be influenced by non-mining activities and conditions that are outside of Tronox's control. These include, but are not limited to, livestock movement, cropping, council roadworks and weather conditions.

Dust suppression, by means of water application, is undertaken regularly, with priority given to areas of potentially higher dust deposition (e.g., roads and earthwork areas).

4.1.3 Incidents

No dust incidents occurred during the reporting period.

4.1.4 Improvements

Dust monitoring will continue in 2024 in accordance with the Air Quality Management Plan and statutory requirements.

4.2 Erosion and Sediment Control

4.2.1 Management

Erosion and sediment control at the Ginkgo/Crayfish Mine is managed in accordance with the Ginkgo and Snapper Mines Water Environmental Management Plan. The primary objective of the plan is to minimise the potential impacts of soil erosion and sediment generated by mining operations.

Erosion and sediment control structures (e.g. sedimentation dams or other siltation control devices) have been constructed to contain or treat surface water runoff from all areas disturbed by mining operations, including overburden dumps, topsoil stockpiles, unsealed roads and areas cleared of vegetation.

Monitoring of erosion and sediment is undertaken monthly, as well as after any significant rainfall events. The monitoring is conducted as a visual inspection and may include water quality testing if it is believed that saline contamination may have occurred.

4.2.2 Performance

Monitoring of erosion and sediment focuses primarily on the structural integrity and effectiveness of control structures, such as dams, which are located on the mine lease. No erosion of control structures was evident during the reporting period. Several dams reached near-capacity due to increased rainfall within the area.

Periodic cleaning out of sediment dams and diversion drains was undertaken as required.

As shown in Figure 10, in 2023, the total rainfall recorded at the Ginkgo Weather Station was 323mm. This is almost 150mm less than that of the previous year, however it is still above the expected annual rainfall for the region. The total rainfall recorded at the Pooncarie Bureau of Meteorology Station (40km east of the mine) in 2023, was 337mm.

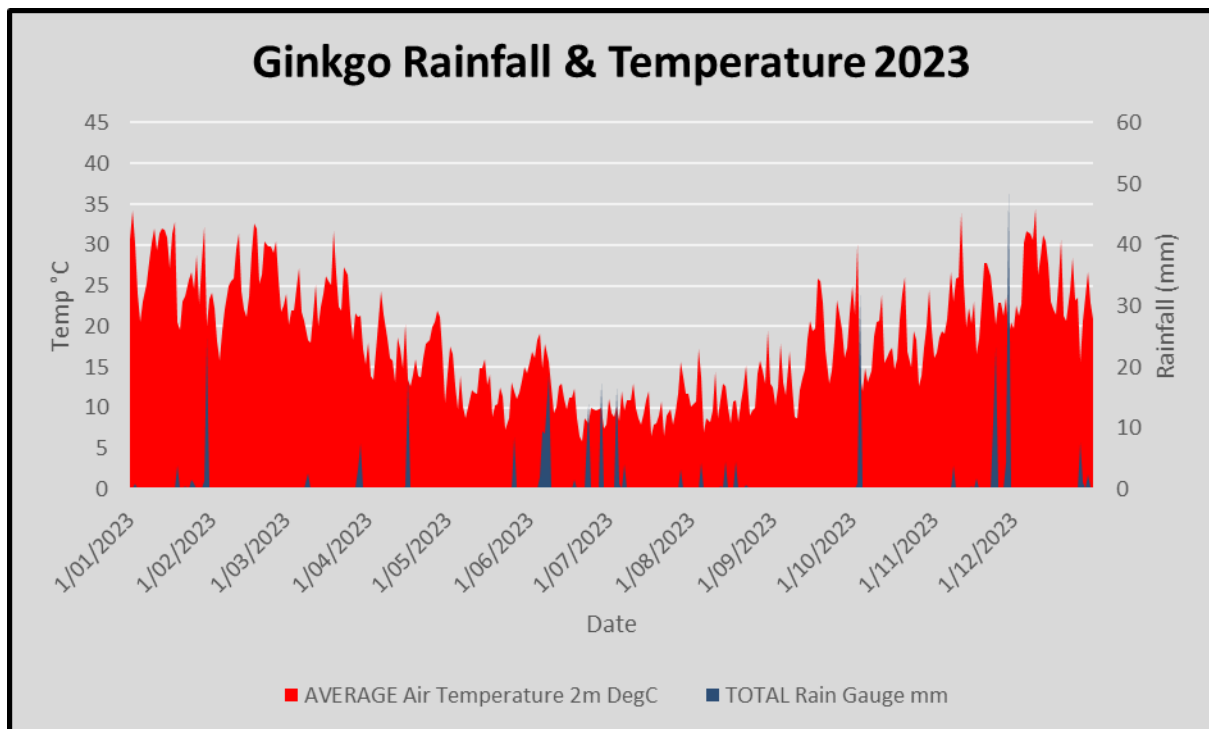


Figure 10 – Daily rainfall and temperatures recorded at Ginkgo Weather Station (2023)

4.2.3 Incidents

No erosion and sediment incidents occurred during the reporting period.

4.2.4 Improvements

Erosion and sediment control monitoring will continue in 2024 in accordance with Ginkgo and Snapper Mines Water Environmental Management Plan and statutory requirements.

Finalise review of the Ginkgo and Snapper Mines Water Environmental Management Plan.

4.3 Water

4.3.1 Management

Water at the Ginkgo/Crayfish Mine is managed in accordance with the Ginkgo and Snapper Mines Water Environmental Management Plan. As discussed in Section 3.6, the primary objective of the plan is to minimise the impacts of mining operations on surface water catchments and groundwater aquifers. This is achieved by:

- Controlling soil erosion and sediment generation in areas disturbed by mining activities
- Minimising the potential impacts to groundwater (depth of water, quality, hydraulic conductivity and gradients)
- Minimising the potential for mining activities to lower the water quality of downstream watercourses
- Minimising salinisation caused by mining activities
- Containing contaminated/fresh water in onsite dams
- Conserving water resources throughout all areas of the operation; and
- Maximising the reuse/recycling of water to decrease the demand on external water supplies.

The closest watercourses to the Ginkgo/Crayfish Mine are Travellers Lake (20km northwest) and the Darling River (20km northeast). The risk of mining operations impacting these watercourses is low.

Surface water

Surface water run-off is generated off compacted areas such as the administration block, lay down pad, overburden stockpiles and roads. This run-off is managed via the construction of diversion drains and sediment sumps. These management strategies allow for dirty and potentially contaminated water to be contained on site, and not enter areas of undisturbed land. Conversely, these structures also act to prevent clean runoff from undisturbed land entering the site.



Figure 11 – Sediment Pond at Crayfish Mine

Groundwater

A network of twelve (12) groundwater monitoring sites, as listed in Table 16, have been established to assess the potential effects of mining operations on both local and regional groundwater aquifers. The monitoring sites consist of existing landholder owned bores/wells, DPI Water regional monitoring bores and Tronox mining bores. The locations of the monitoring bore sites are shown in Figures 12 and 13.

Monitoring of groundwater bores is undertaken quarterly, as per the requirements of the Ginkgo Mine Environmental Protection Licence (12264).

Table 16 – Groundwater Monitoring Bore Locations

Borehole/ Well ID	Location	Description
M02	Local (On Lease)	Mine path progression has removed monitoring site.
M19	Local	North of Mine Path
M21	Local	South of Mine Path
M26	Local	SE corner of Mining Lease
M27	Local	NW corner of Mining Lease
GW36669	Regional (Off Lease)	5 km south of Site

Borehole/ Well ID	Location	Description
GW36670	Regional	36 km WNW of Site
GW36820	Regional	20 km south of Site
Trelega Bore	Regional	13km south of site
Chalky Well	Regional	12 km NNW of Site
Greenvale Well	Regional	6 km NNE of Site
Court Nareen Well	Regional	13 km ENE of Site
South Tank Bore	Regional	12 km West of Site

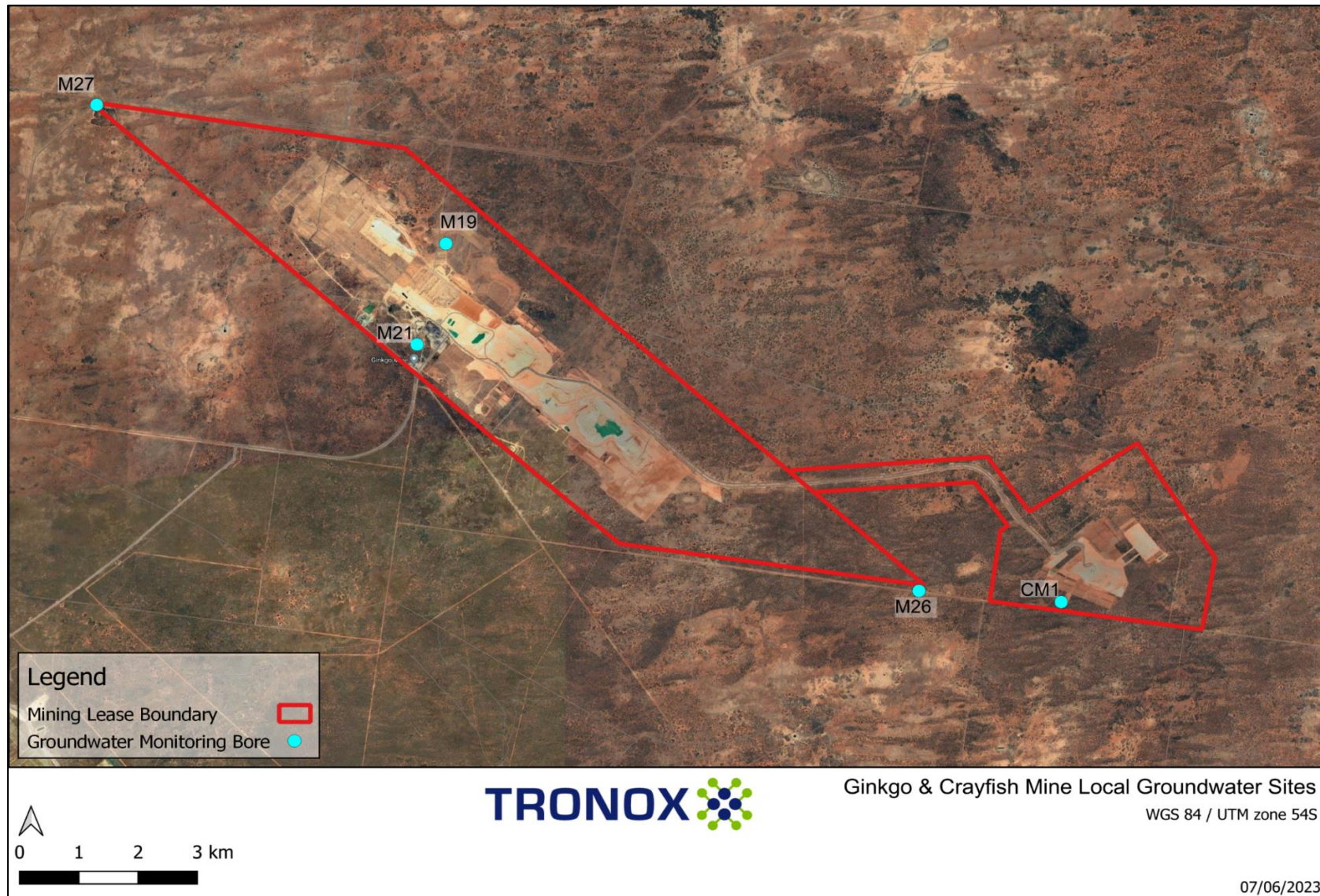


Figure 12 – Local Groundwater Monitoring Sites

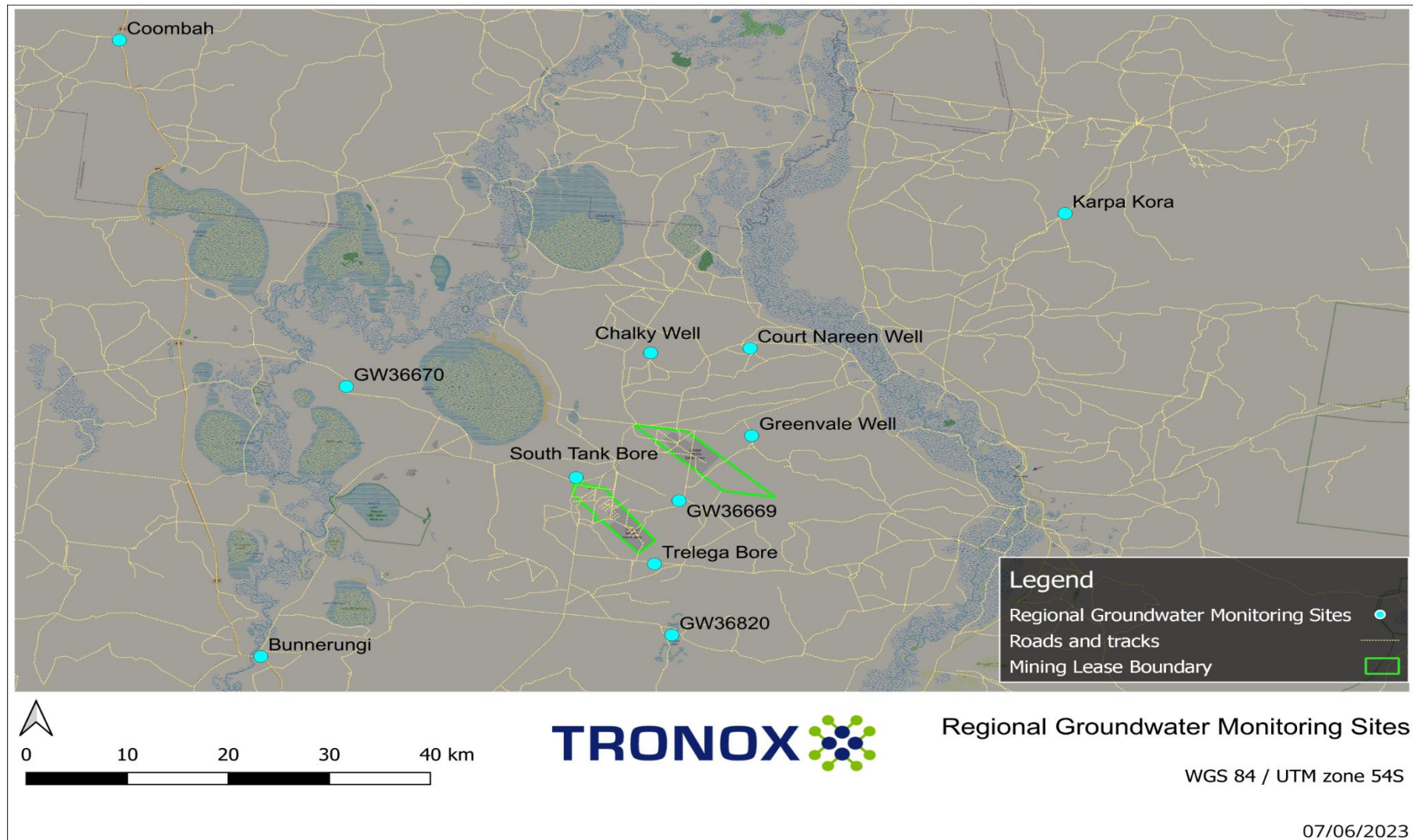


Figure 13 – Regional Groundwater Monitoring Sites

4.3.2 Performance

Groundwater Level

The groundwater levels for the Ginkgo Lease monitoring bores are shown in Figure 14. Since the start of mining in 2005, fluctuating water levels have been observed at M19 and M21. These fluctuations are likely due to a combination of varying rainfall and the proximity of mining operations to the bores. Water levels at M26 and M27 have remained stable throughout the duration of mining.

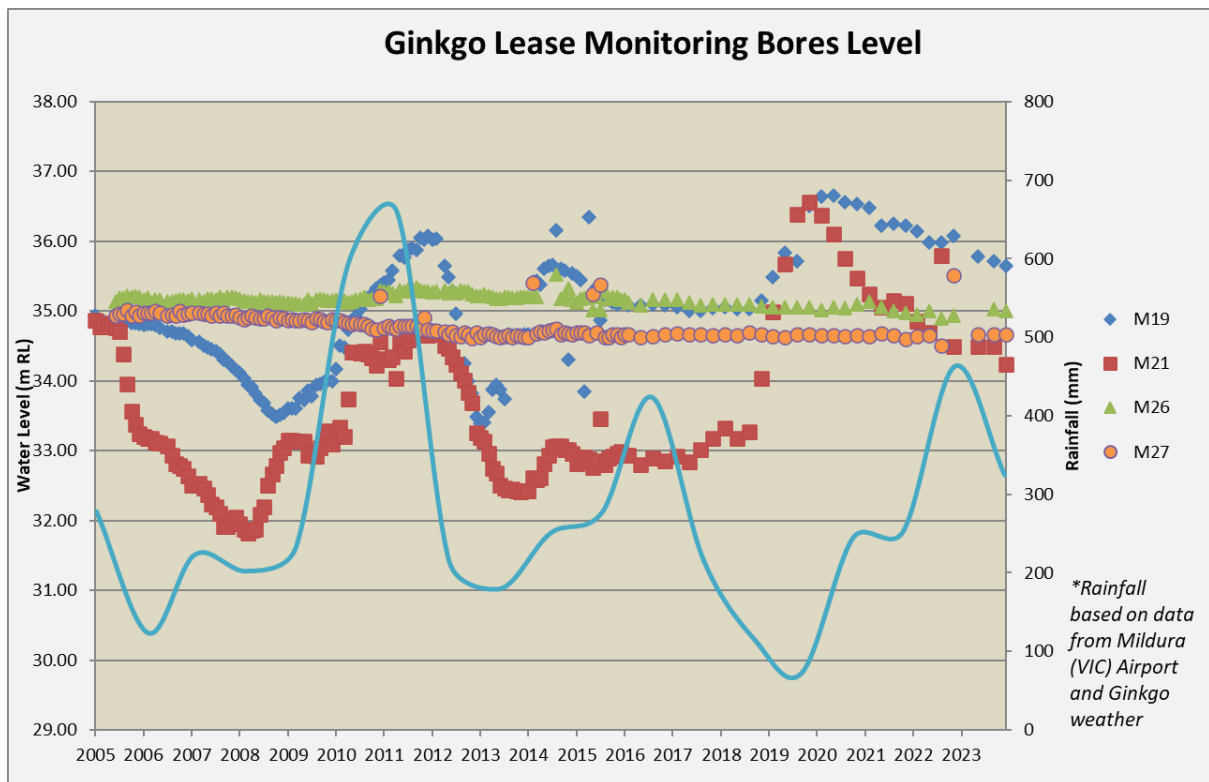


Figure 14 – Ginkgo ML groundwater bore levels

The groundwater levels for the regional monitoring bores are shown in Figure 15. Water levels have remained relatively stable throughout the course of mining. This indicates that there has been minimal impact from the Ginkgo/Crayfish mining operations. During 2011 and 2023 there was an increase in water levels at most of the monitoring bores, which corresponds with the increased rainfall that occurred during those years. The increase in 2023 could also be attributed to the fact that mining operations at Snapper Mine ceased in March 2022. In 2016, GW36669-1, GW36820-2, Greenvale and Court Nareen bores experienced a gradual decline in water level, which corresponds with decreased rainfall between 2017 and 2021. A significant decline in groundwater level, approximately 0.5m, was also observed at the South Tank bore between 2018 and 2022. A hydrogeological review in November 2019 indicated that this decline was likely due to the advancement of mining operations at the northern end of the Snapper Mine path. The groundwater level at the South Tank bore has since increased since mining operations at the Snapper Mine have

ceased. Chalky Well has not been monitored since 2018 due to the presence of a safety hazard preventing access to the bore.

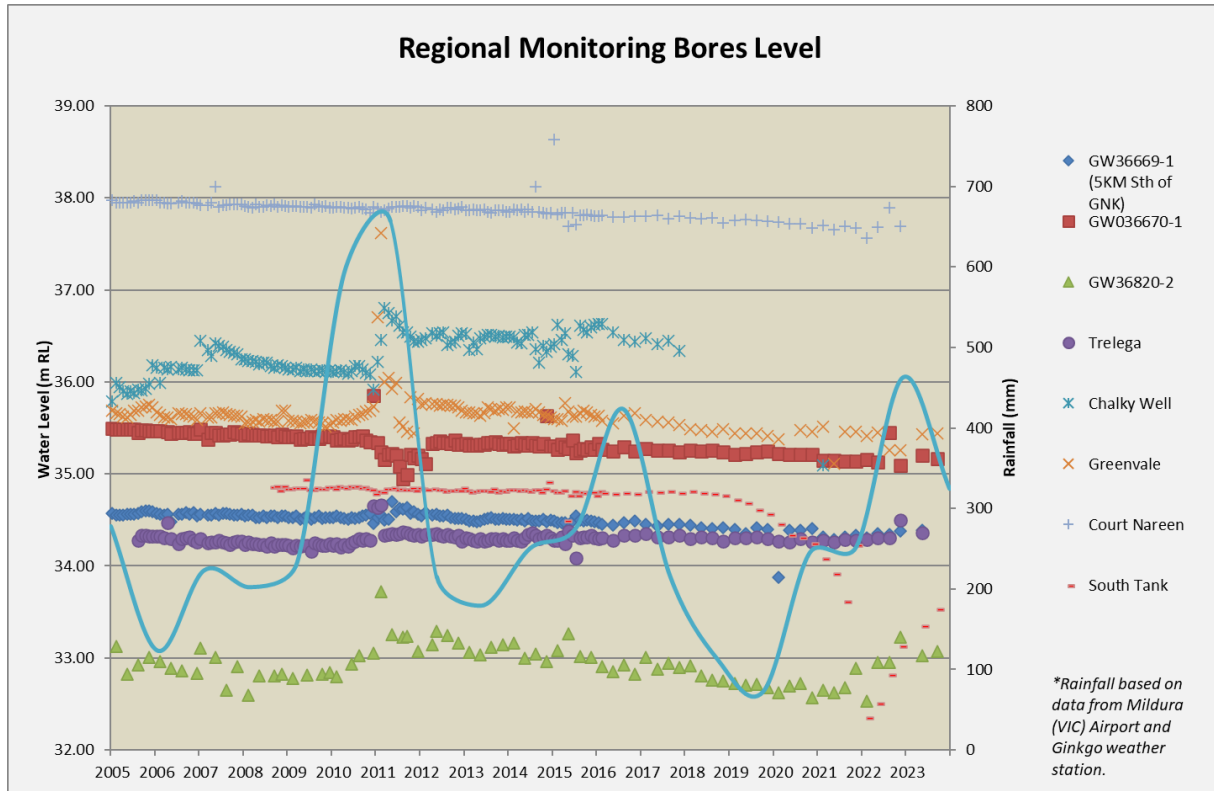


Figure 15 – Regional groundwater bore levels

The combined yearly average groundwater level for the Ginkgo production bores is shown in Figure 16. Since 2005, there has been a gradual increasing trend in groundwater level. The highest groundwater level was recorded in 2023 (33.92 mRL), which is approximately 4.5 meters greater than the groundwater level recorded in 2005 (29.5 mRL).

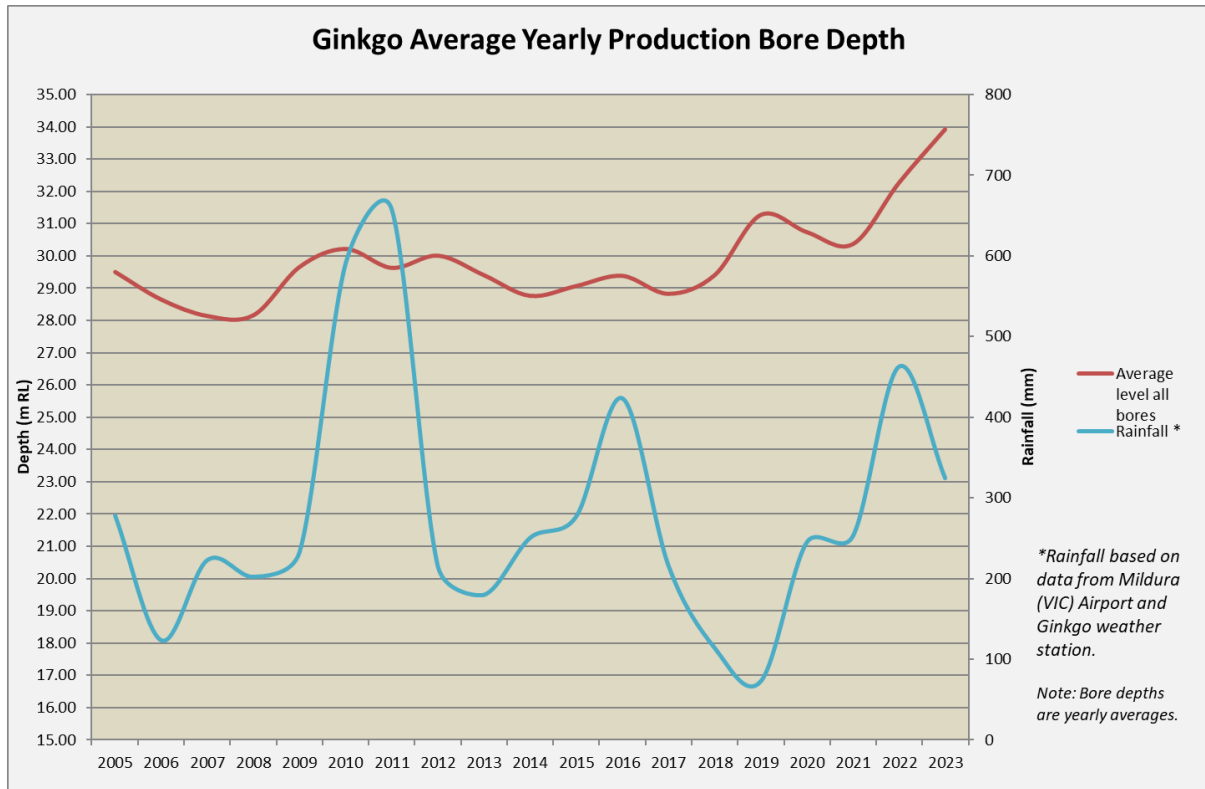


Figure 16 – Yearly production groundwater bore level

Water Quality

The total concentration of dissolved solids (TDS) for the Ginkgo ML monitoring bores is shown in Figure 17. TDS levels have remained relatively stable throughout the duration of the mining operations. In 2018, TDS levels began to decline at each bore, with the lowest TDS levels observed in 2019. Since then, the TDS levels have increased to near baseline levels.

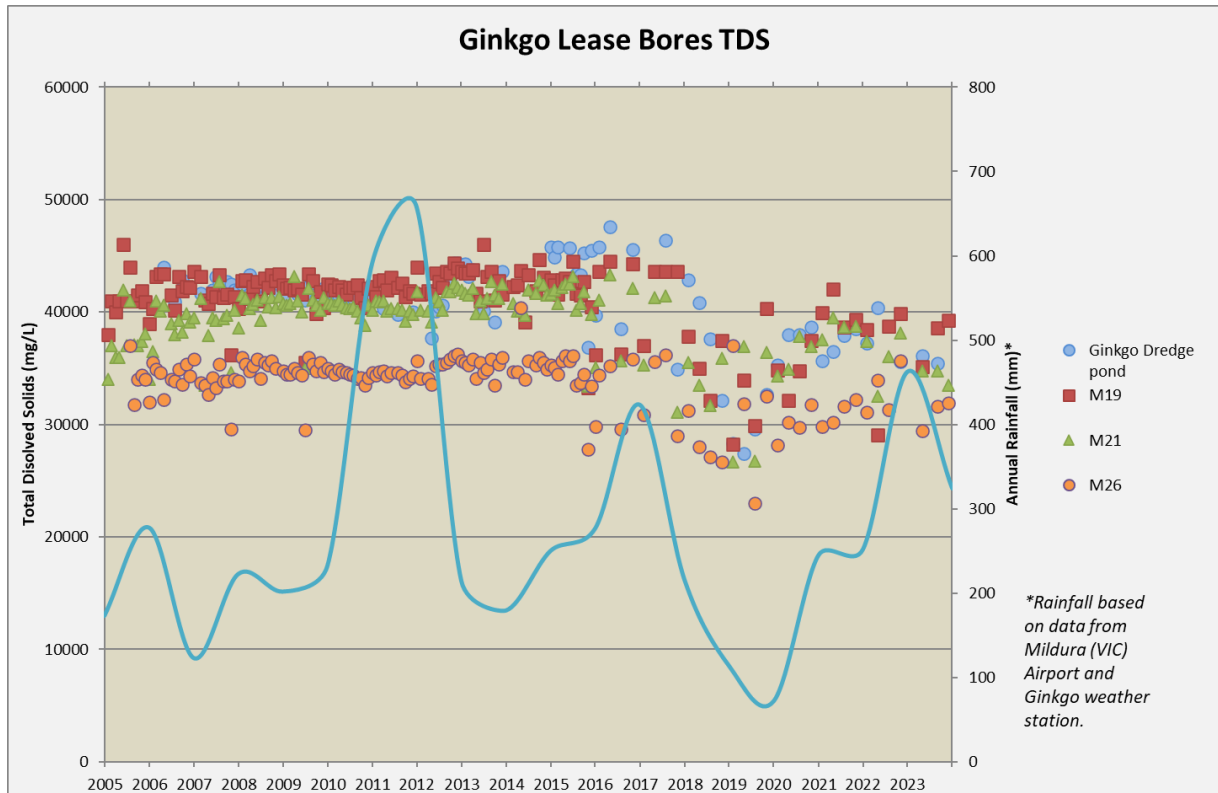


Figure 17 – Ginkgo ML Groundwater TDS

The total concentration of dissolved solids (TDS) for the regional freshwater monitoring bores are shown in Figure 18. TDS levels at the Greenvale and South Tank bores have remained relatively stable, with minor fluctuations observed throughout the duration of the mining operation. Between 2005 and 2012, minor fluctuations were observed at the Chalky well bore. In 2012, there was a sudden decline in the TDS level, after which levels remained stable. Chalky Well has not been monitored since 2018 due to the presence of a safety hazard preventing access to the bore.

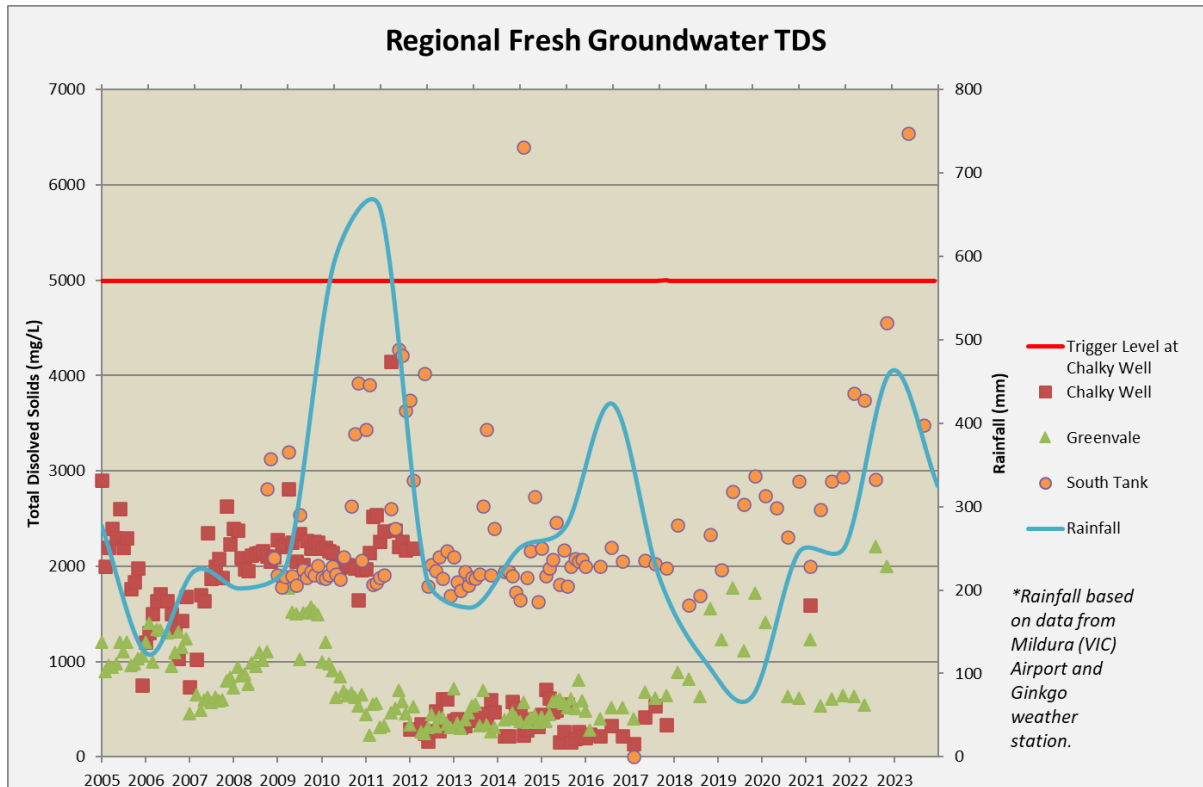


Figure 18 – Regional Fresh Groundwater TDS

The total concentration of dissolved solids (TDS) for the regional saline groundwater monitoring bores are shown in Figure 19. TDS levels have remained relatively stable throughout the duration of mining operations. In 2017, the TDS level began to progressively decline at each bore. The lowest TDS levels were observed in 2019. Since then, the TDS levels have gradually increased to near baseline levels. These trends are similar to those observed at the Ginkgo ML bores.

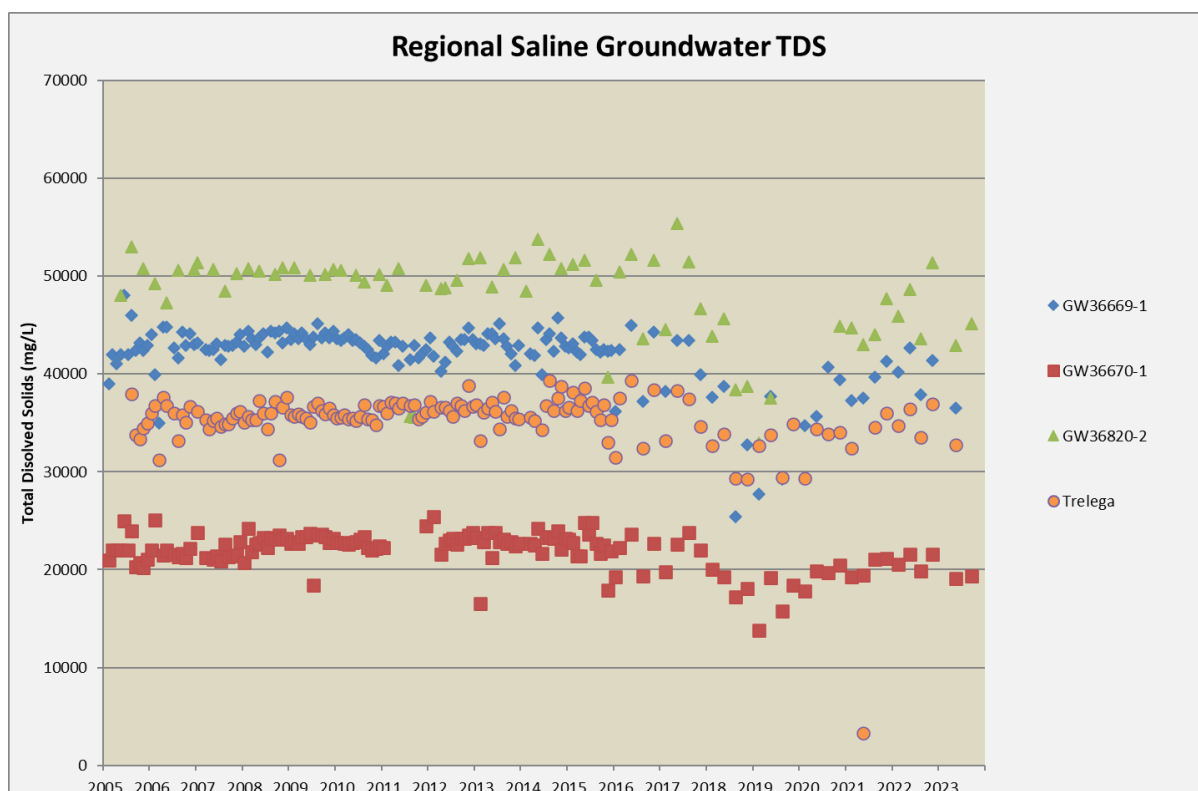


Figure 19 – Regional Saline Groundwater TDS

Groundwater Drawdown

A model of the cumulative groundwater drawdown predictions is shown in Figure 22.

A comparison between the predicted and actual (Year 19) drawdown levels for the regional and Ginkgo groundwater bores is shown in Tables 18 and 19. The actual drawdown levels at GW36670 and South Tank Bore were greater than predicted. It is uncertain if this is related to the impacts of mining operations or other regional factors. Actual drawdown levels at all other bores were lower than predicted. Chalky Well and Court Nareen Bore were not monitored during the reporting period.

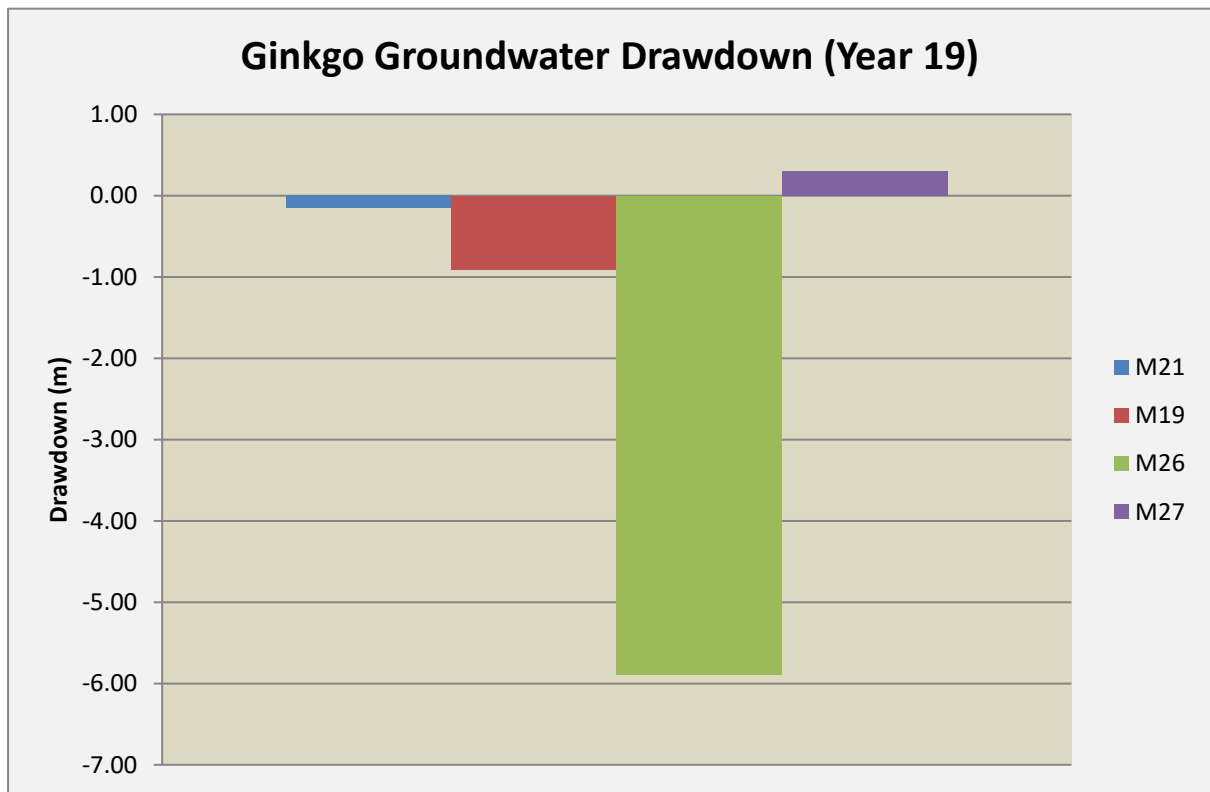
Table 17 – Regional Groundwater Bore Drawdown Levels

Monitoring Well	Pred. Year 15 Drawdown (m)	Act. Yr. 19 Drawdown (m)	Difference (m)
GW36669	1	0.18	0.82
GW36670	0.1	0.30	-0.2
GW36820	0.1	-0.08	0.18
Trelega Bore	0.5	-0.04	0.54
Chalky Well	0.1	NA	NA
Greenvale Well	0.5	0.25	0.25
Court Nareen Well	0.1	NA	NA
South Tank Bore	1	1.41	-0.41

Table 18 – Ginkgo Groundwater Bore Drawdown Levels

Monitoring Well	Pred. Year 15 Drawdown (m)	Act. Yr. 19 Drawdown (m)	Difference (m)
M19	1.5	-0.91	-2.41
M21	2	-0.15	-2.15
M26	0.5	-5.89	-6.39
M27	0.5	0.30	-0.20

The Ginkgo groundwater bore drawdown levels (Year 19) are shown in Figure 20. Drawdown levels at all bores remained under the predicted drawdown level.

**Figure 20 – Ginkgo localised Groundwater drawdown (Year 19)**

The regional groundwater bore drawdown levels (Year 19) are shown in Figure 21. Drawdown levels at all bores, except for GW36670 and South Tank Bore, remained under the predicted drawdown level. The actual drawdown levels at GW36670 and South Tank Bore were less than 0.5m greater than predicted.

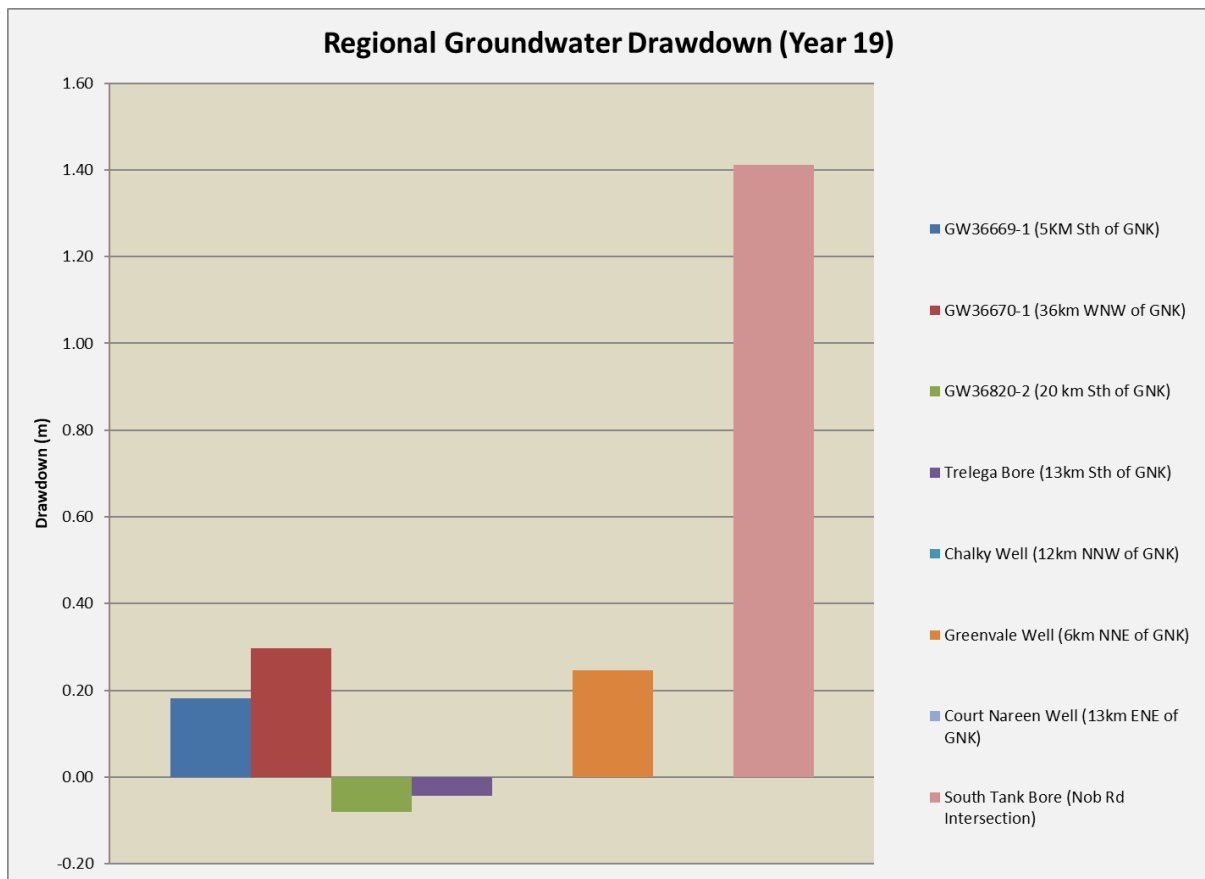


Figure 21 – Regional groundwater drawdown (Year 19)

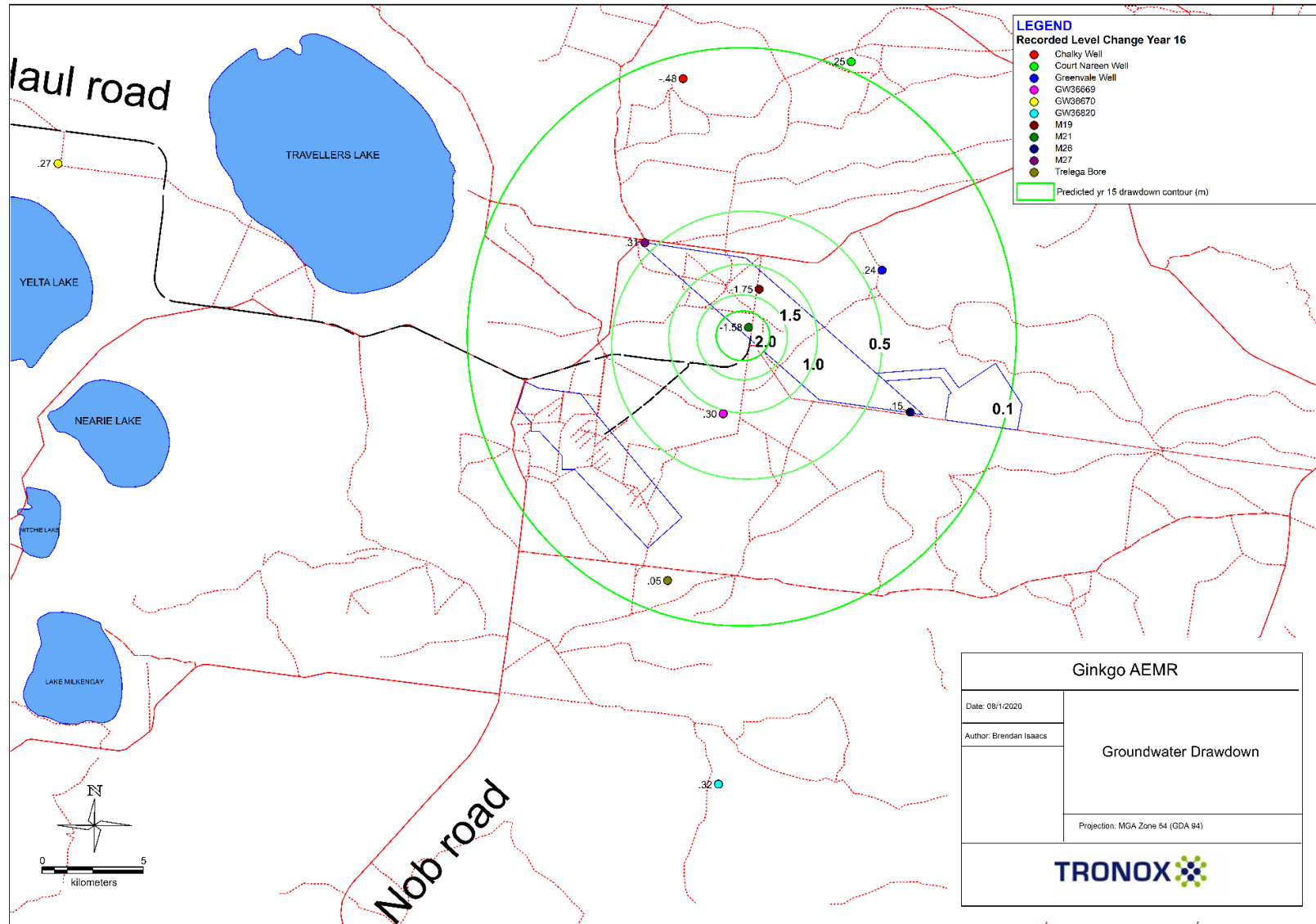


Figure 22 – Groundwater Drawdown predictions

4.3.3 Incidents

No water incidents occurred during the reporting period.

4.3.4 Improvements

Water monitoring will continue in 2024 in accordance with the Ginkgo and Snapper Mines Water Environmental Management Plan and statutory requirements.

Investigate and implement plans to mitigate and/or remove the safety hazard at the Chalky Well groundwater monitoring bore.

Implement plans to ensure that regulatory water monitoring requirements are met.

Finalise review of the Ginkgo and Snapper Mines Water Environmental Management Plan.

4.4 Flora and Fauna

4.4.1 Management

Flora and Fauna at the Ginkgo/Crayfish Mine are managed in accordance with the Murray Basin Mines Flora and Fauna Environmental Management Plan. The primary objective of the plan is to minimise the impacts of mining operations on flora and fauna species. This is achieved by:

- Pre-land clearance surveys
- Establishment and maintenance of Biodiversity Offset areas
- Control of vertebrate pests and weeds
- Revegetation; and
- Monitoring of flora and fauna species.

4.4.2 Performance

4.4.2.1 Land Clearance

No land clearance occurred during the reporting period.

4.4.2.2 Biodiversity Offsets

The Ginkgo/Crayfish Mine Biodiversity Offset areas are managed in accordance with the Murray Basin Mines Offset Management Plan. The offset areas, as shown in Figure 23, have been established to counterbalance the impacts of mining operations on biodiversity within the area.

Monitoring of flora and fauna species within each offset area was undertaken annually for the first three (3) years after establishment. Since then, monitoring has occurred tri-annually

(up until 2020) and will continue until the management criteria, as set out in the Murray Basin Offset Management Plan, have been met. A series of permanent monitoring sites have been established to enable consistency and comparison to previous monitoring periods.

Table 19 – Summary of Biodiversity Offset areas

Mine	Area	Minimum Size (Ha)
Ginkgo	Offset Area 1 - Southern Mallee Offset Area	521
Ginkgo	Offset Area 3	1,255
Ginkgo	Offset Area 4	158
Ginkgo	Offset Area 6	258
Ginkgo	Offset Areas 7 and 8	759
Ginkgo	Offset Area 5 - Crayfish Deposit	2,082
TOTAL		5033

A summary of the of the Biodiversity Offset management actions completed during the reporting period, along with those planned for the following year, is shown in Table 21. Visual monitoring of these measures is undertaken quarterly.

Table 20 – Offset Management Plan Actions

Measure/Management control	Completed	Actions taken during the reporting year	Actions planned for the following year
Fencing to exclude grazing	Yes	Maintain	Maintain
Incremental destocking	Yes	Maintain	Maintain
Removal of unnecessary fencing	No	None	Removal of unnecessary fencing
Erosion control	Ongoing	Monitoring	Monitoring
Signage of offset areas	No	None	Change signage to 'Tronox' in Crayfish OS Erect signage in OS 7
Revegetation of unnecessary tracks	NA	NA	NA
Animal pest control	Ongoing	Fox baiting and feral goat trapping	Monitoring Fox baiting and feral goat trapping/mustering
Weed management	Ongoing	Monitoring	Monitoring Removal of invasive weeds around perimeter/fire trails/bushfire site

Measure/Management control	Completed	Actions taken during the reporting year	Actions planned for the following year
Fire management	Ongoing	Fire trail grading	Fire trail grading
Threatened species management	NA	NA	NA
Security of artificial waters	Yes	Maintain	Maintain
Other actions taken	Ongoing	Environmental monitoring	Environmental monitoring

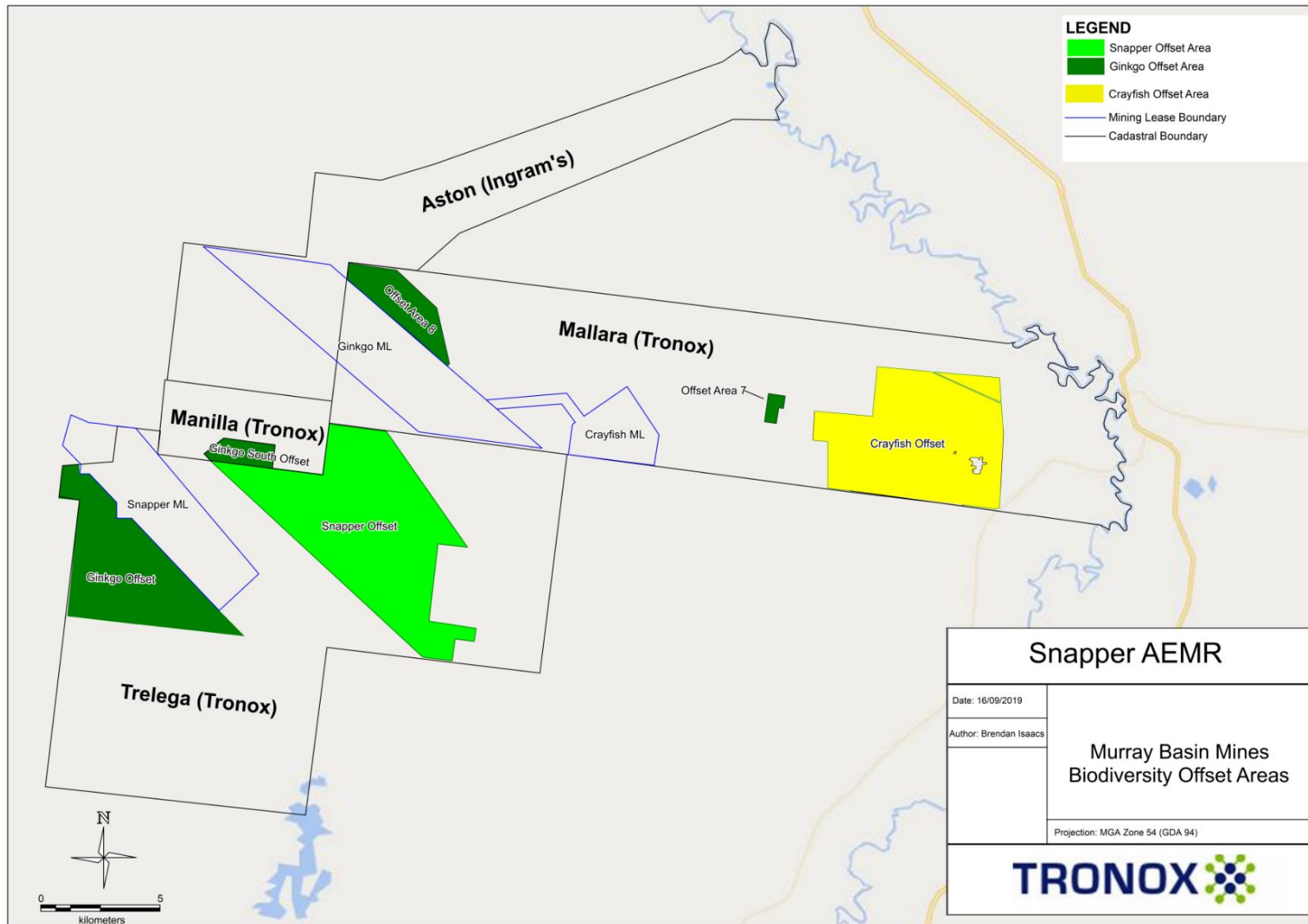


Figure 23 – Murray Basin Mines Biodiversity Offset Area

4.4.3 Other Management Initiatives

Vertebrate Pest Control

Fox baiting was undertaken in November 2023. A total of 116 baits were applied at a rate of 1 bait per km along the boundary fence line of the Ginkgo/Crayfish Mining Lease and Biodiversity Offsets. A bait uptake rate of 80% was achieved.

Feral goat trapping was undertaken on the Ginkgo/Crayfish Mining Lease and Biodiversity Offsets throughout the year. A total of 623 goats were removed.

Invasive Weed Control

Invasive weeds are monitored during quarterly inspections of the Biodiversity Offsets and Ginkgo/Crayfish Mine Lease. Isolated occurrences of Bathurst Burr (*Xanthium spinosum*), Saffron Thistle (*Carthamus lanatus*), Salvation Jane (*Echium plantagineum*), Buchan Weed (*Hirschfeldia incana*), Paddy Melon (*Cucumis myriocarpus*) and Common Heliotrope (*Heliotropium europaeum*) were observed. These isolated occurrences were mainly restricted to areas where soil disturbance had occurred (e.g. fence lines, roads, dams and bushfire sites). No noxious weed species were observed.

Invasive weeds are controlled using a combination of mechanical removal and herbicide application.

The entire Ginkgo/Crayfish Mine Lease and Biodiversity Offset boundaries are fenced with prefabricated wire fencing. A 30cm apron at the bottom of the fence assists in preventing animals from burrowing under the fences and traversing into these areas, Figure 24. Dams within these areas have also been fenced to reduce the access of animals, such as feral goats and kangaroos, to water. The fencing also assists in restricting vehicle access by unauthorised personnel. This in turn, reduces the impacts of vegetation disturbance, the spread of weeds and soil compaction.

Monitoring has indicated, that since the installation of fencing, the number of feral goats, kangaroos and livestock in the area have declined. This has resulted in lower grazing pressures and an increase in the natural regeneration of native vegetation species.

Fences are inspected quarterly and are maintained as required.



Figure 24 – Fencing around the Ginkgo Mine Lease boundary

4.4.4 Incidents

No flora and fauna incidents occurred during the reporting period.

4.4.5 Improvements

Monitoring of flora and fauna will continue in 2024 in accordance with the Murray Basin Mines Offset Management Plan.

Independent flora and fauna monitoring has not been undertaken within the Biodiversity Offsets since 2020. Arrangements will be made to undertake monitoring in 2024.

4.5 Noise

4.5.1 Management

Noise at the Ginkgo/Crayfish Mine is managed in accordance with the Murray Basin Mines Noise Management Plan. The primary objective of the plan is to minimise the potential noise impacts generated from mining operations. This is achieved by:

- Identification of major sources of noise
- Identification of relevant noise criteria
- Formulation of a noise monitoring program
- Establishment of a contingency plan for excessive noise impacts; and
- Establishment of a complaint protocol to facilitate prompt and comprehensive responses to community concerns that relate to noise.

4.5.2 Performance

Initial noise assessments at the Ginkgo/Crayfish Mine indicated that the cumulative effects of noise emissions from mining operations were minimal (at or below 35dB(A)). The consent conditions require that the mine does not cause an exceedance of the noise limits shown in Table 22.

Table 21 – Noise limits

Criteria	Day Noise level LAeq (15 minute) dB(A)	Night Noise level LAeq (15 minute) dB(A)
Noise Limits (INP, DA/PA)	35	35
Traffic Noise Limits (DA/PA)	50	45
Traffic Noise Limits (RNP)	60	55

In September 2017, Tronox requested approval from the DPE to discontinue annual noise monitoring at Manilla and Woodlands. This request was approved and is subject to the following:

- Tronox has agreements in place with the owners of the residences (Manilla and Woodlands) stating that the residents of these properties agree that scheduled noise monitoring is no longer required.
- The landholders of these residences may request noise monitoring in the future, should they have any concerns about noise from mining activities.

Prior to this, noise monitoring was undertaken annually. There are currently two (2) unattended environmental noise loggers located at residential sites that are capable of monitoring tonal and low frequency noise if required Table 23.

Table 22 – Contingency noise monitoring at Snapper Mine

Monitoring requirement	Location	Frequency
Unattended Environmental Noise logger (Logger must be capable of monitoring to assess tonal and low frequency noise as per guidance in Chapter 4, INP (EPA 2017).	Manilla Homestead	As requested by landholders
Unattended Environmental Noise logger (Logger must be capable of monitoring to assess tonal and low frequency noise as per guidance in Chapter 4, INP (EPA 2017).	Woodlands Homestead	As requested by landholders

No noise monitoring occurred during the reporting period.

4.5.3 Incidents

No noise incidents occurred during the reporting period.

4.5.4 Improvements

Management of noise will continue in 2024 in accordance with the Murray Basin Mines Noise Management Plan and statutory requirements.

4.6 Indigenous and European Heritage

4.6.1 Management

Indigenous and European Heritage is managed in accordance with Ginkgo and Snapper Mines Cultural Heritage Environmental Management Plan. The primary objective of the plan is to minimise potential disturbance to Indigenous and European Heritage during mining operations.

Prior to the commencement of mining operations, Indigenous and European Heritage surveys were undertaken at the Ginkgo/Crayfish Mine. These surveys were undertaken in accordance with DPE Environment and Heritage division requirements and in consultation with representatives from local Aboriginal organisations. Identified Indigenous and European Heritage sites are shown in Figure 25. A detailed description and management summary for each of the sites can be found in Table 1 of Appendix A – Implementation of Management Measures for Indigenous and European Cultural Heritage Sites – Ginkgo/Crayfish Mine.

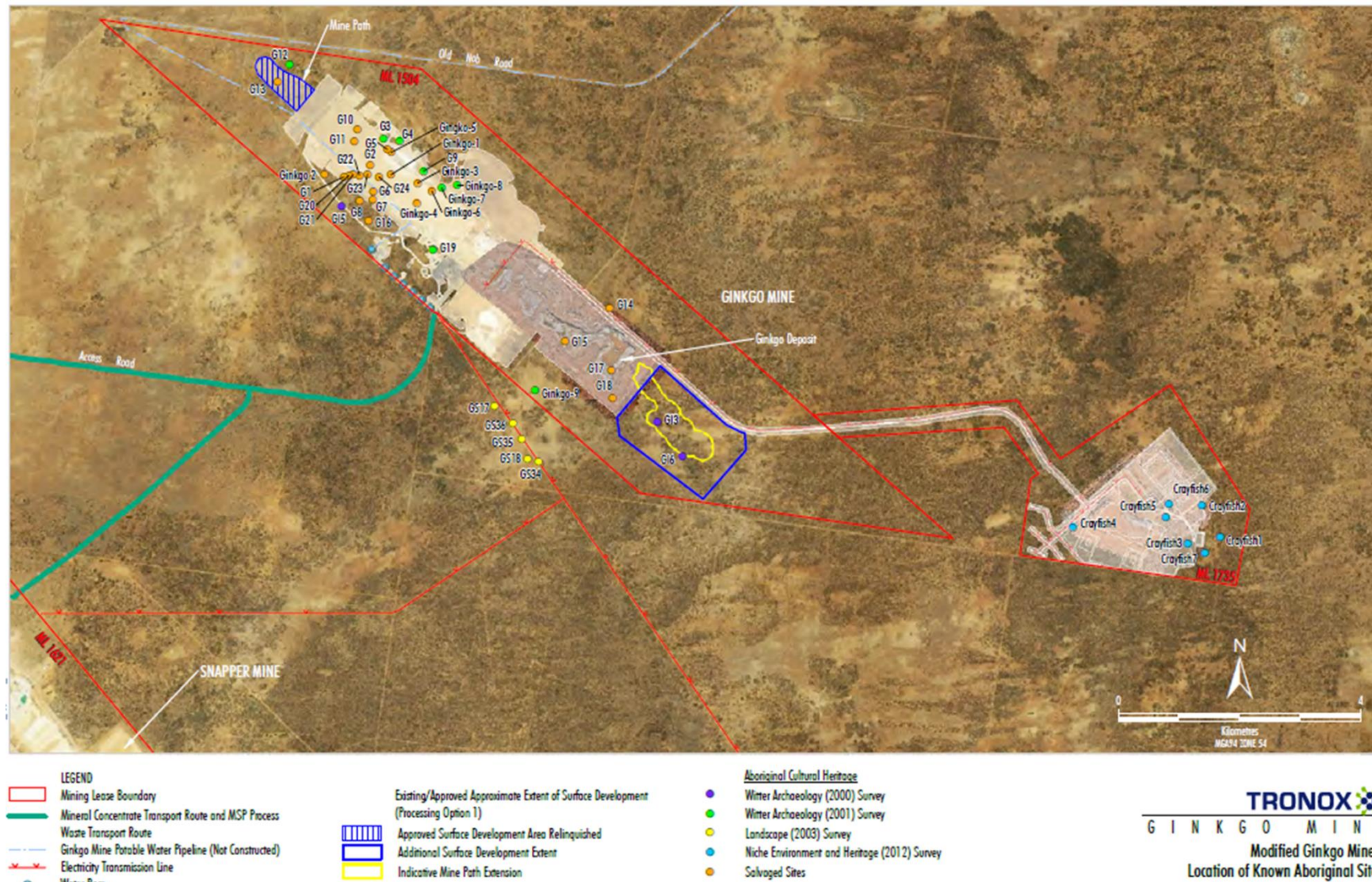


Figure 25 – Locations of Aboriginal and Cultural Heritage Sites at Ginkgo/Crayfish Mine

4.6.2 Performance

The monitoring frequency and location of Indigenous and European Cultural Heritage sites is shown in Table 24. Monitoring included checking the fence for any breaches or integrity issues and signs of disturbance. No fence breaches, integrity issues or signs of disturbance were observed at any of the sites.

Table 23 – Monitoring schedule for Indigenous and European Cultural Heritage Sites

Site ID	Location	Frequency
Gk-3	Ginkgo ML 1504 Area, Bluebush Basin Precinct	Quarterly
Gk-7	Ginkgo ML 1504 Area, Bluebush Basin Precinct	Quarterly
Gk-8	Ginkgo ML 1504 Area, Bluebush Basin Precinct	Quarterly
Gk-9	Ginkgo ML 1504 Area, Quamby Site	Quarterly
Crayfish 1	Eastern side of Ginkgo ML 1504	Quarterly
Crayfish 2	Eastern side of Ginkgo ML 1504	Quarterly
Crayfish 4	Western side of Ginkgo ML 1504	Quarterly
Crayfish 7	Eastern side of Ginkgo ML 1504	Quarterly

No new Indigenous or European Cultural Heritage sites were identified and no surveys were undertaken during the reporting period.

Indigenous and European Cultural Heritage awareness training is undertaken by all employees, contractors and visitors as part of the online site induction. Ongoing refresher training is provided as required.

4.6.3 Incidents

No Indigenous and European Heritage incidents occurred during the reporting period.

4.6.4 Improvements

Monitoring of Indigenous and European Heritage will continue in 2024 in accordance with the Ginkgo and Snapper Mines Cultural Heritage Environmental Management Plan.

Erect permanent Cultural Heritage signs at monitoring sites to further minimise the risk of disturbance at previously identified Indigenous and European Heritage sites.

4.7 Blasting

No blasting occurred during the reporting period.

4.8 Bushfire

4.8.1 Management

Bushfire risks at the Ginkgo/Crayfish Mines are managed in accordance with the Ginkgo and Snapper Bushfire Management Plan. The primary objective of the plan is to minimise the potential risk and subsequent impacts of bushfires at the mine. This is achieved by:

- Developing and implementing a fuel management plan; and
- Establishing operational arrangements for detecting, responding and coordinating bushfire events.

4.8.2 Performance

Fuel loads were monitored and managed throughout the reporting period. A network of pre-existing fire breaks was maintained along mine access roads, the Ginkgo/Crayfish Mine Lease and Biodiversity Offset boundaries, and power easements. These fire breaks are to be graded twice annually, however monitoring indicated that they only needed to be graded once. Grading was undertaken during September to November 2023. Slashing and herbicide application in areas directly around assets and infrastructure (buildings, laydown areas and water points) was also undertaken.

The pruning of trees along power easements is the responsibility of Essential Energy and is conducted in accordance with “Tree Pruning – Typical Clearances” (Planning for Bushfire Protection, Rural Fire Service and Planning, NSW, 2021).

Prior to the bushfire season, weekly meetings were conducted in relation to bushfire preparedness on site. Key agenda items included:

- Identifying resources required and available for fire suppression
- Emergency Response Procedure for responding to bushfires
- Competency and training of personnel
- Monitoring fire danger
- Bushfire detection and reporting requirements
- Maintenance of key roads, tracks and strategically located water points; and
- Fuel management.

Tronox has an Emergency Response Team based at Ginkgo Mine as required by the cooperation agreement with Fire and Safety Australia.

Post-bushfire monitoring was also undertaken quarterly at the 2022 Ginkgo Offset 1 bushfire site. Monitoring focused primarily on the re-establishment of native vegetation, fauna, weed incursions and soil erosion. Native grass and shrub species, such as bluebush, have started to re-establish within the area and mature trees which were defoliated have started to re-sprout, Figure 26. Native fauna, such as kangaroos and reptiles, have also started to return to the area. Minor weed incursions were evident along the graded containment lines and in isolated areas where native vegetation has not yet re-established, Figure 27. No evidence of soil erosion was observed.



Figure 26 – Re-established vegetation at Ginkgo Offset 1 bushfire site



Figure 27 – Weed incursions at the 2022 Ginkgo Offset 1 bushfire site

4.8.3 Incidents

No bushfire incidents occurred during the reporting period.

4.8.4 Improvements

Management of bushfire risk will continue in 2024 in accordance with the Ginkgo and Snapper Bushfire Management Plan.

The Ginkgo and Snapper Bushfire Management Plan will be reviewed in 2024.

Formulate and implement a post-bushfire environmental monitoring procedure.

4.9 Visual Light Stray

No visual light stray incidents occurred during the reporting period.

4.10 Radiation

4.10.1 Management

Radiation at the Ginkgo/Crayfish Mine is managed in accordance with the Murray Basin Mineral Sands Radiation Management Plan and the Murray Darling Basin Mine Landfill and Waste Environmental Management Plan. These plans are consistent with the Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing (2005) and Development Consent (MP06_0168). The primary objective of these plans is to minimise the potential radiation impacts generated from mining, processing and transportation.

4.10.2 Performance

Prior to mining operations at the Ginkgo/Crayfish Mine, background radiation levels were measured using a gamma dose rate meter to record background levels in the environment. The average background radiation level, measured 1m vertically above the ground surface, was 0.23µSv/h. The radiation level of any material, including process waste, deposited or disposed of at the mine must not exceed 0.7µG/h.

The radiation monitoring results at Ginkgo/Crayfish Mine are shown in Table 25. The average radiation levels at GR15 and GR16 remained below the average background radiation level and exceedance limit. Radiation levels were highest at sites located around the WHIMS area. As heavy mineral concentrate (HMC) is processed and stockpiled within this area, before being transported to the Broken Hill MSP for further processing, higher radiation levels are expected.

As discussed in section 3.5.3, 17,828.6 tonnes of low level radioactive waste material from the Broken Hill MSP was transported to and deposited in the Ginkgo Mine void.

Radiation awareness training is undertaken by all employees and contractors as part of the online site induction. Refresher training is undertaken annually.

Table 24 – Ginkgo/Crayfish Mine Radiation Monitoring results 2023

		Radiation (uSv/h)				
Site	Description	Feb-23	May-23	Sept-23	Nov-23	Average
GR1	Adj Non-Mag Stacker	1.542	1.356	1.264	1.305	1.366
GR2	Reject Dump Area	0.853	0.985	0.977	1.025	0.96

Radiation (uSv/h)						
Site	Description	Feb-23	May-23	Sept-23	Nov-23	Average
GR3	Reject Hopper	2.06	1.723	1.814	1.531	1.782
GR4	Reject Water Sump	1.818	1.755	1.656	1.806	1.758
GR5	Adj South Stacker (HMC)	2.41	1.62	1.805	1.684	1.879
GR6	WHIMS Hopper	1.402	1.588	1.522	1.82	1.583
GR7	RO Plant	0.5	0.56	0.5	0.573	0.533
GR8	WHIMS Control Room Between WHIMS & Salt	0.922	1.288	1.056	0.958	1.056
GR9	Wash Plant	2.36	2.025	2.15	2.43	2.241
GR10	Laboratory	1.091	1.253	1.165	0.879	1.097
GR11	Adj North Stacker (Mags 1) Water Storage Dam	2.26	1.877	1.933	2.18	2.062
GR12	(WHIMS)	1.971	1.612	1.68	1.628	1.722
GR13	North-West of Lab Carpark Uncleared Land Near Mag 1	0.862	0.705	0.7	0.999	0.816
GR14	(ilmenite) Stockpile	0.391	0.486	0.409	0.523	0.452
GR15	Tails Discharge Area	0.24	0.23	0.2	0.211	0.220
GR16	Ginkgo Rehab Area	0.13	0.159	0.131	0.279	0.174

4.10.3 Incidents

No radiation incidents occurred during the reporting period.

4.10.4 Improvements

Radiation monitoring will continue in 2024 in accordance with the Murray Basin Mineral Sands Radiation Management Plan, Murray Darling Basin Mine Landfill and Waste Environmental Management Plan and statutory requirements.

4.11 Spontaneous Combustion

No spontaneous combustion incidents occurred during the reporting period.

4.12 Hydrocarbon Contamination

Hydrocarbons are managed in accordance with the Murray Basin Hydrocarbon Management Procedure and the Murray Darling Basin Mine Landfill and Waste Environmental Management Plan.

The Ginkgo/Crayfish Mine has three bioremediation areas that are used to treat hydrocarbon contaminated soil. After treatment and laboratory testing, the soil is returned to the backfill in the mine void.

All hydrocarbon waste is stored in a designated bunded area on the mine site. It is then transported off site by a licenced hazardous waste contractor.

Hydrocarbon incidents are reported internally and are reported externally in accordance with the *Protection of the Environment Operation Act 1997* in the event of environmental harm.

No reportable hydrocarbon incidents occurred during the reporting period.

4.13 Methane Drainage/Ventilation

No methane drainage/ventilation incidents occurred during the reporting period.

4.14 Public Safety

The Ginkgo/Crayfish Mine is restricted to authorised personnel only. Employees and contractors are required to complete an online induction prior to arriving on site and a face-to-face induction on arrival. All visitors are to report to the Ginkgo/Crayfish Mine site office on arrival and are accompanied by Tronox personnel whilst on site. Electronic card readers are installed at the main entrance to monitor movements of personnel in and out of the site. The entire mine site is fenced with stock-proof fencing and all access gates are fitted with padlocks. There is also a security boom gate at the main entrance, which is accessed via the Mine Haul Road, Figure 28. Signs, which notify personnel of the active mining area and that unauthorised access is not permitted, have been placed at entrance points and around the perimeter of the mine fence.

No unauthorised access to the Ginkgo/Crayfish Mine occurred during the reporting period.



Figure 28 – Ginkgo/Crayfish Mine main entrance security boom gates

5 COMMUNITY RELATIONS

5.1 Environmental Complaints

No environmental complaints occurred during the reporting period.

Environmental complaints can be made by members of the public via the Community Complaints line telephone number, which is located on the Tronox Australia website <https://www.tronox.com/about-us/sustainability/australian-environmental-reports/>.

Business Hours: [03 5074 8900 \(Administration\)](tel:0350748900)

After Hours: [0437 316 546 \(Shift Supervisor\)](tel:0437316546)

All complaints are documented in an internal Complaints Register and in the incident management system (CATS).

5.2 Community Liaison

Tronox continued to make a positive difference in the communities by supporting projects closely aligned with its core values. The Tronox Community Grant Scheme is one way we achieve this, supporting projects aligned with our core values and corporate social responsibility pillars.

Local not-for-profit organisations apply for grants to support their projects/groups. Tronox's total community investment for Eastern Operations was approximately \$52,000, covering health and wellness, STEM education, diversity, and equity, sustainability, and the environment.

In 2023, groups that received funding included local sporting clubs, The Royal Flying Doctor Service, primary and secondary schools, local field days, LGBTQIA+ celebrations, and mental health service providers. In 2024, our priority will be continuing to invest in groups and projects to empower and support our host communities. We also held an information session and a site tour for our Ivanhoe operations, as well as attending the Wentworth Show – providing community members the opportunity to have conversations about our operations.

Tronox is currently reviewing cultural heritage management protocols, policies, and approaches across all Australian operations to ensure they meet relevant international benchmarks regarding cultural heritage management and the rights of Indigenous Peoples. Tronox also received formal endorsement for their Reflect Reconciliation Action Plan.

6 REHABILITATION

A total of 50 Ha of disturbed land was rehabilitated at the Ginkgo/Crayfish Mine in 2023. The rehabilitation focused predominantly on landform restructure and was undertaken in accordance with a contour plan which aims to enhance water management and landform stability. The area will be revegetated in 2024 with native pastures, such as bluebush and saltbush, which are suitable for light intensity grazing.

Since 2009, a total of 505 Ha of disturbed land has been rehabilitated, as shown in Figure 29. The total area of disturbed land, including rehabilitated areas, is 1714 Ha (1395 Ha Ginkgo; 319 Ha Crayfish).

Approximately 50 Ha is planned to be rehabilitated in 2024.

Monitoring of rehabilitated land focused on the establishment of vegetation within the revegetated areas and the structural stability of the landforms.

A comprehensive summary of the rehabilitation undertaken at the Ginkgo/Crayfish Mine is provided in the **2023 Annual Rehabilitation Report**. Please refer to the **2023-2026 Ginkgo Mineral Sands Mine Forward Program** for details of the rehabilitation proposed to be undertaken during the next period.

A copy of the report is available on Tronox's website: <https://www.tronox.com/about-us/sustainability/australian-environmental-reports/>

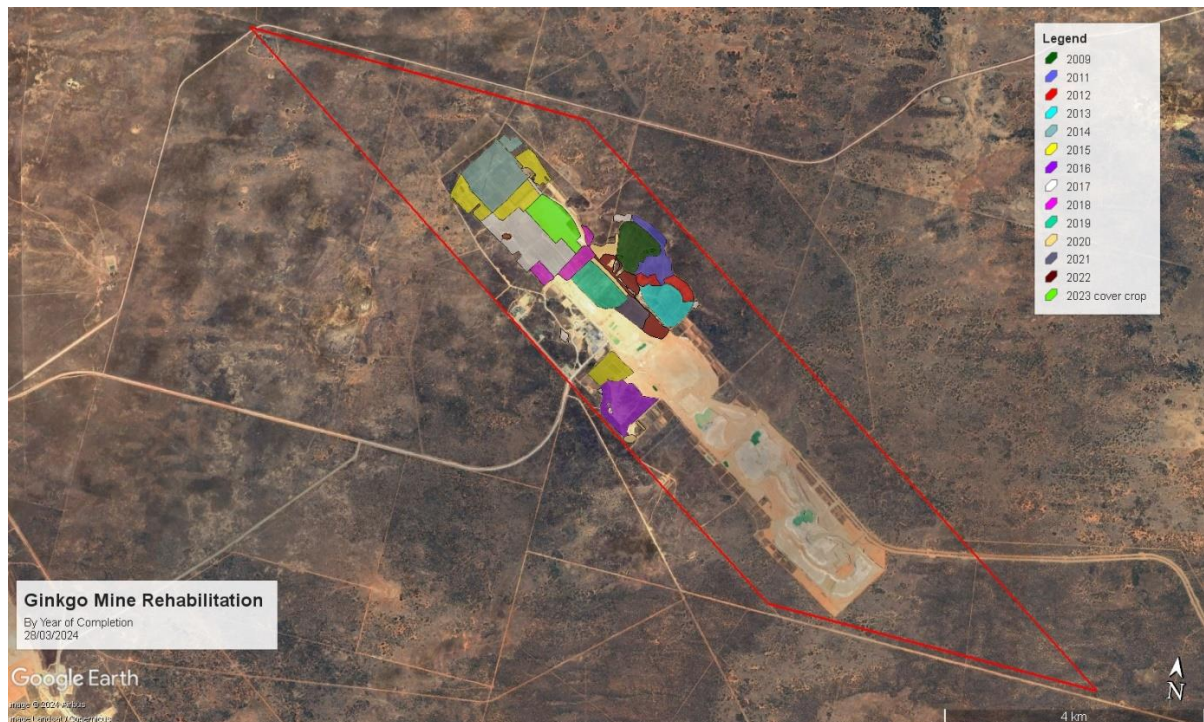


Figure 29 – Progress of Rehabilitation at Ginkgo/Crayfish Mine

6 ACTIVITIES PROPOSED IN NEXT ANNUAL REVIEW PERIOD

The following environmental and community activities are proposed for 2024:

- Review of EMS and Environmental Management Plans (EMPs)
- Review of monitoring and database systems
- Continue with monitoring and other management obligations required under the Ginkgo and Crayfish Approval
- Revegetation (seeding) on backfilled areas
- Monitoring and planning for future rehabilitation of disturbed land
- Flora and fauna monitoring in rehabilitated and offset areas
- Vertebrate pest and weed control
- Modification of the Ginkgo and Snapper Final Landforms with input from DPHI and NSW Resources Regulator and other relevant agencies
- Continued community liaison and engagement with local stakeholders
- Geotechnical planning associated with mine closure

APPENDICES

APPENDIX A – IMPLEMENTATION OF MANAGEMENT MEASURES

Table 1 – Implementation of Management Measures for Indigenous and European Cultural Heritage Sites – Ginkgo/Crayfish Mine

Site	Management Summary	Implementation
Dune Site (Gk-1), Waterhole Site (Gk-4) and parts of the Playa Site (Gk-5) and Lake Bottom Site (Gk-6)	Where disturbance of Aboriginal objects is unavoidable, salvage Aboriginal objects of significance under Section 87 permit. This includes the recovery, documentation, storage and curation in an on-site “Keeping Place”. Additional study (ie. dating) and analysis of new and previous data may be conducted.	Sites Gk-1 to Gk-6 were salvaged by the project archaeologist assisted by two representatives from the local Aboriginal community. A “Keeping Place” has been established to provide storage for the curation of Aboriginal objects that are collected from their original sites. An analysis of Aboriginal lithic assemblages for artefacts collected was completed by the project archaeologist (Landskape 2007)
	Replacement of salvaged Aboriginal objects in similar locations during mine rehabilitation	Rehabilitation has not yet occurred at the site.
Cache Site (Gk-2), Knoll Site (Gk-3), Lake Edge Site (Gk-7) and Lunette Site (Gk-8), and parts of Playa Site (Gk-5) and Lake Bottom Site (Gk-6)	Aboriginal objects to be avoided.	The report titled Analysis of Aboriginal lithic assemblages and hearths (Landskape 2007) states that artefacts were removed from site Gk-2. Sites Gk-5 and Gk-6 were completely removed, whereas sites Gk-3, Gk-7, & Gk-8 were avoided.
	Implement general land management strategies to avoid inadvertent damage (eg. minimisation of ground disturbance).	General land management strategies were, and will continue to be implemented during the development of the MSP to minimise the impact on identified Aboriginal objects through: • minimising disturbance areas; • controlling sedimentation; and • progressive rehabilitation
	Employ site monitor to observe pre-construction works (ie. erection of protective barrier fencing) and construction works (vegetation and soil stripping activities or earthworks to 1 m depth) in the vicinity.	Site Gk-9 is the only site not yet fenced, fencing will be completed and monitored by Aboriginal people.

Site	Management Summary	Implementation
	Aboriginal object collection if site becomes threatened.	No additional artefacts have been recovered since the initial removal.
Quamby Site (Gk-9)	Aboriginal objects to be avoided.	Site Gk-9 has been avoided.
	Implement general land management strategies to avoid inadvertent damage (eg. minimisation of ground disturbance).	General land management strategies were, and will continue to be implemented during the development of the MSP to minimise the impact on identified Aboriginal objects through: • minimising disturbance areas; • controlling sedimentation; and • progressive rehabilitation
	Employ site monitor to observe pre-construction works (i.e. erection of protective barrier fencing around the main site area (200 m x 500 m)).	The fence around the main site area is yet to be constructed. Monitors will be used as part of the construction process.
	Aboriginal object collection if site becomes threatened.	The items have not been threatened therefore there has been no removal of additional items.
Anabranh Crossing Site (WI-5)	Where disturbance of Aboriginal objects is unavoidable, salvage Aboriginal objects of significance under Section 87 permit. This includes the recovery, documentation, storage and curation in an on-site “Keeping Place”.	This site was not removed
	Additional study (i.e. dating) and analysis of new and previous data may be conducted including detailed recording of the site’s context in flood plain occupation between the crossing site and the dune burial site.	No additional studies were undertaken. The area was avoided.
	Rehabilitation by burying collected artefacts near their original location.	Rehabilitation has not yet occurred at the Ginkgo Mine
Flood Plain, Red Sand and Burial Dune Sites (WI-1, WI-2 and WI-4); Anabranh Bluff Site (Sw-1); Greenvale Scarred Trees Complex (Gv-1 to Gv-6);	Aboriginal objects to be avoided	Sites along the highway access road and electricity transmission line and potable water pipeline have been avoided by minor deviations of linear routes.

Site	Management Summary	Implementation
ETL sites GS27, GS28, GS29, GS30, GS31, GS32 HAR sites GS02, GS03, GS04, GS05, GS06, GS07, GS09, GS10, GS12	Implement general land management strategies to avoid inadvertent damage (e.g. minimisation of ground disturbance).	General land management strategies were, and will continue to be implemented during the development of the MSP to minimise the impact on identified Aboriginal objects through: • minimising disturbance areas; • controlling sedimentation; and • progressive rehabilitation
	Employ site monitor to observe pre-construction works (ie. erection of temporary barrier fencing) in the vicinity	All locations used a site monitor to peg the fence corners. The erection of the fence was completed without a site monitor.
	Aboriginal object collection if site becomes threatened	Sites have not been threatened therefore no additional items removed
ML 1504 Isolated Finds (1, 3 to 5, 7 to 10, 12, 14, 16, 18)	Aboriginal objects to be avoided (3, 5, 9 and 12). Included on Section 90 Permit (National Parks and Wildlife Act 1974) Consent to Carry Out The Destruction of An Aboriginal Object/Place (1, 7, 8, 10, 14, 16 and 18).	The report titled Analysis of Aboriginal lithic assemblages and hearths (Landskape 2007) states that artefacts were removed from site IF 1, 7, 8, 10, 14, 16 and 18.
	Implement general land management strategies to avoid inadvertent damage (eg. minimisation of ground disturbance).	General land management strategies were, and will continue to be implemented during the development of the MSP to minimise the impact on identified Aboriginal objects through: • minimising disturbance areas; • controlling sedimentation; and • progressive rehabilitation.
	Employ site monitor to observe pre-construction works (i.e. erection of temporary barrier fencing) in the vicinity.	All locations used a site monitor to peg the fence corners. The erection of the fence was completed without a site monitor.
	Aboriginal object collection if site becomes threatened.	No additional items have been removed.

Site	Management Summary	Implementation
ML 1504 Isolated Finds (2, 6, 11, 13, 15, 17, 19 to 24)	Where disturbance of Aboriginal objects is unavoidable, salvage Aboriginal objects of significance under Section 87 permit. This includes the recovery, documentation, storage and curation in an on-site “Keeping Place”. Additional study (i.e. dating) and analysis of new and previous data may be conducted.	Sites Gk-1 to Gk-6 were salvaged by the project archaeologist assisted by two representatives from the local Aboriginal community. A “Keeping Place” has been established to provide storage for the curation of Aboriginal objects that are collected from their original sites. An analysis of Aboriginal lithic assemblages for artefacts collected was completed by the project archaeologist (Landskape 2007).
	Replacement of salvaged Aboriginal objects in similar locations during mine rehabilitation.	Rehabilitation has not yet occurred at the site.
Highway Access Road Isolated Finds (5, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, GS08, GS11, GS13) ETL Isolated Finds GS33, GS34, GS35, GS36; Potable Water Pipeline Isolated Finds (1 and 2).	Aboriginal objects to be avoided.	Sites along the highway access road (apart from site WI-5) and electricity transmission line have been avoided by minor deviations of linear routes. Temporary barrier fencing will be erected during any future significant maintenance activities near these sites as appropriate
	Implement general land management strategies to avoid inadvertent damage (e.g. minimisation of ground disturbance	General land management strategies were, and will continue to be implemented during the development of the MSP to minimise the impact on identified Aboriginal objects through: • minimising disturbance areas; • controlling sedimentation; and • progressive rehabilitation. • All locations used a site monitor
	Employ site monitor to observe pre-construction works (i.e. erection of temporary barrier fencing) in the vicinity	All locations used a site monitor to peg the fence corners. The erection of the fence was completed without a site monitor.
	Aboriginal object collection if site becomes threatened.	No additional items were removed.
Crayfish 1 (39-3-0109) Crayfish 2 (39-3-0110)	Sites be fenced and included in ongoing monitoring	Sites have been fenced and included in ongoing monitoring

Site	Management Summary	Implementation
Crayfish 4 (39-3-0108) Crayfish 7 (39-3-0106)		
Crayfish 5 (39-3-0104) Crayfish 6 (39-3-0105) Crayfish 3 (39-3-0107)	Representative sample of stone artefacts will be recorded, collected and moved to the 'Keeping Place' at Ginkgo Mine by an archaeologist and representatives of the local Aboriginal community. The collected artefacts will be recorded in sufficient detail to allow a description of the lithic technologies and reduction strategies adopted. The regional and local contexts of the artefacts will also be analysed and described. The representative sample will be replaced within rehabilitated areas in consultation with the local Aboriginal community and NSW OEH.	The Landskape (2016) report states one silcrete flaked piece was collected from site Crayfish 5, one silcrete core, one silcrete flaked piece and one silcrete flake were collected from site Crayfish 6 and one silcrete core was collected from site Crayfish 3. Ginkgo mine still operational (rehabilitation not yet completed).
	Lithic technologies and reduction strategies adopted at the sites and the relationship of these sites to other sites within the disturbance area will be investigated.	The Landskape (2016) report discussed the relationship between the sites. The report recorded the lithic technologies and reduction strategies adopted.
Early surveyor's post located along the highway access road	Lodge an application for the removal of the early surveyor's post in the LPMA in accordance with the provisions of the <i>NSW Surveyors Act 1929</i> ¹ and <i>NSW Survey Marks Act 1912</i> . If the application to remove the surveyor's post is approved, the surveyor's post is to be recorded in-situ prior to removal. The recording must include a historical assessment, a photographic recording (including detailed archival photographs of any markings shown on the post) and an accurate recording (including detailed archival photographs of any markings shown on the post) and an accurate recording of the exact location of the post on a GIS mapping system. Appropriate arrangements for the archival storage/display of the post are to be determined prior to its removal. In this regard, discussions are to be held with the Wentworth Historical Society and the Land and Property Information Branch, Bathurst.	Provided a letter to the Wentworth Historical Society, outlining the GPS location of the surveyor's post prior to removal. The report also includes a photograph of the post prior to removal and provides details of markings on the post. The Land and Property Information Office advised that the boundary markers do not require a permit and that it was acceptable to remove the post and store at the Wentworth Historical Society. The post was provided to the Wentworth Historical Society on 10 March 2005.

