

Independent Monitor
McArthur River Mine

Annual Report Card 2020

Independent monitoring and reporting on data from 1 April 2018 to 30 April 2020



What is the Independent Monitor?

The Independent Monitor is an expert hired by the Northern Territory (NT) government to do a check (or an 'audit') to find out how well the McArthur River Mine is looking after the environment. The Independent Monitor checked:

- McArthur River Mining (the Operator) to see if the way they run the mine meets the rules put on them by the government to protect the environment
- The government (NT Department of Industry, Tourism and Trade (DITT), or 'the Department') to find out how good they are at making sure the mine is following the rules.

The Independent Monitor finished the audit in 2020 and wrote a report called the Annual Environmental Performance Audit Report (AEPAR). The audit and AEPAR covers the time between 1 April 2018 and 30 April 2020.

This Annual Report Card is a summary of the main findings of the 2020 AEPAR.

What did the Independent Monitor do?

The Independent Monitor did an audit to check how well the Operator and the government met the rules (called conditions) that are listed in McArthur River Mining's:

- Mining Authorisation (licence)
- Waste Discharge Licence.

The Independent Monitor also looked at other things that help guide the environmental management of the mine, including:

- Recommendations made by the Northern Territory Environment Protection Authority (called the NT EPA Recommendations)
- McArthur River Mining's voluntary environmental commitments
- The Department's approach to applying the environmental rules to the mine.

The Independent Monitor also looked at the health of the McArthur River.

How were the checks done?

To do the check (or audit), the Independent Monitor got information in a couple of ways:

1. By looking at the documents that describe the ways that McArthur River Mining and the government are managing things – for example, for the mine this was things like air quality monitoring information, and for the government this was things like a report that says what actions the government took if they found that the mine wasn't following the rules properly
2. By asking people that work at the mine and the government questions about the mine's activities.

The NT government said that one of its main aims when it comes to managing the McArthur River Mine is protecting the health of the McArthur River at all times from mine related impacts.



For illustrative purposes only (not to scale)

BING BONG LOADING FACILITY



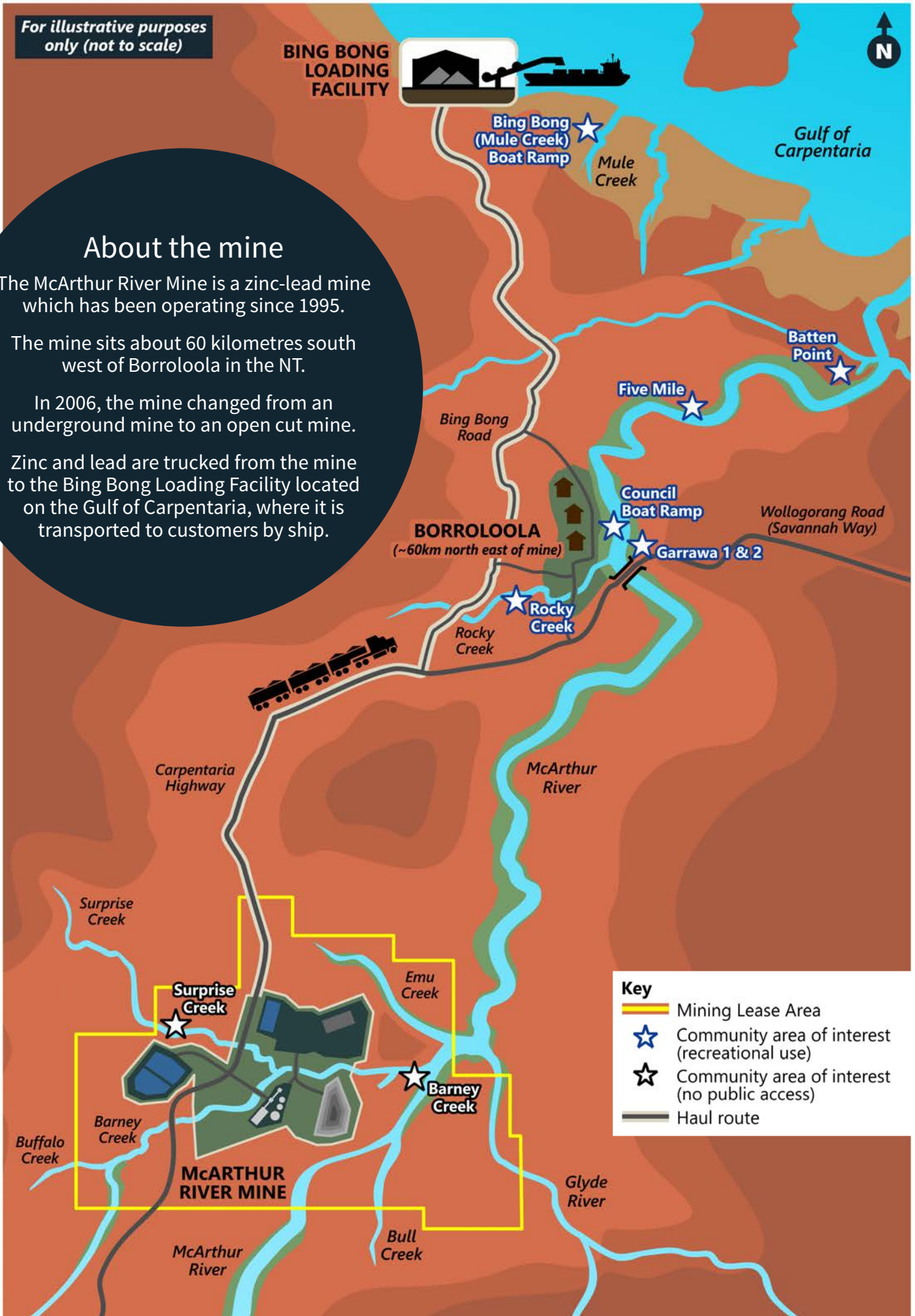
About the mine

The McArthur River Mine is a zinc-lead mine which has been operating since 1995.

The mine sits about 60 kilometres south west of Borroloola in the NT.

In 2006, the mine changed from an underground mine to an open cut mine.

Zinc and lead are trucked from the mine to the Bing Bong Loading Facility located on the Gulf of Carpentaria, where it is transported to customers by ship.



Guaranteeing the health of the McArthur River, as well as the animals in the river, is an important issue for the community.

How is the community being consulted?

In 2020, the Independent Monitor spoke to people who live in Borroloola to explain what the Independent Monitor does. The Independent Monitor asked people what important information they thought should be included in the report for the community. People from Borroloola were also asked how they would like information to be shared with them by the Independent Monitor in the future.

Borroloola community members told the Independent Monitor that their main interests were about:

- River and fish health
- Clear information sharing between the community and the Independent Monitor
- The community wanting to meet with the Independent Monitor one-on-one and face-to-face
- Being given simple and easy to read information on the Independent Monitor findings.

The community said that they want to understand what the findings of the audit mean for them. People want to know if it is safe to do activities like fishing and swimming at places along the river, and if it is safe to eat fish and other food from the river. The key waterway places that the community said they are interested in are shown on the map on page 3 of this Annual Report Card. Most of these spots are used for recreation, like fishing, but two of the spots are located inside the mining lease boundary where the general public isn't allowed to go.

Community members also said that they want one-on-one conversations with the Independent Monitor rather than large group information sessions to make it easier for them to learn about the findings of the audit. Because of this, the Independent Monitor will try to meet with people face-to-face and in small groups or one-on-one to explain the findings.

How did the Independent Monitor measure their findings?

This report card shows the findings of the Independent Monitor audit between 1 April 2018 to 30 April 2020.

To check how well McArthur River Mining was following the rules of the Mining Authorisation and Waste Discharge Licence conditions, and NT EPA Recommendations (their "level of compliance"), the Independent Monitor used a scoring system on a scale of 0 to 4:



A score was given to each condition and recommendation, and then the scores were added up and overall percentages (%) were worked out.

The Independent Monitor also looked at:

- McArthur River Mining's environmental commitments
- The Department's approach to applying environmental rules to the mine
- Overall health of the McArthur River.

However, the Independent Monitor did not score these other things that they looked at, but they did consider how well these things had been done.

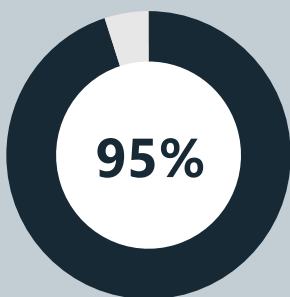
What were the main findings about the Operator?

The environmental performance of McArthur River Mining was worked out by checking how well they met the rules of the Mining Authorisation and Waste Discharge Licence and other environmental commitments and recommendations.

The Independent Monitor found that McArthur River Mining met most of the conditions of the Mining Authorisation and the Waste Discharge Licence. The scores given for how well McArthur River Mining followed the rules are shown below. The Independent Monitor also found that no significant environmental issues that needed urgent investigation were found to have happened during the audit period.

The Independent Monitor thinks that McArthur River Mining has positively moved from reacting to problems to preventing possible problems before they become issues.

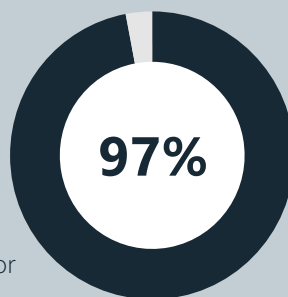
The way McArthur River Mining is following the rules of its licences is a sign of how well they are taking care of the environment.



Mining Authorisation compliance

The audit looked at 176 Mining Authorisation conditions.

The audit found the Operator as having a high level of overall compliance with the Mining Authorisation conditions at 95%.



Waste Discharge Licence compliance

The audit looked at 123 Waste Discharge Licence conditions.

The audit found the Operator as having a high level of overall compliance with the relevant conditions of the Waste Discharge Licence at 97%.

Voluntary environmental commitments

McArthur River Mining has a list of things that they have voluntarily committed to doing to improve the way they are looking after the environment, but these are not rules put on them by the government. These voluntary environmental commitments are written down in different documents - Mine Management Plans (MMPs), Operational Performance Reports (OPRs) and Environmental Monitoring Report (EMR).

The Independent Monitor found that the tracking and reporting of these commitments could be better. McArthur River Mining didn't always include timeframes for when commitments would be finished and there was not enough information about how the commitments would be 'closed'. The Independent Monitor also thinks that McArthur River Mining could improve its document referencing - to make it easier to tell which document the commitment came from.

McArthur River Mining's tracking and reporting of the voluntary commitments listed in the Environmental Monitoring Reports appeared to be getting better towards the end of the reporting period.



NT EPA Recommendations

McArthur River Mining scored **100% compliance** with the 30 recommendations that were made by the NT EPA to improve environmental performance.

The NT EPA Recommendations that connect to McArthur River Mining were made into Mining Authorisation conditions, and these were looked at by the Independent Monitor as a part of the Mining Authorisation assessment.

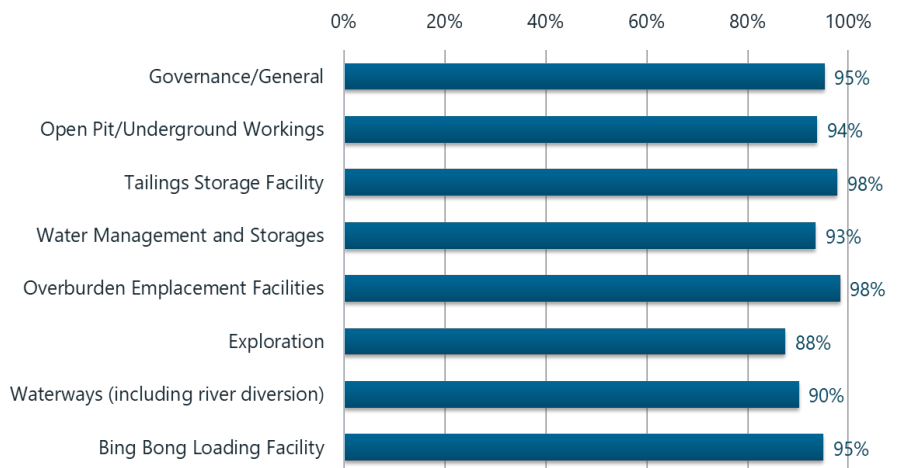
Let's look deeper into the findings about the Operator...

To get a better understanding of how well McArthur River Mining did in their environmental performance, the compliance scores for conditions of the mine's licences were matched against the key mining activities (Operator domains) and the key areas of environment (Environmental aspects) that they relate to. This is explained further below and on the next page.

Mining activity areas (Operator domains)

As part of the audit, the mine was divided into eight 'domains' which represent the mine's key activity areas, plus an extra area called Governance/General which is about the mine's overall environmental management. These areas and their compliance scores are shown below:

Overall compliance scores for each of the mining activity areas was high at 90% or above, except for Exploration which scored 88%.

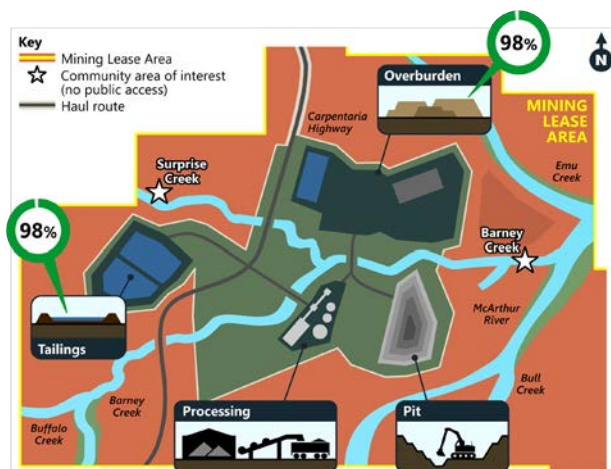


The two parts of the mine's activities that are seen to have the highest environmental risk, if not managed properly, are the Tailings Storage Facility, where leftover material from the mine processing is stored, and the Overburden Emplacement Facilities, where waste rock is stored. The Department has put the highest number of rules (Mining Authorisation conditions) on these domains because these activities are seen to have the highest chance of harming the environment if not managed properly.

The Independent Monitor scored both these mining activity areas at 98%, which were the highest scores of all the areas. The high scores are a sign that McArthur River Mining is doing a good job at making sure that the mine's workers are spending time and effort looking after the high-risk mining activity areas to manage them well.

The Exploration area was given a lower score of 88%. Exploration is the activities that McArthur River Mining does to look in the ground to help find out if there is any zinc or lead in that area.

McArthur River Mining could improve this score by making sure that all of their necessary exploration environment management data and information is put into reports for the government. They could also prepare and update their plans to show how they manage exploration risks (e.g. chemical storage, erosion and sediment control and dust).



This picture shows compliance scores of the mining activity areas (Tailings Storage Facility and Overburden Emplacement Facilities) that are considered to be potentially high risk if not managed properly.

Environmental aspects

Environmental aspects are the areas of the environment that may be impacted by the mine's operations. The audit checked how well McArthur River Mining met the rules of the Mining Authorisation that link to each of the environmental aspects. Overall, compliance levels were very high with all scores being at or above 91%.

The Independent Monitor also scored how well McArthur River Mining met the rules for overall Monitoring and Reporting. Monitoring and Reporting is about how McArthur River Mining did their own checks and reported this to others. This was given a score of 92%. To improve this score, McArthur River Mining needs to give information to the government in the correct format and existing information needs to be put into the relevant management plans.



96%

Air quality

To improve this score McArthur River Mining needs to write down its plan to manage dust during exploration works.



94%

Groundwater

To improve this score McArthur River Mining needs to update some of the mine's procedures/plans and provide more data on the groundwater that is pumped out of the mine pit and borefields.



95%

Aquatic fauna

To improve this score McArthur River Mining needs to provide existing river bed sediment data as part of the report they give to the government every three months.



98%

Waste management

To improve this score McArthur River Mining needs to provide further detail in the documentation for Independent Certifying Engineer checks for the waste rock and tailings storage areas.



91%

Surface water

To improve this score McArthur River Mining needs to create a list to check mine water storage structures and prepare a seepage management plan.



95%

Vegetation and rehabilitation

To improve this score McArthur River Mining needs to prepare and submit a report that outlines what rehabilitation was done after exploration work.



100%

Marine water

McArthur River Mining met all of their Mining Authorisation conditions related to marine water.



100%

Community

McArthur River Mining met all of their Mining Authorisation conditions related to the community.



Key successes for the Operator

The audit identified areas where McArthur River Mining did well to improve their environmental performance. These key successes were:



The water management strategy has helped the mine improve its management of storage, volume and quality of mine water



The mine started a new program called Ecotoxicology to help monitor potential impacts to the water quality and river health



McArthur River Mining tried new ways to permanently seal mine waste earlier than required by the rules of the Mining Authorisation



More dust monitors were used at the mine to help McArthur River Mining find out the source of mining dust and put better controls in place.

Key opportunities for improvement for the Operator

The audit process identified key things that McArthur River Mining could do to help improve its environmental performance. It is important to note that these are suggestions only and are not new rules that they need to follow. The key things they can do are to:

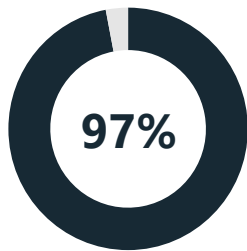
- Make sure that information is given to the government at the right time (for example, every three months) and in the correct format
- Agree with the government on ways they can meet Mining Authorisation conditions (for example, McArthur River Mining being able to place cover over waste rock all year round, rather than by a specific annual date)
- Prepare or update some of the mine's exploration drilling procedures / plans / reports to include things like storing chemicals, erosion and sediment control and dust control
- Review the way groundwater is pumped out of the mine pit and borefields and make sure that the groundwater bores have a meter tool to measure how much groundwater is taken
- Provide further detail in the documentation for Independent Certifying Engineer checks for the waste rock and tailings storage areas
- Help maintain the meeting records of the Independent Tailings Review Board – which is a separate group of expert people that look at the mine's tailings
- Continue to speak with local stakeholders about putting permanent water monitoring stations in local waterways
- Do a check of the storage and handling of dangerous goods e.g. chemicals and flammable liquids
- Record more information to help track, update and complete actions to meet voluntary environmental commitments.

What were the main findings about the Department?

The environmental performance of the Department was assessed by checking how well the Department had:

- Followed up relevant conditions of the Mining Authorisation
- Included NT EPA Recommendations as Mining Authorisation conditions
- Followed their own procedures for regulating McArthur River Mining.

The findings are listed below.



Mining Authorisation compliance

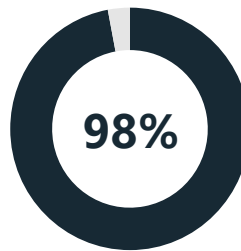
The audit looked at 60 Mining Authorisation conditions.

The Department scored a high level of overall compliance of 97% against the relevant rules of the Mining Authorisation.

To better understand how well the Department met the rules of the Mining Authorisation, the rules were divided into six sections:

1. General
2. Waste Rock Management
3. Water Management and Storage
4. Tailings Storage Facility
5. Environmental and Independent Monitoring
6. Overburden Management Project.

Four out of the six sections scored 100%. Environmental and Independent Monitoring scored 94% and Tailings Storage Facility scored 95%.



NT EPA Recommendations compliance

The audit looked at 97 NT EPA Recommendations.

The audit checked how well the Department included NT EPA Recommendations about the mine as Mining Authorisation conditions. The audit also checked if they had actioned the recommendations that they needed to.

The audit found that the Department had done a good job of including the recommendations into the Mining Authorisation, with some small differences between the wording of the recommendations and the Mining Authorisation conditions.

The Department was given an overall compliance score of 98%.

Regulatory procedures and approach review

The review looked at how well the Department managed:

- Environmental incidents
- The assessment of the Tailings Storage Facility quarterly reports
- Monitoring data requirements
- Responses to McArthur River Mining's annual reporting.

The review found that the Department could have done better in some administrative and procedural activities to improve efficiency in how they actioned their rules.



Key successes for the Department

The audit found that the Department did well to improve environmental performance of the mine by better managing the Tailings Storage Facility. The Department focused on the review and follow up of the Tailings management and environmental performance of the Tailings Storage Facility. Key successes for the Department were:

- Improvement of the checking and feedback on the Tailings Storage Facility quarterly reports submitted by McArthur River Mining to make sure that they had taken appropriate action to protect the McArthur River
- More focus was given to making sure that mining activities that may harm the health of the McArthur River were being well managed by McArthur River Mining, and the Department worked with McArthur River Mining to meet the Mining Authorisation requirements
- Procedures were streamlined to be more efficient in reporting and approval processes.

Key opportunities for improvement for the Department

The audit identified some ways that the Department could improve their environmental performance. It is important to note that like the opportunities for improvement for McArthur River Mining, these are only suggestions for the Department to consider. The key things the Department can do is:

- Develop a procedure to make sure the Department gets advice from other government agencies on the river health monitoring programs
- Get agreement on the timeframes for the start of some of the monitoring programs
- Change some Mining Authorisation conditions (water transfer data, alluvium cover and water quality monitoring parameters) to improve their relevance for the way the mine operates and to make things more efficient
- Train more Department staff in how to upload the monitoring data given to them by McArthur River Mining into their government systems
- Formalise a process so that low risk environmental incidents only need to be reported annually to the Department to make this more efficient – this will allow the Department and McArthur River Mining to focus on higher priority environmental management matters
- Review historical data to identify trends, that are either better or worse in performance
- Better track the recommendations and actions between past and current Tailings Storage Facility reports and close out ones that are finished
- Consider how monitoring data can be better shared with the public
- Consider how to improve the analysis of cumulative data and report trends
- Consider a Department workshop to look at ways to improve the annual Environmental Monitoring Report process
- Prepare a procedure and schedule to track the regulatory tasks that the Department needs to do to check on McArthur River Mining.

What were the main findings about river health?

McArthur River Mining uses lots of ways to protect the health of the McArthur River so that people can keep using the river. McArthur River Mining has programs in place that check and manage potential impacts on river health. A general check on the condition of the McArthur River system was done by the Independent Monitor using river and fish monitoring information provided by McArthur River Mining.

The check looked at how the health of the river could potentially affect the fish and other plants and animals that live in the river. Overall, it was found that the McArthur River and its creeks were in good health.

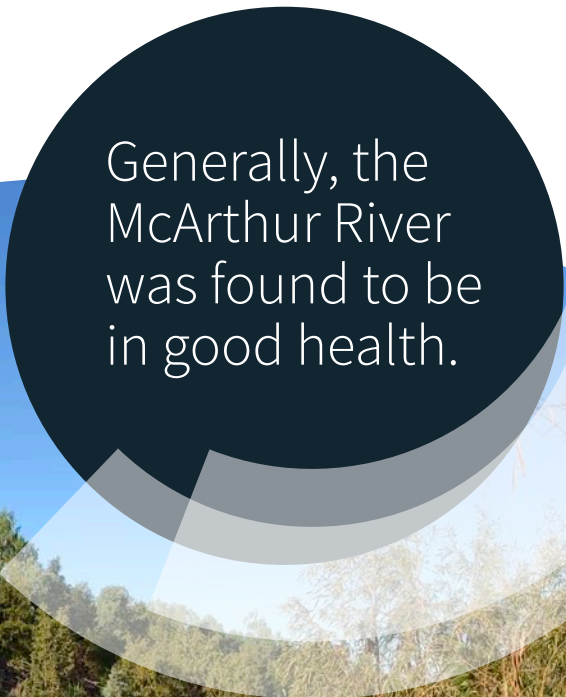
In 2018 to 2020, metals above the level allowed by the Australian Food Standards, were found in freshwater mussels and rainbow fish in Barney Creek. These samples were taken from spots that sit right next to where mining activities happen. These areas of Barney Creek are located inside the mining lease boundary where the community are not allowed to access.

Metal levels will need ongoing monitoring and management in line with what the mine is already doing to continue to protect the river and the community.

Data collected over the 2019 monitoring program found that all other fish from the McArthur River catchment taken outside the mine, had low levels of metals, and were considered safe to eat.

Testing of mussels in the region has identified that they have a naturally occurring high level of metals. The metals found in the mussels (including arsenic, aluminium and manganese) are not the type of metals produced by McArthur River Mining's operations. The types of metals associated with the mine's operations are zinc and lead. It is suggested that people do not eat a lot of mussels because of the metal levels but it should be noted that it is considered very unlikely that eating mussels would be bad for people's health. This is because there is a limited mussel supply living in the McArthur River catchment so people would not be able to catch and eat enough mussels to make them sick and the metal levels are similar to those found in everyday foods.

The latest 2019 monitoring findings showed that it was safe for people to eat commonly fished animals from the McArthur River, like: barramundi, sooty grunter, archer fish and cherabin (giant freshwater prawn).



Generally, the
McArthur River
was found to be
in good health.

Conclusions

- McArthur River Mining and the Department both showed a high level of compliance with the Mining Authorisation conditions and the NT EPA Recommendations. That is, McArthur River Mining generally did well at following the rules, and the government did well in making sure the rules were being followed.
- McArthur River Mining made changes to the way it has operated in the past and improved efforts to manage areas of the mine's operations that are considered high risk to the environment if they are not managed properly.
- There was increased focus on key environmental risk areas by McArthur River Mining and the Department which improved the mine's overall environmental performance.
- The improved way that McArthur River Mining followed the rules to look after the environment can be linked, in part, to how well the Department applied the rules.
- The Department had a strong focus on key potential environmental risks, and a practical approach to compliance and monitoring.
- There are opportunities for McArthur River Mining to improve tracking and reporting of their voluntary commitments, which are their commitments that are not overseen by the Department.
- The review of the Department's regulatory procedures and approach found that there are opportunities to simplify activities to make them more efficient, especially those involving recurring regulatory processes.
- Overall, the McArthur River and its creeks were in good health and the fish were safe to eat.

Moving forward

The next environmental performance audit review will happen later in 2021 and will look at the period between 1 May 2020 and 30 April 2021.

Going forward, the Independent Monitor will compare the findings of this 2020 review with the results of future reviews to see if the environmental performance of McArthur River Mining and the government has gotten better, or worse, or has stayed the same.

The Independent Monitor will continue to talk to the local community about the findings of the 2020 AEPAR and future reports.



Acknowledgement of Country

Advisian Pty Ltd respectfully acknowledges the Traditional Owners of the Borroloola and Gulf region, and their continuing culture and connection to the lands and waters. We pay our respect to their Elders, past, present and future.

More information

If you would like more information about the Independent Monitor or to access the full Annual Environmental Performance Audit Report please visit the DITT Independent Monitor website at: www.industry.nt.gov.au/MRM-Independent-Monitor.

ACKNOWLEDGEMENTS: This document was produced by Advisian Pty Ltd.

PHOTO CREDITS: Images were supplied by McArthur River Mining Pty Ltd.

RELEASE DATE: April 2021

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Worley Group

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