Environment Centre NT
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To Whom it May Concern,

Regulation of mining activities: environmental regulatory reform

The Environment Centre NT (**ECNT**) is the peak community sector environment organisation in the Northern Territory of Australia, raising awareness amongst community, government, business and industry about environmental issues and assisting people to reduce their environmental impact and supporting community members to participate in decision-making processes and action. Thank you for the opportunity to provide a comment on the "Regulation of mining activities: environmental regulatory reform" consultation paper (**"Consultation Paper**").

ECNT congratulates the Northern Territory Government on its proposed reforms to the Northern Territory's mining laws (**"Proposed Mining Reforms"**), which present a once-in-a-generation opportunity to fix a broken system. The NT's mining regulatory regime has produced a number of toxic mine sites that are (or will be) a significant liability for the Northern Territory Government and ultimately Australian taxpayers.

1. The need for regulatory reform

While regulatory reform to the onshore gas industry (as a consequence of the Scientific Inquiry into Hydraulic Fracturing in the Northern Territory, or **Pepper Inquiry**), and the recent enactment of the *Environment Protection Act 2019 (NT)*, have considerably improved the environmental regulatory system in the Northern Territory, the state of the Northern Territory's mining laws remains a significant reputational, financial and environmental risk for the Northern Territory.

It is well known throughout Australia that the NT's mining regulatory regime falls far short of best practice. Management of mines in the tropics is complex and difficult, and legacy mines such as Mount Todd, Rum Jungle, and Redbank tarnish the Territory's landscape, leaching heavy metals and acids into waterways, with apparently little consequence or accountability for the mining companies who were responsible for the damage. There have been issues with respect to the transparency of mining regulation during the entirety of the approval, operation, closure and rehabilitation phases of mines in the NT due to the secrecy of Mining Management Plans (**MMPs**),

as well as the absence of any public reporting on compliance with conditions for mining approvals or enforcement activities undertaken by the regulator. Apart from the approval phase for mines (due to environmental impact assessment processes), there is little to no public engagement by government about the ongoing impacts of mining projects, including with Indigenous peoples with significant property interests and who are most affected by these projects. The dual role performed by the Department of Industry, Trade and Tourism (**DITT**) as both promoter and environmental regulator has led to the perception of regulatory or sectoral capture. The weak environmental provisions of the *Mining Management Act 2001 (NT)* (**MMA**) have given DITT a discretionary jurisdiction that largely operates behind closed doors and away from public scrutiny. Compliance, monitoring and enforcement functions appear to be either weak, or completely absent (for example, see the recent NT Supreme Court case in relation to the Frances Creek Mine, where it was revealed that no site inspections were carried out by DITT for the entirety of the mine's operations, despite significant issues with acid mine drainage[1]:). This substandard regulation has frequently resulted in adverse impacts for the Northern Territory's environment, and the Northern Territory's reputation as a regulator.

The most egregious example of regulatory failure with respect to mining in the Northern Territory is the McArthur River Mine. A recent report co-authored by the UNSW Global Water Institute and ECNT (**UNSW Report**, **attached**) shows that DITT's regulatory action has lagged many years behind the identification of significant environmental issues at the mine site, with environmentally catastrophic impacts.[2] One of the key environmental problems plaguing the mine was the incorrect classification of waste rock in the northern waste rock dump. Following the spontaneous combustion of the waste rock dump (publicly reported in 2013), it was revealed that instead of approximately 25% of the mine's waste rock being potentially acid-forming (PAF), the figure was closer to 90%. The UNSW Report demonstrated that as early as 2008, the Independent Monitor for McArthur River Mine had identified the potential misclassification of the waste rock as an "extreme risk". The Independent Monitor identified that tailings were oxidising rapidly and producing acid, and that the assessment of tailings as non-acid forming was likely to be incorrect. Despite every subsequent Independent Monitor report identifying misclassification of waste rock as a significant risk, DITT (and the NT Environment Protection Authority (**NTEPA**)) took no regulatory action that ECNT is aware of until 2014 (when the issue was referred for environmental impact assessment), allowing, in the interim, an expansion of the mine that doubled the size of the open pit and the waste rock dump itself, increasing the risk of acid mine drainage significantly. The mine concedes that monitoring will need to occur for some 1000 years after decommissioning of the site. It has now been over 12 years since the issue was first identified, and the "solution" (the Overburden Management Project) was only conditionally approved in late 2020, with sacred sites approvals still outstanding. Moreover, the disastrous decision to reduce McArthur River Mine's security bond against the advice of both the Independent Monitor and NTEPA has left the Northern Territory in an untenable position: closing the mine with such inadequate security would

[1] *Territory Resources Ltd v Secretary for Mineral Royalties (NT)* [2018] NTSC 12.
[2] UNSW Global Water Institute and the Environment Centre of the NT, *Monitoring the monitor: a temporal synthesis of the McArthur River Mine Independent Monitor reports* (February 2021).

leave the Northern Territory Government (and taxpayers) with an unfunded environmental disaster to remediate. ECNT is concerned that the problems identified by the Independent Monitor at McArthur River Mine are worsening in scale and severity, enabled by an ineffective regulatory regime. In 2018, the Independent Monitor characterised as "extreme", the risk that the McArthur River would redivert along its old course, causing the collapse of the mine wall and irreversible damage to the McArthur River and other water systems.[3] The risk is defined in the report as requiring "immediate intervention to eliminate or reduce risk at a Senior Management/Government level".[4] However, this risk does not appear to be addressed in the latest mining documents approved by the Minister, again indicating that regulatory action is lagging years behind the identification of significant environmental problems. This has created unacceptable multi-generational impacts on communities and landscapes.

ECNT supports the aim of the Proposed Mining Reforms as being to achieve a risk-based, transparent, robust and fair regulatory regime for mining. ECNT is concerned by the emphasis throughout the Consultation Paper on providing certainty to industry and investors, where environmental outcomes seem a secondary consideration. The NT's mining regulatory regime has provided a great deal of certainty to the mining industry and investors to date: the certainty that mining projects will be approved and operated with poor oversight and scrutiny. Mines such as Frances Creek have been left to their own devices. The primary objective of the Proposed Mining Reforms must be to improve environmental management and performance of mine sites throughout the Northern Territory, and to fix the regulatory system that has produced environmental disasters such as McArthur River Mine.

2. The need for a transparent and rigorous regulatory reform process

In order to restore public confidence in the capacity of the Northern Territory to regulate mining, it is vital that both the regulatory reform process and its outcomes are robust.

ECNT is concerned at the minimalist approach taken with respect to public engagement about the Proposed Mining Reforms. The Consultation Paper was open for comment for approximately two months, including the Christmas holiday period. There have been no public meetings or information sessions in major or remote centres about the Proposed Mining Reforms, despite their significance. It is a vastly different approach than that taken for similar significant resource sector reforms with respect to the onshore gas industry (including the Pepper Inquiry process).

It is critical that the reform process is of the highest integrity. The reform process should not be rushed. Timeframes and opportunities for public and stakeholder engagement should be clearly published on the Department of Environment, Parks and Water Security (**DEPWS**) and DITT websites, and carefully and transparently managed. DEPWS and DITT staff (and arguably Ministers) should visit and engage with communities directly impacted by poor mining regulation such as Pine Creek, Tennant Creek, Robinson River and Borroloola. Key DEPWS and DITT staff with

[3] ERIAS Group, *McArthur River Mine Independent Monitor: Environmental Performance Annual Report 2017-2018* (September 2018). At Appendix 1.
[4] Ibid.

responsibility for public engagement about the reforms should be identified on their respective websites and contact details given. Specific efforts should be directed at engaging Traditional Owners who have property interests in the majority of land in the NT (see "Indigenous engagement" heading below).

The mining industry and its representatives should not have special access to Ministers or senior bureaucrats with respect to the Proposed Mining Reforms, nor should other stakeholders. Stakeholders should be treated in the same way, with no preferential treatment. To increase transparency and accountability, the Northern Territory Government should immediately implement legislation requiring a register of lobbyists, and a lobbyist code of conduct.

ECNT is concerned by the dissolution of the Social Policy Scrutiny Committee, which was a key mechanism to ensure parliamentary accountability, transparency and scrutiny with respect to environmental reforms in the last term of government. The Social Policy Scrutiny Committee levelled the playing field somewhat, with engagement with members of Parliament brought out into the open, significantly enhancing the reform process and public trust in it. Without such mechanisms to ensure transparency and scrutiny, smaller stakeholders and members of the public are at a significant disadvantage to influence the parliamentary law-making process. In particular, the environmental sector in the Northern Territory is small and poorly-funded compared with the mining industry, putting the sector at considerable disadvantage if industry is given access to Ministers with respect to the Proposed Mining Reforms. Every effort should be made to ensure that stakeholders and the public have equality of access to government representatives throughout the reform process.

3. Resourcing, expertise and capacity

There is little point proceeding with regulatory reform unless the DEPWS is properly resourced to discharge its new regulatory functions. This was highlighted as a significant risk in the Pepper Report, with a full cost recovery model proposed for the regulation of onshore gas by the new regulator.

ECNT has serious concerns about the resourcing of DEPWS and the NTEPA in comparison with DITT. The most recent NT Budget Papers indicate that the NTEPA receives only $754,000 in funding annually. The DPEWS annual budget for its regulatory functions with respect to the *Environment Protection Act 2019, Waste Management and Pollution Control Act 1998* and the *Petroleum Act 1984* ("Environment management and policy") is $11.5m. Despite no longer having regulatory responsibility for petroleum (ie onshore gas), DITT's budget for Mines and Energy is $28.3m (split into resource industry development, mines services and energy services). ECNT is concerned that despite the significant increase in regulatory functions being performed by DPEWS (through its new jurisdiction with respect to onshore gas, and the new *Environment Protection Act*), this has not translated to sufficiently increased resourcing. Indeed, the Northern Territory Government appears to be funding the promotion of the resources industry to the detriment of its environmental regulation.

Regulatory resourcing is not just an issue in the Northern Territory. Lack of capacity and technical expertise at regulatory agencies has been raised as a problem a number of times in a national context, most recently in the Productivity Commission's report on regulation in the resources sector, where the Commission found that:[5]

> *Regulators face capability challenges and can lack transparency, which diminishes the quality of their decisions, imposes unnecessary costs and risks undermining public confidence in regulatory efforts.*

As the Productivity Commission states, "[e]lected governments have ultimate responsibility for establishing the pre-conditions for robust regulatory systems"[6] and as such, "[g]overnments should assess whether their regulators are appropriately funded, and the potential for greater cost recovery".[7]

ECNT concurs. As a part of the Proposed Mining Reforms, the Northern Territory Government should demonstrate that it will ensure that staffing levels, including staff with the necessary expertise, are sufficient to implement the proposed regulatory framework, including a robust and transparent system of compliance, monitoring, and enforcement. In particular, it will be necessary to ensure that DPEWS is appropriately staffed to take on the responsibility of regulating the environmental impacts of mining activities. It may be appropriate for a full cost recovery model for the resources industry (such as that proposed for the onshore gas industry) to be implemented with respect to mining.

4. Indigenous engagement, and Indigenous cultural heritage

ECNT is concerned by the complete absence of any specific reference to Indigenous engagement, or indeed to Indigenous people or lands at all, in the Consultation Paper.

Over 50% of land in the NT is owned by Traditional Owners under the *Aboriginal Land Rights (Northern Territory) Act 1976 (Cth)*, and much of the remainder of land is subject to native title rights and interests under the *Native Title Act 1993 (Cth).*

ECNT acknowledges that many, if not most, mines in the Northern Territory (McArthur River Mine is a notable outlier) have native title or land rights agreements, which give Traditional Owners some ability to be informed about mining operations on their country depending on the (confidential) terms and conditions of those agreements. Additional protection for sacred sites is provided through the *Aboriginal Land Rights (Northern Territory) Act 1976 (Cth)* (**ALRA**) and the *Northern Territory Aboriginal Sacred Sites Act 1989 (NT)* (**NTASS Act**). ECNT notes that there are many more Indigenous people and communities affected by mines in the NT who may not fall within the definitions of these pieces of legislation.

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[5] Productivity Commission, *Resources Sector Regulation - Study Report* (November 2020), Canberra. At p351.
[6] Ibid.
[7] Ibid, at p2.

In the wake of the destruction of Juukan Gorge in Western Australia, it is clear that legislation to protect Indigenous cultural heritage (and land and waters) from mining operations is inadequate. Existing protections are not sufficient to protect sacred sites, nor to ensure meaningful engagement with Indigenous peoples about mines proposed on their country or near their communities. There have been many instances in the Northern Territory of unauthorised damage to Indigenous cultural heritage, and country more broadly, by mines, including:

- the damage to a significant sacred site at Bootu Creek manganese mine notwithstanding the mine's knowledge of that site and the existence of mining agreements and authority certificates;
- the potential damage to sacred sites, and to the McArthur River and Borroloola more generally, from McArthur River Mine;
- leaching copper sulphate into Hanrahan Creek at the old Redbank copper mine; and
- acid mine drainage into the Edith River at Mount Todd gold mine.

Key regulatory decisions, such as the relatively recent approval of Nathan River Resources mine after a 7-year care-and-maintenance period, and the decision to reduce the security bond at McArthur River Mine, have not been communicated by government to the Indigenous communities which will be most affected.

Part of the problem is structural – while certain information is available to Traditional Owners and custodians (primarily through their representative bodies) and the public during the authorisation of mining projects (including through the environmental impact assessment process), very little information is publicly released post-approval. MMPs, the key regulatory tool governing mining operations, have (until very recently) been deemed confidential documents. There is no requirement for public reporting by mining companies on compliance with mining conditions, nor by DITT. After mines are authorised, their management and regulations are "black-boxed" and accessible only to mining companies and DITT.

ECNT recognises that aspects of the Proposed Mining Reforms will go some way towards rectifying this issue, with proposed requirements for publishing reports on environmental outcomes submitted in accordance with licence and registration conditions. ECNT strongly supports these proposals. However, they do not go far enough to engage Indigenous peoples about proposed and ongoing mining operations on or near their lands and communities.

The recently released final report into the review into the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* by Graeme Samuel (**Samuel Review**) stated that the federal government should bring in greater protections for Indigenous heritage immediately because of the legal "culture of tokenism and symbolism", rather than "genuine inclusion of Indigenous Australians".[8] The Samuel Review recommended the immediate adoption of a national

[8] Professor Graeme Samuel AC, *Independent Review of the EPBC Act – Final Report* (October 2020), Canberra: Department of Agriculture, Water and the Environment. At Chapter 2.

environmental standard for Indigenous engagement and participation in decision-making, with the following components:[9]

(a) Outcome: Indigenous Australians are empowered to be engaged and participate in decision-making, and their views and knowledge are respectfully and transparently considered in the legislative and policy processes that support the protection and management of the environment;

(b) Standard:

a. Engagement and participation of Indigenous Australians in decision-making should be enabled for activities at all scales.
b. Engagement and participation in decision-making should be undertaken with a view to ensuring the right of Indigenous Australians to be involved in the design, implementation, monitoring and reporting aspects of the activity.
c. Indigenous Australians should be adequately supported and resourced by the proponent or decision-maker, via their representative organisation, where their participation is a requirement of a statutory process under the legislation.
d. Indigenous Australians have the right to initiate their engagement and participation in decision-making with all parties undertaking activities related to the legislation.
e. The engagement and participation of Indigenous Australians should commence early. Indigenous Australians should be given adequate time for their own deliberation and decision-making processes to occur, to support their proper participation in legislative decision making processes.
f. The views and knowledge provided by Indigenous Australians should be transparently reported (where approval for publication from the owners of those views has been provided).
    i. a proponent or entity seeking approval or accreditation from the Commonwealth is required to demonstrate how views or knowledge have been included or excluded in a proposal and the reasons for doing so.
    ii. a decision maker or accredited decision maker is required to demonstrate how views or knowledge have been included or excluded in a decision, and the reasons for doing so.
g. Indigenous Australians have the right to self-determine the way their knowledge is shared and used. Knowledge holders have the right to control how their information concerning cultural practices, traditions or belief is collected, curated, integrated, analysed, used, shared and published.
h. Where prior approval for the use of knowledge is given by the Indigenous knowledge holders, all parties should commit to a two-way transfer of knowledge.
i. Enabling engagement and participation of Indigenous Australians in decision-making should be conducted in a way that demonstrates cultural awareness and competency.

[9] Ibid, at Appendix B2.

j. Monitoring, reporting and evaluation demonstrates compliance with this National Environmental Standard, including the assessment of the performance of all decision makers against this Standard.

It is incumbent on the Northern Territory Government (not mining companies) to ensure that Indigenous people are adequately informed and engaged through every stage of the mining regulatory process, from early exploration through to rehabilitation, decommissioning and monitoring, and that their views are taken into account in regulatory decisions. This should be required in the legislation. ECNT suggests that the Northern Territory Government should develop a statutory standard (with which both proponents and the government need comply) for Indigenous engagement along the lines of those proposed by the Samuel Review.

ECNT also supports a strengthening of sacred site protections with respect to mining projects. In particular, ECNT believes that sacred site clearances granted by NT land councils under s23(1)(c) of the *ALRA* or authority certificates granted by the Aboriginal Areas Protection Authority under the *NTASS Act (NT)* should be a mandatory (and statutory) precondition to the grant of a licence under the Proposed Mining Reforms. If the proposed work is on Aboriginal land, or where the government department or developer has commitments under an indigenous land use agreement or Joint Management Agreement, they must apply directly to the relevant Land Council. This would bring the mining regulatory regime into alignment with the onshore gas regulatory regime. Land councils or AAPA should be provided with access to all environmental plans, compliance and enforcement reports with respect to mines upon request, to assist them with their compliance, monitoring and enforcement functions.

5. Regulatory separation

The cornerstone of the Proposed Mining Reforms is regulatory separation between mineral resource management and environmental regulation. Following the Pepper Report, this is the model being implemented with respect to the onshore gas industry in the NT, and it accords with world's leading practice.

ECNT agrees that in order to address issues relating to the perception of sectoral capture and conflict of interest, it is necessary to have regulatory separation between DPEWS as the environmental regulator and DITT as the promoter of the mining industry.

However, ECNT is concerned that the Consultation Paper fundamentally mischaracterises the regulatory separation recommended by the Pepper Inquiry, and which would be required to achieve leading practice mining regulation.

The Pepper Inquiry recommended a "clear separation between the agency with responsibility for environmental impacts and risks associated with any onshore shale gas industry and the agency responsible for promoting that industry" (p 431). All environmental approvals and regulatory functions for the onshore gas industry in the NT thus sit with the Minister for the Environment/NTEPA/DEPWS. DITT retains responsibility for promoting the onshore industry, and the management of petroleum titles and the resource more broadly. A similar regulatory

separation can be seen with offshore gas regulation in Australia, with NOPSEMA having responsibility for environmental regulation (including approval of well operation management plans and environmental management plans), and NOPTA with responsibility for tenure including life of title administration.

Instead, the Consultation Paper proposes a separation of "regulatory responsibilities for environmental management from mining operation regulation". To achieve regulatory separation, the Consultation Paper proposes that DEPWS would have regulatory responsibility for licensing of mining operations, but DITT would retain approval power with respect to a new document called a "mining plan", which details infrastructure design, infrastructure management systems, staged extraction, decommissioning and mine closure". Of significant concern to ECNT, the proposed mining plan appears to incorporate a number of features which are directly relevant to environmental management of mine sites and should be within the regulatory jurisdiction of DEPWS, not DITT.

ECNT is also concerned that the Consultation Paper proposes that DITT will be responsible for authorising key environmentally significant mining activities, including closure plans and "legacy mine management". In ECNT's view, these functions are clearly environmental in nature, and should be within DEPWS' regulatory jurisdiction. The Consultation Paper in fact creates two overlapping regulatory domains with respect to environmental compliance and enforcement (with DPEWS to conduct compliance and enforcement for breaches of environmental obligations, and DITT to conduct compliance and enforcement activities for any alleged breaches of the MMA).

ECNT believes that the Consultation Proposes a hybrid environmental regulatory model which is inconsistent with the Pepper Inquiry recommendations and leading practice, and will not achieve regulatory separation. It facilitates sharing of environmental regulatory responsibilities that will lead to confusion and duplication of functions. It will increase regulatory complexity, not reduce or streamline it. All environmental approvals and oversight, including with respect to the matters proposed to be dealt with in "mining plans" must be vested in DEPWS (or preferably the Minister for the Environment, see "Licensing" heading below).

6. Licensing

ECNT cautiously supports the proposed creation of licences for mining operations, with DEPWS having responsibility for environmental approvals, and the monitoring, compliance and enforcement of licences and environmental outcomes (including remediation, rehabilitation and closure objectives). However, further information is needed about this proposed system. For example, and as discussed further below, it is critical that objective standards for mining operations are linked to licences, are transparent, are sufficiently prescriptive, and are enforceable. There must also be statutory mechanisms requiring public reporting against licence conditions and standards.

While ECNT accepts that MMPs have largely been an ineffective regulatory tool for the management and regulation of mine sites, there is a significant risk that if they are dispensed with, this will decrease transparency in the management of mining operations in the NT.

Environmental organisations have fought for many years for the public disclosure of MMPs, a battle which has only recently been (partially) won. While the Consultation Paper states that environmental management plans (EMPs) may replace MMPs, it is not clear how these will materially differ from MMPs, nor whether they will be made available for public comment prior to approval. The public needs to be informed about of how commitments made by mining companies in such plans, and conditions imposed by DEPWS, are being adhered to, monitored and enforced. EMPs should be made available for public comment prior to approval, consistent with the onshore gas regulatory system. The requirements for EMPs need to be set out in the legislation, and linked to standards, as discussed further below.

The Consultation Paper proposes that the licensing system will be supported by general mining environmental obligations and duties designed to minimise impacts on the environment that all mining operators must comply with. ECNT believes that the proposed obligations listed on pages 8-9 are weak, vague, and would be largely unenforceable. To instil public confidence in the mining regulatory system, it is essential that the standards that mining companies must adhere to are transparent and enforceable. Any licence conditions must clearly link to these standards.

Instead of a list of vague environmental obligations, ECNT suggests a system similar to Queensland's, where the legislation provides for the development (in consultation with the public) and approval of standards for mining operations, which would be made enforceable through licence conditioning, with an attendant requirement for plans and annual reporting against each component of the standard. This would improve certainty for all stakeholders, ensuring that environmental standards for mining are well understood and consistent across the board (allowing some flexibility). It would operate in a similar way to the current requirement for a code of practice in the onshore gas industry with which gas companies must comply. It would ensure that mining companies are legally accountable for compliance with well understood standards.

For example, the Queensland standard for mining lease projects contains reasonably detailed standards for the following:[10]

- Financial assurance;
- Land disturbance (including surface area, disturbance of trees);
- Air quality;
- Noise emissions;
- Erosion and sediment control;
- Topsoils and overburden management;
- Hazardous contaminants;
- Nature conservation;
- Roads and tracks;

[10] https://environment.des.qld.gov.au/__data/assets/pdf_file/0022/90139/rs-es-exploration-mineral-development-projects.pdf

- Campsites;
- Waste management;
- Service maintenance and storage areas;
- Drilling, excavating and sampling;
- Exploration drill holes;
- Gridlines and geophysical surveys;
- Monitoring, reporting and emergency response procedures; and
- Rehabilitation.

For more hazardous or toxic mine infrastructure (eg tailings dams, surface water ponds, water management systems more generally), stand-alone standards could be developed. For example, Queensland has developed a separate code of environmental compliance for hazardous waste dams.[11]

ECNT notes that proposal on page 12 of the Consultation Paper that regulations will identify a consultative process involving the mine industry and other stakeholder groups to develop risk criteria and conduct reviews of the risk criteria and registration conditions. Depending on how this is structured, this could give a lot of influence to the mine industry in relation to the stringency of the licensing/registration system. Similar to the development of environmental standards, it is critical that the public is proactively engaged with the development of any risk criteria (and their review).

ECNT also recommends that the legislation require annual reporting by mining companies on their compliance with licences, and annual compliance/enforcement reporting by DEPWS.

ECNT is concerned about a number of additional matters regarding the proposed licensing regime, including regarding the DEPWS CEO's power and discretion with respect to the new regime. In particular:

(a) In ECNT's view (and consistent with the regulatory regime for the onshore gas industry), the Environment Minister rather than the DEPWS CEO should have approval power with respect to licences, registrations and ancillary functions. ECNT refers to page 432 of the Pepper Report, which highlights the importance of the executive (that is a Minister) being the accountable decision-maker:

> *This approach is consistent with Australia's Westminster system. It is an important accountability mechanism. In short, if the public does not approve of Ministerial decisions with respect to any onshore shale gas industry, its disapproval may be exercised at an electoral level.*

(b) ECNT is very concerned about the wide discretion of the CEO of DEPWS with respect to "performance improvement agreements", which would have the effect of indemnifying companies from criminal or civil proceedings for a breach of a licence

[11] https://environment.des.qld.gov.au/__data/assets/pdf_file/0030/88761/era-ses-high-hazard-dams.pdf

condition. While the Consultation Paper states that these are not intended to be used as a compliance tool (p 12), it seems that this is precisely what is proposed (see, for example, p 16 of the Consultation Paper under the heading "environmental compliance and enforcement"). ECNT is concerned that this discretionary power has the potential to give protection to non-compliant mining operators who are in breach of the law, and that this power could be used arbitrarily. A number of questions remain unanswered about these agreements, including the circumstances in which they could be entered into, what happens in the case of serial non-compliance, what public input there will be about them, and whether decisions to enter into these agreements are reviewable. It is inappropriate to give this discretionary power to the CEO of DEPWS. ECNT is not convinced such agreements should form part of the regulatory regime at all.

(c) ECNT is very concerned by the suggestion that the CEO of DEPWS can amend the conditions of a licence as part of a licence review or at other times. Again, this gives a significant degree of discretion to a senior bureaucrat. It is unclear what public engagement or consultation there will be in advance of changes to licence conditions, or the circumstances in which it could happen. It would be an unacceptable outcome, for instance, if the licence conditions deviated significantly from what was proposed during an environmental impact assessment process.

7. Compliance, monitoring and enforcement

As highlighted above, one of the key characteristics of the current regulatory system is a lack of transparency regarding compliance and monitoring of, and enforcement against, mining operations. The Supreme Court case about Frances Creek mine (referred to above)[12] shows that there are real questions about whether any rigorous compliance, monitoring and enforcement activities are undertaken at all by DITT. It is crucial that rigorous requirements are established for public reporting against licence conditions and standards, as well as DEPWS' enforcement activities. These functions must be adequately resourced by the Northern Territory Government.

ECNT supports the tightening of definitions for reportable incidents, and public reporting by both mining companies and government regarding responses to these incidents. In the 2018 Independent Monitor report for McArthur River Mine, the Independent Monitor noted that 106 of the mine's groundwater monitoring bores showed exceedances greater than the trigger value, which were not reported, apparently due to a distinction informally accepted by the mine and the regulator between an "incident" requiring reporting under s29 of the MMA, and an "exceedance" which did not require reporting.[13]

ECNT suggests, as recommended by the Pepper Inquiry in relation to onshore gas, a strengthening of provisions for civil penalties, infringement notices, enforceable undertakings, remediation and rehabilitation orders, revocation, suspension or variation orders, and injunctions similar to those

[12] See n 1 above.
[13] ERIAS Group, above n 3, at pp 4-133 and 4-393.

NOPSEMA is empowered with respect to offshore gas (see the *Regulatory Powers (Standard Provisions) Act 2014 (Cth)*).

8. On/off tenement regulatory approach

ECNT strongly supports the abandonment of the on/off tenement approach to environmental management of mine sites, where DITT has jurisdiction on the mine site (under the MMA), and the NTEPA/DEPWS has jurisdiction off the mine site (under the *Waste Management and Pollution Control Act 1998 (NT)*).

The on/off tenement approach is a major flaw in the NT's current mining regulatory system. The MMA essentially permits pollution on NT mine sites, as long as it is done in accordance with an approved MMP. The environmental protection obligations in the MMA are qualified. MMPs must only "as far as practicable" operate effectively in protecting the environment (s36(5)(a)(ii)). Compliance with them protects mining operators against polluting activities that might otherwise constitute offences under the legislation. For example, the general offence in the MMA against releasing waste or contaminants on or off site is neutralised as long as the operator complies with its MMP (s33 of the MMA). Further, offences for causing other forms of environmental harm (ss26 and 26A, 27 and 27A and 28 and 28A) are only established if offenders also breach one of a list of weak environmental obligations. On the mine site operators have wide parameters as long as MMPs are complied with. This makes mining regulation a jurisdiction of discretion, where whatever DITT decides is acceptable, becomes what is enforceable (or not). And historically this has also been a secret jurisdiction - the confidentiality of MMPs (as the key regulatory tool governing mining operations on the mine site) has meant that it has not been possible for the public to ascertain how mining impacts on site are being managed.

Given the temporal and spatial nature of many mining impacts, this is an enormously risky and illogical regulatory system. Offsite impacts may be hidden or delayed. For example, acid mine drainage from tailings dams, open pits and waste rock dumps moves slowly and incrementally, infiltrating and contaminating waterways over millennia. By the time these impacts are felt off-site, there is little the NTEPA or DEPWS can do under any legislation.

It is far preferable to have a single agency regulating the new environmental licensing scheme and environmental impacts off the mine site, as proposed in the Consultation Paper. However, it is not clear to ECNT what reforms are proposed to facilitate this outcome. Further, given that the *Waste Management and Pollution Control Act 1998 (NT)* governs off-site contamination and pollution, it is not clear to ECNT how this can be achieved without reform to this legislation as well.

9. Care and maintenance

ECNT notes that mines that are in "care and maintenance" pose a risk to the NT's environment, and indeed have been the cause of significant environmental contamination in the NT (for

example, Mount Todd and Redbank mines). Care and maintenance arrangements have been used as a shield to avoid environmental accountability, and are a significant liability for the Northern Territory Government.

There is also a lack of transparency around care and maintenance arrangements, and what is required to "restart" a mine. For example, the Nathan River Resources iron ore mine was quietly "re-approved" recently after many years in care and maintenance, despite the previous operator being prosecuted for environmental damage.

ECNT supports reforms to provide clarity around care and maintenance arrangements on NT mine sites. Operators should still need to comply with licence conditions, or face prosecution or surrender of the mineral leases. There should be public reporting against licence conditions during the care and maintenance period, as well as an increase in monitoring by the regulator during this time. Mines in care and maintenance should not be able to simply "reanimate" without public consultation and engagement about the proposed approval process (including, if necessary, a further environmental impact assessment). Time limits should be imposed on care and maintenance operations.

10. Financial provisioning – security bonds and environmental bonds

The inadequacy of mining security bonds are a liability for the Northern Territory, and ultimately Australian taxpayers. ECNT supports the transfer of the assessment of security bonds to DEPWS, but believes that this approval power should rest with the Minister, not the CEO of DEPWS. Decisions with respect to security bonds must be subject to merits review by third parties. The legislation must clarify that the security bond must cover 100% of closure and rehabilitation and monitoring costs in the event of a default. The methodology for calculating security bonds must be made publicly available, and subjected to peer review and public consultation.

While ECNT notes that best practice financial provisioning for mines encourages progressive rehabilitation activities, it is critical that a strong regulatory framework be established to achieve this. ECNT refers to Queensland's recent regulatory reforms as an example of the prescription that is required to achieve effective progressive rehabilitation regulations.

ECNT supports the incorporation of residual risk payments into the statutory framework as a matter of priority, and preferably as part of the assessment of the security bond. Where residual risks are significant and likely to last for many years, it may not be appropriate for the mining company to surrender the tenement.

11. Closure and rehabilitation planning

ECNT agrees that "best practice mining management requires planning for mine closure to be integral to mine feasibility studies, mine development and operational planning, with detail increasing as the mine moves towards closure, rather than left to the end of mining operations." While the MMA does require closure plans to be incorporated into MMPs, ECNT disagrees with the suggestion in the Consultation Paper that mine closure planning is at present adequately

incorporated into all stages of mining. Further, there is very little transparency around closure planning for major mines in the NT, with MMPs (and the closure plans contained in them) largely confidential.

This is far from best practice, which requires consultation with the public about closure plans and closure criteria from the very beginning of the regulatory process. For instance, in Queensland, proponents of mining projects are required to submit progressive rehabilitation and closure (PRC) plans as part of their application for an environmental authority. The purpose of these plans is "to plan for how and where environmentally relevant activities will be carried out on land in a way that maximises the progressive rehabilitation of the land to a stable condition and... provide for the condition to which the holder must rehabilitate the land before the authority may be surrendered" (*Environmental Protection Act 1994 (Qld)*, s126B). Proponents must consult on what the post-mining land use should be (s126C). The expectation is that land will be returned to a "stable condition", which is defined as (s111A):

(a) the land is safe and structurally stable; and

(b) there is no environmental harm being caused by anything on or in the land; and

(c) the land can sustain a post-mining land use.

If the land will not be able to be returned to a stable condition, the proponents must explain why (s126C). They must also include timeframes for progressive rehabilitation of the mine site (s126C).

ECNT recommends the Northern Territory Government implement mine closure and rehabilitation reforms consistent with those recently enacted in Queensland. We **attach** for your reference a series of three useful articles by Ji Yen Loh in the Australian Energy and Resources Law Bulletin, comparing Queensland's mine closure laws to international best practice.

12. Rights of review

The rights of review for decisions made under the MMA are limited. Merits review is generally only limited to the proponent, and is not available to third parties. As stated in the Pepper Inquiry (p 420), in any mature and robust regulatory system, both judicial review and merits review should be available. It is vital that key decisions by DEPWS under the new mining regulatory regime are subject to merits review by third parties. The Pepper Inquiry said (p 420-1):

> *Merits review fosters better decision-making. The Commonwealth Administrative Review Council considers that 'the central purpose of the system of merits review is improving agencies' decision-making generally by correcting errors and modelling good administrative practice' and that 'merits review ensures that the openness and accountability of decisions made by government are enhanced'. Merits review facilitates transparency by providing a forum where all the facts and issues relevant to a particular decision can be tested. This transparency results in better decision-making because a decision-maker who knows that his or her decision may be subject to a public review on the*

merits will take particular care to ensure that it is defensible. Improved decision-making and transparency means that the public and other stakeholders will have more faith in the decision-maker and the decisions made. This is crucial for any regulator of any onshore gas in the NT and will encourage the establishment of a [social licence to operate]."

ECNT notes that the Northern Territory Government backflipped on providing third party merits review with respect to environmental assessment and approvals during consultation about the *Environment Protection Act 2019*, despite advising the Pepper Inquiry that these reforms would take place.

It is imperative that merits review be available to third parties in relation to decisions made under the new mining regulatory regime for the reasons set out in the Pepper Inquiry. These merits review provisions should mirror (to the extent possible) the merits review provisions being implemented for onshore gas in the NT, with NTCAT being given jurisdiction to hear proceedings. There is no rationale for taking a different approach with respect to mining.

ECNT submits that there should be open standing with respect to judicial review of decisions under the Proposed Mining Reforms, consistent with the Pepper Inquiry and its implementation.

13. **Other matters**

Please see Annexure A for ECNT's views on specific consultation questions (some are cross-referenced to this submission).

If you have any questions about this submission, please contact Kirsty Howey on kirsty.howey@ecnt.org. ECNT would like to acknowledge the contribution of Claire Boardman to the drafting of this submission.

Conclusion

Yours faithfully,

Kirsty Howey

Co-Director

Shar Molloy

Co-Director

Appendix A to the ECNT Submission

	Consultation Question	ECNT Response
1.	Is the approach of imposing general (mining) environmental obligations or duties to provide a 'safety net' and support for the licensing and registration scheme supported? If not, why?	Insufficient – environmental standards are preferred. See heading 6 (licensing) in main body of submission.
2.	What alternatives should be considered?	See heading 6 (licensing) in main body of submission.
3.	What other general (mining) environmental obligations should be included?	See heading 6 (licensing) in main body of submission.
4.	Rather than relying on a non-exhaustive list of substantial disturbance activities such as that contained in s.35 of the MMA, should the new framework legislation identify an exhaustive list of non-disturbing activities? This could include, for example, airborne surveys and terrestrial seismic surveys undertaken using existing tracks.	No comment.
5.	Are there any mining related activities that currently require authorisation and a mining management plan that should not be subject to the new framework?	No.
6.	Are there mining related activities that are not currently required to be authorised that should be under these reforms?	No comment.
7.	Under what other circumstances should the CEO be able to amend the conditions of a licence?	See heading 6 (licensing) in main body of submission. ECNT's position is that the Minister, not the CEO should have approval power. The power to amend conditions of a licence should only be exercised in very limited circumstances (see concerns in body of submission).
8.	What protections could be included in the legislation to ensure peer review powers are only used when required to ensure that the licensing process provides the	No comment.

	necessary environmental protections and meets the objectives of the EP Act?	
9.	What information or assistance could you provide to enable administrative guidance that supports a "prepare once, use many" approach to peer review documents to be developed?	No comment.
10.	Are there any compliance and enforcement tools not currently available in the EP Act or the MMA that should be considered for inclusion as part of these reforms?	See heading 7 (compliance and enforcement) for recommendations with respect to improving compliance and enforcement.
11.	What improvements to the mining authorisation process do you consider would improve efficiency and effectiveness?	See heading 5 (regulatory separation) in main body of submission for ECNT's concerns regarding the "hybrid" model of environmental mining regulation proposed by the Consultation Paper. DITT should have no role in environmental management of mine sites (including through "mining plan" approvals).
12.	How can the mining securities framework be improved?	See heading 10 (financial provisioning) of main body of submission for ECNT's concerns and recommendations regarding improvements to the mining securities framework.
13.	How can the management of mining securities be improved to provide greater incentives and reward for progressive rehabilitation?	See heading 10 (financial provisioning) of main body of submission for ECNT's concerns and recommendations regarding improvements to the mining securities framework.
14.	What improvements could be made to the calculation of mining securities to better address potential environmental risks and impacts?	See heading 10 (financial provisioning) of main body of submission for ECNT's concerns and recommendations regarding improvements to the mining securities framework.
15.	What other matters would you like to see considered as part of a review of mining security assessment?	See heading 10 (financial provisioning) of main body of submission for ECNT's concerns and recommendations regarding improvements to the mining securities framework.

16.	Should mining operators have standing to seek a merits review of the proposed environmental and/or infrastructure security? Why?	See heading 12 (review of decisions) of main body of submission for ECNT's concerns and recommendations regarding merits review. These apply to decisions regarding environmental and/or infrastructure security.
17.	How should 'care and maintenance' be defined?	See heading 9 (care and maintenance) in main body of submission.
18.	What other mechanisms could be adopted to improve the management of environmental impacts during care and maintenance periods?	See heading 9 (care and maintenance) in main body of submission.
19.	Should the legislation impose a time limitation on how long a site can remain in 'care and maintenance'? If so, what period may be appropriate?	See heading 9 (care and maintenance) in main body of submission.
20.	What, if any, standard obligations for environmental management during care and maintenance periods should be incorporated into the EP Act?	See heading 9 (care and maintenance) in main body of submission.
21.	In addition to the proposals contained in this paper, what other mechanisms could the Territory introduce to minimise the potential for legacy sites to be created in the future?	It is not appropriate for DITT to retain regulatory control of legacy mine sites.
22.	In what ways can industry be encouraged and supported to play a larger role in undertaking remediation works on legacy sites?	Stronger enforcement, penalty and accountability mechanisms as proposed in the main body of the submission.
23.	In what ways could the management and administration of land access arrangements be improved for both mineral title holders and affected landholders or leaseholders?	No comment.
24.	How would the proposed transitional arrangements effect your mining activity?	No comment.
25.	What improvements could be made to the proposed transitional arrangements to facilitate the transfer of projects into the new system in a timely, staged and efficient manner?	No comment. It is very important that all current and legacy mining operations are transferred into the new system as expeditiously as possible. There should be no grandfathering of the old regulatory system. If this is proposed, this must be

		made explicit during the reform process so the public can comment.
26.	For each type of mining activity – exploration, extraction and mining operations – what would be an appropriate timeframe in which to require the activity to obtain an environmental registration or licence?	See comment.
27.	Are the proposed arrangements for non-finalised processes appropriate? If not, what alternative processes should be considered?	No comment.
28.	What arrangements would you propose for operators that wish to transfer the mining activity?	No comment.
29.	What elements would you like to see included in a residual risk framework?	See heading 10 (financial provisioning) in main body of submission.
30.	Are there specific matters that should be considered as part of developing a residual risk framework applicable to mining activities?	See heading 10 (financial provisioning) in main body of submission.
31.	What benefits might there be to applying chain of responsibility laws to mining and other environmentally impacting activities?	This is a high priority and should be implemented as soon as possible.

Monitoring the monitor: a temporal synthesis of the McArthur River Mine Independent Monitor reports

February 2021

UNSW Global Water Institute and the Environment Centre of the NT

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Global Water Institute

Environment Centre NT

protecting nature | living sustainably | creating a climate for change

UNSW-GWI and ECNT proudly acknowledge Australia's Aboriginal and Torres Strait Islander communities and pays respect to their Elders past and present. We acknowledge Aboriginal and Torres Strait Islander peoples as Australia's first peoples and as the Traditional Owners and custodians of the land and water on which we rely.

Summary

The recent approval to expand Glencore's McArthur River Mine (MRM) lead-zinc-silver mine is the latest in a long history of decisions by the Northern Territory's Mining Regulator which have resulted in unacceptable risks to the Northern Territory environment and the downstream community of Borroloola.

Despite the oversight of an Independent Monitor assessing the environmental impacts at, and downstream of, the mine site annually, the regulatory process has failed to protect the interests of the environment and the community. Short term impacts, including the spontaneous combustion of waste rock in the northern overburden emplacement facility (NOEF) from 2014 – which was the focus of extensive media reporting - are likely minor compared to the long-term risk of contamination from acid and metalliferous drainage (AMD) to the groundwater system and the McArthur River.

The UNSW Global Water Institute (UNSW-GWI) and the Environment Centre of the Northern Territory (ECNT) has undertaken a longitudinal assessment of the publicly available information on water-related issues at MRM over the period 2007 – 2018. This analysis shows repeated failures on behalf of the mine site Operator and Mining Regulator to act in a timely manner to address risks to sensitive aquatic environments. In this summary report, UNSW-GWI highlight three of the key risks to water resources to exemplify deficiencies in the regulatory system and propose improvements to protect the interests of the community going forward. A comprehensive assessment of all project risks is undertaken in the IM reports listed in the references.

Key findings:

- There are a number of technical issues related to water around MRM that are not being adequately addressed and have the potential to lead to adverse environmental impacts. These include inadequate baseline monitoring of sacred sites and assumptions around the chemical composition of water leaking from the mine tailings storage facility.
- The IM process is not as effective as it should be because:
    - There is a significant delay between the reporting period and the release of the IM reports. In addition, the IM reports are limited in scope to an annual synthesis with minimal reporting of trends over multiple years;
    - Recommendations and potential issues of concern identified by the IM are not acted on quickly enough by the Operator or the Mining Regulator;
    - The IM does not have access to all data from MRM so cannot fully assess all risks. For example, the impacts of MRM on some sacred sites have not been considered at all;
    - Community engagement within the IM process is limited; and
    - The IM reports are frequently released at the end of the year, meaning that their impact and potential to improve community understanding of the impact of MRM operations is diminished due to the holiday season with the focus of stakeholders and the public being diverted.

Introduction

The McArthur River Mine (MRM) is situated in the remote Gulf of Carpentaria, 970 km southeast of Darwin. MRM has been producing and processing zinc, lead and silver for export since 1995. The appointment of an Independent Monitor (IM) was a condition of the approval for the transition to open cut pit mining in 2006. The IM provides independent oversight of the environmental performance of the mine Operator, and the performance of the Department of Industry, Trade and Tourism (DITT; formally the Department of Mines and Energy and the Department of Primary Industry and Resources) as the environmental Mining Regulator. This oversight was a commitment made by the Northern Territory Government to address community concerns around future mine impacts.

Annual assessment reports from the IM, who is appointed for a 5-year term, address the operation of the mine over the previous year. The reports consider any environmental assessments and monitoring activities undertaken by the Operator, and document environmental performance, identify issues requiring urgent attention, and provide recommendations to address environmental risks. A Community Report summarising the findings is also released. There are nine publicly available IM reports[1] covering operations at MRM from October 2007 to present, although the reports assessing the period April 2018-March 2019 and April 2019-March 2020 are overdue. These reports contain a significant volume of data, technical information, and interpretation and could be a valuable contribution to mine site regulation, if, as discussed below, the environmental issues that are identified in the reports are quickly acted upon, and processes of community engagement are addressed.

The IM reports show that some environmental management requirements have been met at MRM, and monitoring and management has improved over time, particularly in relation to dust and its impact on surface water quality and aquatic fauna.

However, the lack of timely action on urgent issues raised by the IM has resulted in long-term and unacceptable impacts to the community and environment. By reviewing all the IM audit reports, it is apparent that inefficiencies and flaws in the regulatory process decrease the effectiveness of the IM audits as a tool to facilitate better environmental management. To indicate the scale of this issue, the latest IM audit report noted 117 ongoing IM recommendations “that have either been partially addressed or not advanced at all” by the Operator and Mining Regulator [ERIAS, 2018b; pg. 5-7].

This report shows that regulatory action is lagging – in many cases by years - behind the disclosure of significant environmental risks by the IM. Three specific examples of water-related risks below illustrate how the IM reports have been ineffective to protect the environment and community concerns as intended.

Water-related risks

a) Acidification of tailings storage and waste rock misclassification

Plain Language Summary

Rock left over from the mining operations is stored in a big pile. MRM originally said that most of the leftover rock did not have any chemicals in it that would mix with water and air to possibly form acids. However, the IM found as early as 2008 that this assumption might be wrong, and that acid might have been forming. This is important because rock that can form acid needs to be stored differently from benign rock. We think it took too long for these early IM concerns to be addressed by MRM and therefore the rock was exposed to water and air for longer than it should have been. However, no government action was taken until the waste rock dump began smoking in 2014, when the Operator was asked to submit an environmental impact statement (EIS). The Mining Regulator approved the Operator’s proposal to fix the problem in December 2020. This lag

[1] Independent Monitor reports can be downloaded from https://dpir.nt.gov.au/mining-and-energy/public-environmental-reports/mining/mcarthur-river-independent-monitor.

of 12 years between the problem being identified, and eventually resolved by the Mining Regulator shows that the IM does not have sufficient power to improve the environmental outcomes from the mine quickly.

Technical Summary

Regulatory failure at MRM is exemplified by the waste rock misclassification, which resulted in acid and metalliferous drainage from the overburden emplacement and tailings storage facilities, and the spontaneous combustion of waste in the northern overburden emplacement facility (NOEF) and visible sulphur dioxide plumes. These events triggered an Environmental Impact Assessment process in 2014 (with the EIS not submitted by the Operator until 2017, and an assessment report delivered by the Northern Territory Environment Protection Authority in 2018) to redesign the waste rock management facility for mine closure and rehabilitation.

Until 2014, the system used to classify waste rock by the Operator did not match the actual characteristics of the rock being mined, which led to a significant underestimation of the volume of environmentally non-benign waste rock (rock with the potential to generate acidic, pH neutral metalliferous, and/or saline drainage). Following the 2014-2018 EIS process, the approval of the mine's proposal for rectifying this issue did not occur until December 2020. Consequently, for many years a significant portion of the waste rock and tailings was not managed appropriately to avoid or minimise oxidation and AMD generation. Identifying urgent environmental issues like AMD and notifying the Operator and Mining Regulator is a key function of the IM. If the audit process was adequate, it should not have taken twelve years to address deficiencies in the waste rock classification and the management of the non-benign waste rock.

By reviewing the assessment reports, it is clear that the IM identified and communicated concerns over the waste rock classification in all audits beginning with the 2008 operational period. The IM identified that tailings appeared to be oxidising rapidly and producing sulphuric acid [EES, 2009; pg. 70] and that the assessment of tailings as non-acid forming was likely incorrect [EES, 2009; pg. 71]. Multiple recommendations to further assess tailings and overburden geochemistry were made, including large scale field weathering trials, additions to the groundwater quality testing analytical suite, and re-evaluation of the waste rock classification [EES, 2009; pg. 77]. Commitments by MRM to undertake further kinetic testing and field trials were unmet by the release of the 2009 operational period audit report [EES, 2010; pg. 66-67] and the IM reiterated that these should be undertaken urgently. Further statements of concern regarding potential errors in the waste rock and tailings classification were made in the 2010 [EES, 2011; pg. 9, 122, 124-129] and 2011 [EES, 2012; pg. 145-149] IM audit reports.

New geochemical investigations into the waste rock classification began in September 2012, however the results were not released before the approval of the MRM Phase 3 Expansion in 2013 which increased the mining rate from 2.5 Mtpa to 5.5 Mtpa of ore and the capacity of the tailings storage facility. A major change to the waste rock classification was released in 2014 [KCB, 2014] and reviewed in the 2012-13 operational period IM audit report [ERIAS, 2014; pg. 98-112]. The reclassification revised the proportion of waste rock with the potential to generate AMD from less than 25% up to 89%. In recognition of the significant risk of environmental impacts due to the inappropriate design of the waste rock facility to contain the increased volume of non-benign waste, the NT Environmental Protection Agency requested a new EIS. The Operator's proposal to rectify the problem (originally submitted for assessment in 2017) was not approved by the Mining Regulator until December 2020, some 12 years after the problem of misclassification of waste rock was identified by the IM.

b) Seepage reporting to Surprise Creek

Plain Language Summary

Mine tailings are a mix of water and solids like rock that are left over from extraction of the ore. Mining tailings are stored in a big dam (called the Tailing Storage Facility) which is designed so that the water can either be evaporated off or treated before being reused in the mine or discharged to the environment. At MRM, the water is leaking from underneath the tailings storage through the ground and into Surprise Creek which is close to where the tailings are stored. Surprise Creek joins Barney Creek west of MRM which then joins the McArthur River downstream of the mine. The leaking water into Surprise Creek is a problem because the

water may also carry some metals and we do not think that MRM or the IM have done enough testing to fully understand this. The tailings currently in storage will be there until at least 2047. MRM has tried different ways to stop the water reaching the creek, but none have been completely successful. The water leaking from the storage has also made Surprise Creek flow all year; it used to flow for only part of the year.

Technical Summary

Waste rock misclassification and the acidification of tailings is a direct risk to both the groundwater and surface water. The tailings storage facility (TSF) is close to Surprise Creek, a tributary of the McArthur River. Leachate migration from the unlined Cell 1 through highly permeable alluvium to the creek is known to have occurred within two years of commencement of tailings deposition (c. 1997) [EES, 2009; pg. 26]. Despite installation of mitigation measures including a 'geopolymer' barrier system, seepage recovery bores, and partial capping of inactive cells, seepage from the TSF and migration to Surprise Creek continues to be an issue at MRM. Ongoing seepage has resulted in a change to the hydrological conditions in Surprise Creek. Previously intermittent, the part of the creek down gradient of the TSF now receives year-round baseflow from wastewater seepage [KCB, 2017a; pg. 90].

The IM identified leachate migration as an issue of urgent concern, resulting in a notification under Section 6.4 of the Independent Monitor Assessment Conditions (letter dated 6 July 2009) requesting further hydrogeochemical investigation into the issue. There have been concerns over both the timeliness [EES, 2010; pg. 75] and quality [EES, 2011; pg. 40-43] of these investigations, however further investigations mean the mechanisms of seepage are now well understood.

Information available to date (up until March 2018) indicates process water rather than oxidation of tailings is the source of contamination from the TSF, resulting in neutral metalliferous leachate [ERIAS, 2017; pg. 4-161]. However, the tailings are highly pyritic and potentially acid forming, and acidic leachate with high metal/metalloid concentrations is a risk if oxidation is not controlled [ERIAS, 2018b; pg. 4-144]. Assessments of metal plume migration [KCB, 2017a; 2017b] are based on the assumption that seepage remains neutral. If seepage acidifies, trace metals such as lead, zinc and cadmium may become mobile at pH values between 3-5. At higher pH values they tend to adsorb to sediment surfaces and not be mobile. Provided the seepage doesn't acidify, i.e., there is sufficient buffering from minerals in the sediment (e.g. carbonate minerals like calcite or dolomite), some trace-elements that form oxyanions like arsenic (As) may still mobilise. Natural dissolved organic matter (NDOM) can potentially make the groundwater system anoxic and release As by reductive dissolution of Fe-oxides which are otherwise attenuating As at neutral and high pH. The potential role of NDOM, in particular in relation to As migration, does not appear to have been evaluated in the laboratory testing or the modelling.

The recently approved Overburden Management Project (to which the 2014-2018 EIS relates) proposed to reprocess tailings and dispose of them in the mine pit void at the cessation of mining, removing the TSF [GHD, 2017]. Under this proposal, the TSF will remain as a potential source of contamination to Surprise Creek and the McArthur River until 2047. The construction of a seepage interception trench between Cell 1 and Surprise Creek for seepage mitigation is underway [MRM, 2020; pg. 69], but under the best-case scenario the trench will not prevent all contaminant loads from reaching Surprise Creek [KCB, 2017 a; Appendix I pg. 64], and migration of deeper groundwater beneath the trench is likely [ERIAS, 2018a; pg. 3-4].

c) Risks to Sacred Sites

Plain Language Summary

There are 11 registered sacred sites and another 11 recorded sacred sites inside or close to MRM. For the 11 registered scared sites, 4 are related to water and 2 are trees but the impacts of MRM are only assessed for one site (Djirrinmini waterhole). We think that this is unacceptable and all impacts on all sacred sites should be considered. For Djirrinmini waterhole, we do not think that enough data is being collected and released to the public to be able to tell if the mine is impacting the waterhole.

Technical Summary

The *Northern Territory Aboriginal Sacred Sites Act 1989* (the Act) protects sites that are 'sacred and otherwise of significance in the Aboriginal Tradition'. There are 11 registered sacred sites - sites documented and evaluated by the Aboriginal Areas Protection Authority (AAPA) and entered into the Public Register of Sacred Sites in accordance with the Act - within and in the vicinity of the mine site. There are a further 11 recorded sites, which have not been evaluated or added to the register, but for which information indicates that they are significant according to Aboriginal tradition and therefore "sacred sites" within the meaning of the Act.

Water related sites including rivers, creeks and springs, and groundwater dependent trees are at risk from both groundwater drawdown resulting from dewatering of the mine pit and mitigation measures for managing the TSF, and contamination from AMD. Of the 11 registered sites, four are water related, and two are trees. However, only the impacts to a single water-related site, Djirrinmini waterhole, have been considered during the EIS process.

Djirrinmini is a permanent waterhole located on the McArthur River upstream of the mine site and is reliant on baseflow during the dry season. Djirrinmini may also be a breeding site for freshwater sawfish and is likely an important refugia for aquatic fauna during the dry season. Groundwater modelling undertaken as part of the 2014-2018 EIS process predicts up to 0.4 m of drawdown in the overburden and weathered bedrock and up to 0.65 m of drawdown in the fresh bedrock adjacent to Djirrinmini waterhole [KCB, 2017a; pg. 217-18]. The magnitude of impact is consistent with investigations undertaken for the previously approved Phase 3 Project EIS in 2012 [KCB, 2017a; pg. 5], but lower than MRM Site-Wide Groundwater Model developed in 2013 which predicted up to 2 m of drawdown adjacent to Djirrinmini. An explanation for the difference in predicted drawdown between the 2013 and current groundwater modelling results and the estimated uncertainty in the prediction values have not been provided. The potential risk and impacts of different levels of drawdown to the physical and ecological functioning of Djirrinmini has not been assessed.

There is inadequate baseline monitoring of Djirrinmini to assess the potential impact of predicted groundwater drawdown, which has been raised in several IM reports [EES, 2009; pg. 43, ERIAS, 2014; pg. 197, ERIAS, 2015; pg. 4-202]. Only one alluvial bore (GW74) was available at Djirrinmini for the groundwater investigations underpinning the OMP, and records were sparse except for a two-month period during the 2013/14 wet season [KCB, 2017a; pg. 47]. Surveys of the dry and wet season extents of the waterhole have not been undertaken. Additional loggers recording high frequency groundwater level and EC readings have been recently installed near the waterhole [ERIAS 2018b; pg. 4-120], however the location of or data from these instruments has not been released publicly. Potential impacts to other water-based sacred sites, such as Nambadini, a waterhole 300 m north of Surprise Creek potentially within the zone of impact of seepage from the TSF, and the Garbula tree, which is in close proximity to the mine pit and may be affected by pit dewatering, have not been considered.

Condition 30 of the Variation of Authorisation 0059 for the Overburden Management Plan states that "At all times the Operator must conduct works consistent with the *Northern Territory Aboriginal Sacred Sites Act 1989* and valid AAPA certificate". Further, Condition 32 requires a consultation plan with 'appropriate custodians and traditional owners that would be or may be impacted by the Overburden Management Project' to be provided within six months of approval. It is not clear how these impacts to Djirrinmini or other sacred sites could be comprehensively assessed in the absence of the information outlined above.

Discussion and recommendations for process improvements

The three technical issues described in this report highlight three different types of problems with the current system of environmental management and environmental oversight of MRM. They are:

1. The process for addressing IM concerns is too slow and as a result adverse environmental impacts continue for many years until they are addressed and may continue for decades or centuries into the future.

2. MRM is too optimistic in the assumptions that are made about the characteristics of the mine waste and the technical solutions that are available to address current problems.
3. MRM has not comprehensively considered impacts to all systems, particularly with regard to the ecological and cultural values of waterbodies.
4. Insufficient baseline data is available.

The results presented in this report are consistent with earlier analyses of MRM and the IM. For example, in his report for the Mineral Policy Institute, Mudd (2016) found that "overall, the MRIM has shown consistently that despite many environmental management requirements being met, major gaps remained and that these risks were escalating" (p. 16). That these remain the case at the MRM site highlights the need for further review of MRM operations together with the adequacy of the MRIM process.

More broadly, the IM should provide the community of Borroloola and the broader NT and Australian populations confidence that any environmental issues at MRM are being addressed in the best way possible. In our view this is not occurring effectively because:

1. The IM reports are commonly released to the public just before the end of year, in ways that limit the avenues for community response.
2. There is a long delay in the release of the IM report and the period of time that they cover – for example there is normally at least a year between the last point in time covered by the report and the release of the report. As of December 2020, there is no IM report covering past March 2018.
3. The IM Community Report is not presented in a form that encourages adequate public and community dialogue or addresses community concerns. We think that much more should be done to ensure ongoing and meaningful engagement with communities in Borroloola and surrounding districts in future IM reporting processes. To address these issues, we believe that it is crucial that the IM incorporate community concerns, expertise and observations of environmental impacts around the mine.
4. The IM relies on data released by MRM and therefore has limited information available on some of the potential environmental impacts.
5. There are too many opportunities for MRM to delay addressing the concerns raised by the IM.
6. The period for public consultation on Environmental Assessments (such as EISs) is too short, given amount of technical information and the remote location of the mine and the downstream community.

In the context of the evident mistrust between communities in Borroloola and surrounding districts, the mine operator, NT Government and the independent monitor [De Santolo 2018; Kerins and Green 2019] it is essential that the IM process be conducted in a timely fashion, in ways that are informed by a more systematic engagement with community concerns and priorities.

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A review of new mine closure laws in Queensland: a comparative analysis of mine closure and rehabilitation best practice and legal framework — Part 1 — (2019) 3(4) ERLB 54

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Ji Yen Loh (Jenn) THE UNIVERSITY OF QUEENSLAND

A review of new mine closure laws in Queensland: a comparative analysis of mine closure and rehabilitation best practice and legal framework — Part 1

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I Introduction

The Queensland Government had introduced new progressive rehabilitation requirements for mining activities through the Mineral and Energy Resources (Financial Provisioning) Bill 2018 (Qld). The Bill brought two key changes to the mine rehabilitation and financial assurance regime — first is the creation of the Mineral and Energy Resources (Financial Provisioning) Act 2018 (Qld) (QLD MERFP Act) that establishes a financial provisioning scheme for resources activities which replaced the previous/existing financial assurance regime and second are the amendments made to the Environmental Protection Act 1994 (Qld) which introduced new mine planning obligations that require progressive rehabilitation throughout the whole life cycle and closure of mined lands.[1]

This article seeks to improve understanding on good practice mine closure, provide an outlook on the new regime's implications for the Queensland minerals sector and examine how they fare in comparison to international best practice. This examination is limited to a study of three highly analogous jurisdictions — British Columbia, New South Wales and Queensland — in discussing the consistencies of each enactment with international best practice.

This article commences by elucidating the leading best practice standard that converges on mine closure planning and rehabilitation. The guidelines and principles on mine closure and rehabilitation produced by industry bodies and international organisations will be used to delineate a set of generalised criteria of international best practice. Subsequently, this article will analyse the current status of mine closure laws and practice in British Columbia, New South Wales and Queensland against the set of generalised criteria of good practice. This article will also address to what extent good practice is undertaken in these jurisdictions, and the similarities, dissimilarities and shortcomings, if any, of their respective practices.[2] In concluding remarks, the article briefly analyses how the new Bill measures up to the corresponding laws in other jurisdictions.

II Background

Queensland had undergone major policy and legislative changes to ensure sustainable post-mining development. A new progressive rehabilitation and closure (PRC) plan will be required for the purposes of minimising the regulatory burden on the government and industry. The PRC plan is designed to ensure mines are planned in a way which enhances progressive rehabilitation rates.[3] Additionally, the current financial assurance scheme would be replaced by a financial provisioning scheme by creating the QLD MERFP Act that aims to minimise financial risk to the state.

Although different jurisdictions vary in their mine closure planning regulations due to the difference in

geographical, socio-economic, historical and political aspects, there are common features of mines which allow for the implementation of comparable mine closure requirements.[4] Given that Australia and Canada have large mining sectors and a long history of mining activities with similar characteristics, it is appropriate to examine in contrast the primary elements of their mine closure laws. Australia and Canada have been developing mine closure policies and legislation for the past 30 years with the objective of ensuring effective closure plans are prepared and sufficient financial resources are available for their implementation.[5] Therefore, they may be considered to be examples of international good practice.[6]

The recommended approach and best practice mining standards listed in the table below were sourced from international guidelines and governmental handbooks for mine closure planning and rehabilitation, and those referred in other literature sources.[7] The criteria provide general guidance for planning closure, while the best practices statements describe ways the criteria can be applied.[8] The table presents a comparative picture of best practice observed in each jurisdiction.

Criteria	Best practices	British Columbia	New South Wales	Queensland
Legal framework — a legal framework that explicitly requires mine closure	Legislation of mine closure occurs within Mining Acts.	✓	✓	✓
	Preliminary closure plan required as part of the approval process.	✓	✓	✓
Closure planning — closure planning integrated into a project's life cycle as early as possible	Closure planning should start as early as the feasibility stage and considered as part of the company's strategic planning.	✓	✓	✓
	Set and consider closure objectives, along with alternative closure options with justification.	✓	✓	✓
	Include progressive reclamation of mine closure and progressive rehabilitation plan.	✓	✓	✓
	The result of planning should be captured in other related documents such as environmental and social impact assessment.	✓	✓	✓
Costs and risks — an estimate of all costs associated with the closure of a mine	Estimate the costs of closure-related programs.	✓	✓	✓
	Regularly update cost estimations for closure-related programs.	✓	✓	✓
	Make fund provisions for closure.	✓	✓	✓

Impact identification — mine closure planning adequately includes identification of potential impacts	Identify and assess the social, economic and environmental impacts of closure.	✓	✓	✓
	Recommend for mitigation measures to address such impacts.	✓	✓	
Implementation and monitoring — monitoring on the implementation of closure tasks	Outline the responsibilities for monitoring the implementation of closure tasks.	✓	✓	✓
	Incorporate post-closure management and monitoring of impacts.	✓	✓	✓
Community engagement — closure planning engages both external and internal stakeholders	Share information on the closure process.	✓	✓	✓
	Consult with external and internal stakeholders.	✓	✓	✓
	Establish a mechanism for the submission of complaints and managing conflicts.		✓	✓
	Plan includes input from the community in relation to impacts and strategies for mitigation of impacts.	✓	✓	
Revision and update — closure plan updated whenever there are substantial changes to the mining project or conditions in the surrounding area	Update the environmental and social impact assessment.		✓	
	Take a systematic approach to deal with uncertainties inherent to mine closure planning.		✓	
	Update the closure plan regularly or when appropriate.	✓	✓	✓

III Evaluation of best practice in legislative frameworks

An examination on the extent good practice is undertaken in these jurisdictions, and the similarities, dissimilarities and shortcomings, if any, of their respective legal framework, will be presented below.

Firstly, all three jurisdictions require closure and rehabilitation plans as part of their permit approval, be it through development consents or mining lease applications. The new legislative framework in Queensland regarding closure plans are akin to the International Council on Mining and Metals's recommended closure plan. A PRC plan may be perceived to be the embodiment of a "conceptual closure plan" outlining the development of a target closure outcomes and goals, and a PRC plan

Schedule (PRCP Schedule) may be regarded as the exemplification of the ongoing development and implementation of a "detailed closure plan" which increases the understanding and detail of specific goals and milestones as well as the actions and outcomes of activities to meet these. A PRCP Schedule also includes a "decommissioning and post-closure plan" which delineates effective transition to closure.[9]

Secondly, the legislative framework in all three jurisdictions satisfies progressive rehabilitation by requiring rehabilitation to be implemented at all phases of the life of a mine. Though there are varying definitions of what is required by the term "rehabilitation", the obvious similarity between each jurisdiction is their focus on requiring disturbed land to be returned to a safe and stable condition. Therefore, on top of the state government's guidelines on suitable rehabilitation criteria, project proponents in Queensland may refer to the corresponding legislative guidelines and policies in British Columbia and New South Wales for further clarification on the standard that is needed to be reached. Relevantly, Queensland's new requirement of a rehabilitation milestone reflects best practice to a greater degree because it adopts the usage of "milestones" as a goal-setting tool.[10]

Thirdly, the "polluter pays" principle is evident in each jurisdiction's legislative framework. Expressed simply, the principle holds that those responsible for the generation of pollution and waste should bear the costs of its containment, avoidance or abatement.[11] This principle is translated into financial instruments to ensure companies are able to live up to their obligations even if operations need to be closed earlier than expected, and where unexpected problems are encountered during or after closure. Furthermore, all three jurisdictions reflect best practice by requiring the calculation of realistic costs through an early and more accurate estimation of mine rehabilitation and closure costs.[12] Cost estimates are linked specifically to closure plans and the reservation of financial recourses is enforced through a credible variety of financial instrument options.[13] To illustrate, under the new scheme in Queensland, an environmental authority (EA) holder is required to either make a contribution to the scheme fund or pay a surety (in the form of a bank guarantee, insurance bond issued by a prescribed insurer or cash), depending on the estimated rehabilitation cost (ERC) for the EA, and if applicable, the risk category assigned to the EA.[14] However, there is a lack of detailed risk assessments which not only identify potential issues but also devise broad strategies for the control of each risk should they be present.[15] Next, it is noted that financial provisions need to be updated annually in some jurisdictions, and this may set the frequency of cost reviews.[16] The financial security scheme in British Columbia requires a Chief Inspector of Mines whilst the new financial provisioning scheme in Queensland requires a scheme manager. The mine inspector's and scheme manager's roles are very much alike in the sense that they both have the legislative authority to determine the risk premium and risk category allocation respectively. On a separate but related matter, New South Wales fares significantly well in bringing better outcomes because its progressive rehabilitation is supported by the partial release of security deposit once successful rehabilitation is demonstrated.

Fourthly, each jurisdiction requires social and environmental impact identification and assessment by incorporating environmental licensing in their legislative frameworks. The concept of ecologically sustainable development (ESD) which is defined in s 6(2) of the Protection of the Environment Administration Act 1991 (NSW) and adopted by the Environmental Planning and Assessment Act 1979 (NSW)[17] as "the effective integration of economic and environmental considerations in decision-making processes"[18] may be used to inform what it means to have ESD as an objective in the amended Queensland legislation. For British Columbia, the government places emphasis on the conservation of cultural heritage resources affected by mining activities. Generally, the issues surrounding this aspect are more comprehensively addressed in environmental legislative frameworks.

Fifthly, mine closure laws across jurisdictions impose responsibilities on persons or bodies for monitoring and ongoing management if environmental liabilities are incurred.[19] In British Columbia, this responsibility is imposed on a permit holder and mine manager through reports to the Chief Inspector of

Mines, and in New South Wales to the Department of Planning and Environment or the Local Council. In Queensland, conditions in the PRCP Schedule are monitored through audits and annual reports, as well as the newly introduced offence provision.

Sixthly, New South Wales is the most comprehensive in terms of its rehabilitation criteria and its requirements on community consultation (not community engagement) during the planning process for mine closure,[20] as it mirrors many guidelines established by the Australian and New Zealand Minerals and Energy Council and the Minerals Council of Australia.[21] Similarly, the Queensland Government appears to be recognising the importance of engagement and consultation with stakeholders by incorporating more community involvement in the closure process through the PRC Plan and PRCP Schedule. Public notification is one of the methods that is commonly adopted by the jurisdictions for open and regular communication that engages the project proponent with regulatory authorities, affected communities and other stakeholders.[22] On the whole, they sufficiently provide for requirements and procedures to ensure that effective and meaningful consultation takes place with local communities and to inform closure and post-closure goals as part of mine closure preparation and planning.[23]

Lastly, accessible, transparent and up-to-date information on the project[24] has been commonly accepted across jurisdictions as the key to a successful participatory approach. Both British Columbia and New South Wales have a 5-yearly review of rehabilitation and closure plans whereas Queensland has a mandatory triennial audit. Furthermore, legislators acknowledge that regular updates and revision are important especially in circumstances where the challenges and costs of closure become negotiating points in merger or acquisition deals, with closure risks drifting down the hierarchy of planning considerations.[25] In response to that issue, a tenement transfer or change in control of a mine will trigger a review in these jurisdictions. The content and communication channels that are mandated by each jurisdiction's legislative framework may be regarded as appropriate for each stage of a mine's life.

Overall, the new changes developed consistent implementation of best practice guidelines through the creation of laws requiring the allocation of adequate financial resources, and the planning ahead for taking on post-closure scenarios.[26] They had in effect created a more holistic legislative framework that encompasses best practice mining standard and elevated Queensland's position to be on par with other best practice jurisdictions.

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This paper was submitted to fulfil requirements for the degree of Bachelor of Laws (Honours) in The University of Queensland. I certify that to the best of my knowledge, the intellectual content of this paper is the product of my own work and guidance from my supervisor, Jonathan Fulcher, except where due acknowledgment has been made.

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End of Document

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(D) Criteria 4: impact identification

a) Best practice

The concept of comprehensive decommissioning and a "sustainable development" approach to rehabilitation should be promoted by requiring the consideration of physical infrastructure, environmental restoration, and long-term socioeconomic wellbeing.[1] The primary concerns are to ensure that public safety and health achieve environmentally stable conditions compatible with the surrounding environment and minimise environmental impacts caused by mining. To this end, the attainment of a social, economic and environmentally sustainable development should be considered as the overall objective of mine closure.[2] Mine closure plans should incorporate both physical rehabilitation and socio-economic considerations[3] because there will be environmental, social and economic risks attached to mining operations.[4] Environmental impact assessment is a universal tool for planning mining projects that could significantly alter the quality of the environment. It plays an important role in the development of environmental management plans by defining mitigation intended to avoid and minimise the adverse impacts of closure.[5]

b) British Columbia

For mine projects subject to an environmental assessment under the British Columbia Environmental Assessment Act, SBC 2002, an environmental assessment certificate must be obtained before a Mines Act, RSBC 1996 (BC Mines Act) permit can be issued.[6] A mining project could also enter the environmental assessment process at the discretion of the Minister of Environment and Climate Change if there is potential for significant adverse impacts. Alternatively, a proponent may "opt-in" to demonstrate the environmental sustainability of their project more clearly for the global marketplace.[7]

c) New South Wales

Part 5 environmental assessment process under the Environmental Planning and Assessment Act 1979 (NSW) (NSW EP&A Act) is a form of risk assessment, in which proponents are required to prepare and submit a comprehensive environmental impact statement that addresses all potential impacts of the proposal.

Once a project is approved by the consent authority, conditions are imposed to minimise potential impacts on water resources, air quality, noise, biodiversity and local communities, and to optimise the economic and social outcomes for the project.[8] This risk assessment should be used and updated as required in order to continuously evaluate risks and the effectiveness of controls used to prevent or minimise impacts on the environment.[9]

One key principle of the Mining Act 1992 (NSW) (NSW Mining Act) is the ecological requirements for effective rehabilitation where land has been disturbed and identify the need to develop mineral resources in a way that minimises adverse environmental impacts.[10] It is essential for all resource activities to be conducted with sound and ongoing environmental management practices to prevent or minimise (where prevention is not practical) harm or disruption to the environment,[11] as a means to reduce the extent of rehabilitation required.

d) Queensland

The holder of a progressive rehabilitation and closure (PRC) plan must be the holder of an environmental authority (EA). The "holder", as defined in the amendments to the dictionary of the Environmental Protection Act 1994 (Qld) (QLD EP Act), must have an EA permit which authorises and imposes conditions on the carrying out of an environmentally relevant activity on a site. These conditions prevent or minimise environmental harm by limiting the way in which activities can be carried out. For example, an EA condition may include details regarding a contaminant which may be released from certain release points and at certain levels on site.[12]

(E) Criteria 5: implementation and monitoring

a) Best practice

If technically feasible, mining operators should be required to manage the implementation of its closure plans progressively.[13] The operational implementation of progressive closure planning allows the company to take ownership and responsibility of the execution processes required for successful outcomes.[14] Moreover, if these actions are accompanied by robust monitoring and assessment of actual outcomes, they become a powerful outreach tool to external stakeholders because they show the company's ability to perform environmental protection and reclamation, and enhance their credibility to perform future actions associated with mine closure.[15]

There should be procedures for post-monitoring arrangements, and a management plan for how closure requirements will be implemented and complied with.[16] A company can achieve leading practice by having a framework for the development and regular review of procedures used to assess, mitigate and manage environmental impacts.[17] This can involve tracking progress over time, determining whether agreed objectives or standards have been met, and benchmarking procedures and performance against legislative schemes.[18] Monitoring by a regulator and consistent interaction with mine operators are beneficial to that effect.[19]

b) British Columbia

The registered holder of a permit must appoint a mine manager to ensure all persons carrying out mining activities are aware of the regulatory requirements of the BC Mines Act and the *Health, Safety and Reclamation Code for Mines in British Columbia*,[20] as well as the company's environmental operating guidelines.[21] The permit holder and the mine manager are responsible for ensuring compliance and are accountable for mine operations.[22] In addition, there are conditions regarding monitoring and reporting activities specified by the BC Mines Act permit that is to be undertaken throughout the life of the permit.[23] The Chief Inspector of Mines may require long-term monitoring to demonstrate that reclamation and environmental protection objectives, including land use, productivity, water quality and stability of structures, are being achieved.[24]

c) New South Wales

A rehabilitation management plan (RMP) must include detailed monitoring programs to measure performance and compliance, and to promote adaptive management processes.[25] The Department of Planning and Environment is responsible for regulating mine rehabilitation and enforcing compliance with both the development consent and mining lease.[26] Titleholders are obliged to report annually on the performance of rehabilitation activities against the RMP and any other rehabilitation commitments, on top of permitting access by government compliance officers to inspect rehabilitation efforts.[27] As part of this process, titleholders are required to undertake progressive rehabilitation once project stages are complete.[28]

The rehabilitation commitments and post-mining land use objectives of a development approval issued under the NSW EP&A Act are approved and regulated by a determining authority such as the Department of Planning and Environment or a local council.[29] Correspondingly, the Division of Resources and Geoscience's role under the NSW Mining Act is to regulate rehabilitation activities to ensure that those commitments and objectives are met. Furthermore, an authorisation granted under the NSW Mining Act includes an environmental incident reporting condition that requires the leaseholder to report any incidents causing or threatening material harm to the environment.

d) Queensland

The PRC plan Schedule (PRCP Schedule) audits and annual report ensure regular monitoring, assessment and reporting. This includes reporting on whether rehabilitation and management milestones have been met and whether conditions imposed on the PRCP Schedule have been complied with.[30] New offence provisions have been inserted into the QLD EP Act to ensure compliance with the PRCP Schedule.[31] A contravention of a condition that relates to compliance with a PRCP Schedule carries a significant penalty. The new requirements for annual returns will include an evaluation of the EA holder's rehabilitation activities against the PRCP Schedule and the effectiveness of the environmental management carried out under the Schedule.[32] The new QLD EP Act will mandate 3-yearly audits of the PRCP Schedule in order to assess performance and provide an early warning of necessary corrective actions.

Furthermore, in deciding the EA surrender application, the post-mining management report and PRCP Schedule will be assessed. The application will not be approved unless all rehabilitation and management milestones of the PRCP Schedule have been met.[33]

(F) Criteria 6: community engagement

a) Best practice

Consultations with all internal and external stakeholders and their participation are vital in securing broad community support and acceptance. As "successful operation of the business depends on the degree to which it satisfies society's expectations",[34] companies that earn their "social licence"[35] in mining will ultimately accomplish successful closure of mines.[36]

The aim of community engagement and consultation on final land uses is to arrive at an agreed set of objectives for the site that will allow the company to relinquish the site in a manner that meets regulatory requirements and satisfies community expectations.[37] This process involves the careful balancing of competing demands from regulators, local residents and the wider community. Though the type of

engagement may vary between life cycle phases, engagement during the operational phase of a mine should be done frequently.[38]

b) British Columbia

The Ministry of Energy, Mines and Petroleum Resources normally requires applicants to undergo public notification processes such as a 30-day advertisement of an approved application, a 30-day review period of a completed application package, and public meeting(s).[39] Moreover, it has a legal duty to consult and accommodate First Nations with asserted, yet unresolved, Aboriginal interests in the proposed mine area before issuing authorisation for mining activities.[40] A mines inspector may review and refer the application to other government agencies, First Nations, and other interested parties for their input if the proposed activities impact them.[41] In addition to a public consultation process, members of the public are given an opportunity to participate in the review of a mining project and influence the permitting decision.[42]

c) New South Wales

The amended NSW EP&A Act requires all planning authorities to prepare a community participation plan that outlines how and when it will undertake community participation when exercising relevant planning functions. This requires public exhibition and public notification of plans or development applications.[43]

The NSW Mining Act obliges mining companies to identify and involve stakeholders in the rehabilitation planning process through community consultation.[44] Relevant stakeholders include landholders, community and other agencies that have assisted in the preparation of proposed rehabilitation outcomes.[45] Mining companies are also required to provide for community relations and liaison during the submission of an annual environmental management report.[46] This makes the New South Wales legislation's provision for community involvement significantly comprehensive in ensuring the final landform and post-exploration land is safe and usable for future generations.[47]

Furthermore, a Resources Regulator may investigate community complaints and environmental incidents relating to mining development.[48] A range of compliance and enforcement mechanisms that are in accordance with legislative and policy framework include penalty infringement notices and, if required, prosecution.[49]

d) Queensland

Public transparency and accountability are attained through making the PRC plan and PRCP Schedule available on the public register.[50] A PRC plan enables local communities to understand the land uses expected when a mining lease or part of a lease is surrendered, and to know when a holder will complete the rehabilitation for that area. Therefore, the PRC plan must contain details of public consultation on these outcomes, which could include consultation with landowners, Indigenous communities including native title holders, regional environmental groups and relevant government agencies during the preparation of the PRC plan.[51] In addition to stakeholder consultation, there are requirements for public notification and third-party objections rights for PRCP Schedules.[52]

(G) Criteria 7: revision and update

a) Best practice

For best practice integration with business systems such as business planning and annual budgeting, the closure plan should be revised and updated on an annual basis.[53] Also, due to the long timeframe involved, legislative requirements need to allow room for flexibility and accommodate changes that may result in adjustments in the final closure program.[54] Therefore, the closure plan must be reviewed periodically in order to cater to changes in the mining plan, environmental reviews and needs, and aspirations of the communities.[55]

b) British Columbia

The BC Mines Act permit is normally re-evaluated and re-assessed every 5 years.[56] Permits often contain numerous reporting obligations such as the mandatory requirement for companies to submit an updated Mine Plan and Reclamation Program (also called Closure Plans) every 5 years.[57] Such plans must outline progressive reclamation activities for the 5 years following the date on which the plans are updated.[58]

c) New South Wales

The NSW EP&A Act requires a review of Local environmental plans and state environmental planning policies every 5 years to determine whether they should be updated. The Division of Resources and Geoscience's regulatory approach to rehabilitation is outcome-focused whilst being flexible to allow the industry to develop and implement innovative and site-specific best practice methods.[59]

An RMP is a "living" document that needs to be progressively developed, and continuously reviewed and updated as circumstances such as a mine's life and community sentiment may change.[60] Correspondingly, the NSW Mining Act requires mining companies to submit annual environmental reports as part of their ongoing licence to operate which are then used to alter the RMP.[61] The Department of Primary Industries uses the documents to assess a company's environmental performance and calculate financial assurances for the site.[62]

d) Queensland

The PRCP Schedule is audited every 3 years. Public accountability is a key policy objective included in the PRC plan framework to ensure consultation occurs where significant changes are proposed to the commitments made in a PRC plan.[63] The definitions of minor and major amendments in s 223 of the QLD EP Act were amended to include references to PRCP Schedules. A new provision is inserted to allow the administering authority to decide if it is satisfied that adequate community consultation has been undertaken and the proposed amendment would be unlikely to attract an objection if the notification stage were to apply to the amendment application.

V Conclusion

In summary, mine closure revolves around four key elements, namely environmental, economic, social and governance. Drawing from the set of generalised criteria of international best practice and the relevant legal framework of the respective jurisdictions of which the industry regards as best practice, it is established that the fundamental features of best practice mine closure legislation would:

- have specific provisions for reclamation and rehabilitation
- require environmental and social impact assessments and associated work plans

- require a comprehensive closure report and adequate financial surety
- have specific provisions for abandonment and post-closure activities and
- administer specific monitoring and enforcement procedures to ensure compliance

It may seem perplexing that mine closure remains a challenging subject despite clear recognition of good practice by operators and external stakeholders, and the technical ability of companies to achieve those recognised good practice.[64] The reasons may be attributed to the fact that some best practices may be difficult to implement, or even not applicable to some small mining companies or small mines owned by large firms.[65] In order to counteract those issues, a comprehensive legal framework surrounding mine closure which is supplemented by clear guidelines and policies would help mining companies to make decisions and develop specific plans or actions.[66] Governments are increasingly recognising the need to revise their laws to align with international best practice and shift their emphasis to closure planning and progressive rehabilitation, as evidenced by the legislative changes that occurred in Queensland and New South Wales. The industry need not be alarmed by these changes because other jurisdictions similar to Australia have already been practicing progressive rehabilitation for a good period of time. These rules are essential for a mining sector that values sustainable development.

Considerable details on these changes have been deferred to supporting regulations and guidelines, thus making it difficult for the industry to fully assess the overall impacts of the new financial provisioning scheme and mine rehabilitation reforms. This article serves to assist the industry in weighing up the pros and cons of the reforms through comparison with international best practice and other jurisdictions. It concludes that the substantial changes to the mine closure legislative framework in Queensland had resulted in regulations that are significantly more aligned with best practice standards.

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This paper was submitted to fulfil requirements for the degree of Bachelor of Laws (Honours) in The University of Queensland. I certify that to the best of my knowledge, the intellectual content of this paper is the product of my own work and guidance from my supervisor, Jonathan Fulcher, except where due acknowledgment has been made.

For Parts 1 and 2 of this article, see J Loh "A review of new mine closure laws in Queensland: a comparative analysis of mine closure and rehabilitation best practice and legal framework — Part 1" (2019) 3(4) ERLB 54; and J Loh "A review of new mine closure laws in Queensland: a comparative analysis of mine closure and rehabilitation best practice and legal framework — Part 2" (2020) 3(5) ERLB 62.

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Australian Energy and Resources Law Bulletin

Ji Yen Loh (Jenn) THE UNIVERSITY OF QUEENSLAND

A review of new mine closure laws in Queensland: a comparative analysis of mine closure and rehabilitation best practice and legal framework — Part 2

Ji Yen Loh (Jenn) THE UNIVERSITY OF QUEENSLAND

IV Comparative analysis between best practice and statutory requirements of each jurisdiction

(A) Criteria 1: legal framework

a) Best practice

A *sine qua non* for developing a mining sector with land that is sustainable even long after mines are closed is a clear legislative and fiscal framework which sets the parameters for mine closure.[1] Inadequate governance will be perceived as a risk by investors and mining companies alike because they could face potential future liabilities and obligations that were unknown at the outset. As a result, this risk could deter investors who prefer to invest in mines in a jurisdiction where there are limited contingencies on incurring extra costs.

The absence of a comprehensive legal framework and the lack of requisite knowledge on lines of authority and responsibility led to inefficiencies in ensuring mine closure takes place properly and adequate monitoring occurs after closure.[2] Legislation should aim at providing for the achievement of a post-closure status that leaves behind an enduring positive legacy in the community.[3] A more integrated approach to mine closure planning would require preliminary closure plans, as part of its approval process,[4] that clearly identify allocated and sustainable funding sources to implement the plan.[5] Ideally, this should be considered in deciding whether or not to allocate a concession or authorise an operation, and therefore should be linked to permitting.[6]

b) British Columbia

The requirements for mine closure in British Columbia are set out in the Mines Act 1996 (RSBC) (BC Mines Act) and its accompanying *Health, Safety and Reclamation Code for Mines in British Columbia*[7] (BC Code). Closure planning is required for all infrastructure on a mine site.[8] Proponents of mining projects are required under s 10 of the BC Mines Act to obtain a permit prior to the commencement of any work in, on, or about a mine.[9] In order to obtain a BC Mines Act permit, mining companies must submit land reclamation and closure plans which are aimed at achieving the approved end land use.[10] The plan must include the details of proposed work and program for the protection and reclamation of mined land and watercourses during the construction and operational phases of the mining operation.[11] This is to ensure that land, watercourses and cultural heritage resources are returned to a safe and environmentally sound state upon cessation of mine operations.[12]

Closure and reclamation prerequisites are described in s 10 of the BC Code. As an example, Pt 10.7 of the BC Code states that a company must provide a conceptual final reclamation plan for the closure or

abandonment of all aspects of its mining operations, including the plans for long-term post-closure maintenance of facilities, and proposed use and capability objectives for land and watercourses.[13]

c) New South Wales

New South Wales's primary legislation for mine closure are the Mining Act 1992 (NSW) (NSW Mining Act) and the Environmental Planning and Assessment Act 1979 (NSW) (NSW EP&A Act). An authorisation under the NSW Mining Act must be granted by the Minister for Resources before mining companies can prospect, explore or mine privately and publicly owned materials.[14] A development consent must be obtained under the NSW EP&A Act before a mining lease can be granted. The NSW EP&A Act has been updated following the passing of the Environmental Planning and Assessment Amendment Act 2017 (NSW). Overall, the changes expand the powers of consent authorities and impose additional obligations on developers for community participation and strategic planning.[15]

Progressive rehabilitation obligations are required as part of the exploration and mining approval processes of both legislation.[16] A consent authority under the NSW EP&A Act evaluates mine rehabilitation proposals as part of its development approval.[17] Furthermore, mining leases must include detailed operational requirements for rehabilitation of mining sites as an associated condition of title issued under the NSW Mining Act.[18] This entails submitting a rehabilitation management plan (RMP, also known as a mining operations plan, or MOP) that describes and commits to rehabilitation activities.[19]

d) Queensland

In Queensland, rehabilitation is required under the Environmental Protection Act 1994 (Qld) (QLD EP Act) with the objective of attaining ecologically sustainable development (ESD).[20] ESD is defined by the Australian National Strategy for Ecologically Sustainable Development and articulated by the Hon Justice Brian J Preston as "development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends".[21]

The QLD EP Act now requires site-specific environmental authority (EA) applications for mining leases to be accompanied by a proposed progressive rehabilitation and closure (PRC) plan and a PRC plan Schedule (PRCP Schedule).[22] Existing EA holders will be obliged to prepare a PRC plan over a 3-year transitional period.[23] The purpose of a PRC plan is to ensure mine rehabilitation is planned from the beginning of operations and carried out in a progressive manner for effective closure.[24] The plans must demonstrate how and where environmentally relevant activities will be carried out on the land, and prove that it will be done in a manner that maximises the progressive rehabilitation of the land to a stable condition and provides for the condition to which the land must be rehabilitated before it can be surrendered.[25] The QLD EP Act provides that land is in a stable condition if it is safe and structurally stable, does not cause environmental harm, and can sustain a post-mining land use.[26] The administering authority can make an assessment of changes to environmental risks, social risks and rehabilitation acceptability.[27]

(B) Criteria 2: closure planning

a) Best practice

As propounded by the International Council on Mining and Metals: "The earlier that risks and unknowns are reduced, the greater the potential for meeting specific objectives."[28] Therefore, planning for closure

should begin at the earliest stage of development because early and continuous planning allows post-mining land use options to be considered at the same time as project development alternatives.[29] Likewise, risk assessments that are conducted at this initial stage, along with environmental and social impact assessments, should be an iterative process and cover closure.[30]

b) British Columbia

In British Columbia, reclamation plans must outline progressive reclamation activities to ensure that progressive reclamation can occur during mining and be completed upon closure.[31] Proponents are also required to demonstrate how environmental management and protection practices and procedures will be implemented during all phases of mine development and closure.

Reclamation refers to an approximation of pre-disturbance conditions, while rehabilitation allows alternative landscape opportunities.[32] Essentially, rehabilitation denotes a return of disturbed area to a stable and permanent use or condition that is directed by a pre-mine plan with the goals of reclamation in mind.[33] While what it means to "reclaim all land" is not defined, the BC Code outlines broad reclamation standards that should be adopted as closure objectives.[34] For example, in order to meet the requirement of s 10.7.9 which states that "[w]here practicable, land and watercourses shall be reclaimed in a manner that is consistent with the adjacent landforms", an appropriate land use objective would be "[t]o return landform structure, heterogeneity, and stability in the Project Site to conditions similar to those existing without the Project."[35]

c) New South Wales

Under the NSW Mining Act, ongoing progressive site rehabilitation is mandatory. Titleholders are required to develop and implement a RMP which includes the objectives and criteria for rehabilitation that must be met before the mining lease and any associated rehabilitation security bond are relinquished.[36] A RMP must contain proposed rehabilitation plans that include a progressive rehabilitation Schedule for the entire life cycle of a mine.[37] Rehabilitation[38] is defined in the NSW Mining Act to mean "the treatment or management of disturbed land or water for the purpose of establishing a safe and stable environment".[39] This connotes land being restored to a sustainable and productive useful purpose.[40] Relevantly, the original concept of sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs".[41]

Rehabilitation planning and practices must be integrated throughout all phases of exploration to achieve a final condition that is as good or better than it was prior to mining activities, or one that allows for the proposed final land use(s) to be sustained.[42] Following the completion of activities on a site, titleholders are obliged under the NSW Mining Act to commence rehabilitation of that site as soon as reasonably practicable, or as otherwise directed by the Minister.[43] In addition, the RMP must meet the outcome objectives of the environmental impact assessments undertaken by mining companies as part of the mine approval process.[44]

d) Queensland

The PRC plan ensures early planning for rehabilitation and land management,[45] whilst the PRCP Schedule includes enforceable requirements for progressive rehabilitation. For each post-mining land use area, the PRCP Schedule must state its respective rehabilitation milestones to achieve a "stable condition" for the land and when they will be achieved.[46] It is a condition of the PRCP Schedule that all milestones must be complied with,[47] and it is an offence to contravene a condition of a PRCP Schedule.[48]

Additionally, environmental impact statements are also required under the QLD EP Act for mining, petroleum and gas activities.[49]

(C) Criteria 3: financial security for costs and risks

a) Best practice

Early cost estimates are critical in saving rehabilitation cost upon closure.[50] Operators should be required to set aside funds for mine closure and rehabilitation because undesired events such as tailings, dams failure and the release of acidic solutions can occur not only during the operation of a mine but also during the decommissioning or post-closure phases.[51] An appropriate funding mechanism is crucial to ensure sufficient funds are available for mine closure activities and the completion of all decommissioning and rehabilitation requirements.[52] Risk assessments help to ascertain the present and future risks of mine closure relating to environmental, economic, reputational and security aspects.[53] Therefore, there should be quantitative and qualitative risk assessment techniques in place to demonstrate to the community and regulators that closure issues had been identified and an appropriate security deposit can be calculated.[54] It follows that mining companies should maintain an understanding of the risks and opportunities presented.[55]

b) British Columbia

The Ministry of Energy, Mines and Petroleum Resources's (MEMPR) reclamation security policy for new mines in British Columbia is for the reclamation security to be set annually at a level which reflects outstanding decommissioning and closure liabilities existing at that time.[56] As part of the development of a closure and reclamation plan, an estimate of the total expected costs of closure and reclamation over the planned life of the mine, including the costs of long-term monitoring and maintenance, is required.[57] The estimate is used to inform the timing and size of securities demanded as a condition of the BC Mines Act permit.[58] The Chief Inspector of Mines has the ultimate legislative authority for all issues pertaining to the BC Mines Act, including reclamation security. The Chief Inspector may assess a risk premium as a contingency factor to provide for unexpected costs where cost predictions are highly uncertain, or there is a high risk of a mining company defaulting on its obligations.[59]

The Chief Inspector may require adequate financial security to be paid in full before mining companies receive their permit to operate.[60] The financial security, which is assessed on a site-specific basis, covers all or part of outstanding costs associated with mine reclamation and the protection of land, watercourses and cultural resources, as well as post-closure commitments.[61] The BC Mines Act also authorises a mine reclamation fund that ensures sufficient revenue to be established in order to provide for reclamation after cessation of mine operations.[62] Companies are required to continually reclaim land throughout the life of a mine in order to reduce their reclamation liability at closure.[63]

A security policy provides assurance that governments will not have to contribute to the costs of reclamation and environmental protection at taxpayers' expense if mining companies do not carry out those activities due to bankruptcy, lack of available funds or other reasons. In the case of a default, the security will allow the government to successfully manage the site and help maintain conformance with British Columbia's principles of fairness and "polluter pays" principle.[64] The security is returned only after reclamation is completed to a level deemed satisfactory by the Chief Inspector[65] and without any ongoing monitoring or maintenance requirements.[66]

Generally, the MEMPR reviews reclamation securities every 5 years, or whenever significant changes

occur at mines. Through an amendment to the BC Mines Act permit, the security can increase or decrease depending upon assessed liability at the time and financial factors such as real return bond yields.[67] An assessment of a mine's liabilities would be triggered at a proposed change of ownership of a mine, and the transfer is permitted only if the Chief Inspector was satisfied that the new owner had sufficient financial security in place to cover the outstanding liabilities.[68]

c) New South Wales

New South Wales is one of the few jurisdictions that require a security deposit which covers the full cost of rehabilitation.[69] Under the NSW Mining Act, financial securities are imposed to ensure that the state government does not incur financial liabilities if an authority holder defaults on its obligations.[70] The Division of Resources and Geoscience will assess when rehabilitation obligations have been met in determining whether or not a security deposit can be released or otherwise retained until all obligations are met.[71] Therefore, progressive rehabilitation is supported by the partial release of the security deposit when successful rehabilitation has been demonstrated.[72]

In the updated NSW EP&A Act, financial assurances required under Pt 9.4 of the Protection of the Environment Operations Act 1997 (NSW) are now carried over to development consents as a means to ensure compliances. Consent authorities will have the power to impose a condition in a development consent requiring an applicant to provide a financial assurance to secure or guarantee funding for or towards the carrying out of works or programs required by or under the development consent.[73]

Prior to commencement, a titleholder must conduct a risk assessment to evaluate potential threats and opportunities linked with rehabilitating disturbed areas that can support the intended final land use(s) as part of their RMP.[74] This requires key risks and opportunities to achieve successful rehabilitation to be defined, and the range of risk-based rehabilitation controls and methodologies to be provided.[75] The titleholder is obliged to provide an estimate of rehabilitation costs for consideration when determining the security deposit amount. The amount is reviewed annually so that it remains consistent with the mine's life stage.[76] Rehabilitation risk assessments and updates made to improve the effectiveness of risk controls must be recorded and kept for production to an inspector for a period of 4 years following the expiry or termination of a prospecting title.[77]

d) Queensland

One of the legislation's key policy objectives is to manage the financial risk to the state and to "minimise the regulatory burden on Government and industry" if and when mining companies do not comply with their environmental management and rehabilitation obligations.[78] The new financial provisioning scheme established by the Queensland Mineral and Energy Resources (Financial Provisioning) Act 2018 includes a pooled financial provision fund (scheme fund) with a scheme manager to manage the scheme. An EA holder or a small-scale mining tenure (SSMT) is required to either make a contribution to the scheme fund or pay a surety, depending on the estimated rehabilitation cost (ERC) for the EA and, if applicable, the risk category assigned to the EA.[79] The scheme will be a source of funds to the government for costs and expenses "relating to preventing or minimising environmental harm, or rehabilitating or restoring the environment, or securing compliance with an authority or small scale mining tenure".[80]

The Department of Environment and Science will determine the ERC, which is the projected cost for the relevant period (generally 1–5 years) of rehabilitating the land on which the resource activity is carried out, preventing or minimising environmental harm, or rehabilitating or restoring the environment.[81] Once

this decision is made, the fund manager will determine the "initial risk category allocation" for the holder of the EA and review the decision annually.[82] Resource activities must not be carried out under an EA unless an ERC decision is in effect for the activity and the EA holder has paid the required contribution or surety.[83]

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79 Mineral and Energy Resources (Financial Provisioning) Act 2018 (Qld), Pt 2 Div 2.

80 Explanatory Notes, Mineral and Energy Resources (Financial Provisioning) Bill 2018 (Qld) 12; above n 23; Economics and Governance Committee, Parliament of Queensland, above n 25, at 15.

81 Above n 79, Pt 8 Div 1.

82 Above n 79, Pt 3 Div 1 Subdiv 1.

83 Above n 79, Pt 3.

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