REVIEW OF REGULATORY AND LICENCE REQUIREMENTS FOR THE MANAGEMENT OF WASTE MINING TYRES IN WESTERN AUSTRALIA, NEW SOUTH WALES & QUEENSLAND

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SUMMARY REPORT

This document is a summary of a detailed analysis of regulations that determine the management and end of life outcomes for mining OTR tyres in WA, QLD and NSW. This original work was undertaken by Urban EP (www.urbanep.com.au) for the **Australian Tyre Recyclers Association** (www.atra.org.au)

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EXECUTIVE SUMMARY

Australia's current approach to managing end-of-life Off-the-Road (OTR) mining tyres is failing to deliver acceptable environmental and circular economy outcomes. Recovery rates for mining and agricultural/forestry tyres remain critically low — approximately 2%[1] — despite significant investment by both industry and government in recycling infrastructure and processing capability.

These substantial investments in mine tyre recycling capacity remain significantly underutilised as mining tyres continue to be disposed of "in-pit" through legal on site landfilling practices that are supported and enabled by existing regulatory and legislative settings.

The report examines the regulatory and licensing frameworks governing waste mining tyre management across three key mining jurisdictions — Western Australia, New South Wales and Queensland — to assess how existing legislative settings influence disposal and recycling outcomes. The analysis focuses on mining approvals, environmental protection licences (EP licences), environmental authorities (EAs), and associated regulatory instruments that shape how mining operators manage waste tyres at end of life.

The review found that current regulatory settings overwhelmingly enable and legitimise ongoing "in-pit" disposal and on-site burial of mining tyres. While licence conditions commonly address issues such as fire management, safety, water protection and record keeping, they generally do not require mining companies to meaningfully pursue recycling or recovery pathways. In practice, once environmental and human health risks associated with burial are considered adequately managed, regulators have limited ability under current frameworks to compel alternative outcomes such as recycling for mining tyres.

Across all three jurisdictions, the report identified a consistent pattern:

- mining licences and environmental authorities largely prioritise localised environmental risk mitigation rather than circular economy outcomes;
- waste hierarchy principles are weakly applied or poorly enforced in relation to mining tyres;

[1] https://www.tyrestewardship.org.au/tools-and-resources/tipping-the-balance-research-report-off-the-road-tyres-conveyors-tracks. P.7

- existing licence conditions rarely create meaningful obligations to investigate, adopt or transition to recycling solutions;
- regulatory frameworks lack clear mechanisms that incentivise or require higher-order recovery outcomes for OTR tyres.

The report also found that despite the best efforts of some within relevant government agencies, regulators often face structural or legislative constraints when attempting to strengthen licence conditions. In several cases, regulators advised through the consultation process developing this report that unless waste tyre management is explicitly referenced in broader mining development approvals, their ability to impose more prescriptive licence conditions is limited. Even where waste hierarchy principles exist in legislation or policy, there is generally little guidance on how mining operators must demonstrate that disposal in-pit is preferable to recycling or recovery alternatives.

In the context of this report, it’s important to consider that market conditions within the sector have materially changed. Historically, limited domestic recycling capability constrained alternatives to disposal. However, Australian recyclers — including members of the Australian Tyre Recyclers Association (ATRA)— have now invested in specialised infrastructure capable of processing large-scale OTR tyres into valuable downstream products and materials. Despite this progress, these facilities remain significantly underutilised as current regulatory settings continue to favour low-cost onsite in-pit disposal pathways (comparable to landfilling of tyres).

The report identifies several potential pathways for reform across the three states that may help improve recovery outcomes for waste mining tyres, including:

- updating environmental protection regulations, operational policies and supporting guidance relating to mining tyre disposal and recovery practices;
- embedding clearer waste mining tyre management considerations within mining development approvals and environmental licensing frameworks;
- developing clearer regulatory guidance regarding how recycling and recovery options should be assessed when determining whether disposal pathways remain appropriate;
- pursuing more coordinated, sector-wide regulatory approaches aligned with regional recycling infrastructure and practical implementation pathways, rather than relying solely on fragmented site-by-site reforms.

A key finding of the report is that isolated, case-by-case regulatory interventions may be helpful in the short term and drive material to recyclers if focused upon larger mines and regions, however, such an approach is unlikely to achieve meaningful system-wide change in the longer term. Instead, reform efforts should adopt a coordinated whole-of-sector approach aligned with regional recycling infrastructure capacity and practical implementation pathways.

The report concludes that current regulatory settings are fundamentally misaligned with Australia’s broader circular economy objectives. Continued reliance on low-cost burial practices undermines substantial industry and government investment in recycling capability and restricts the development of sustainable end markets for OTR tyre-derived materials.

ATRA and its members are seeking constructive engagement with governments, regulators, manufacturers and mining companies and other relevant stakeholder organisations to modernise regulatory and related settings and create frameworks that support genuine recovery outcomes for mining tyres.

Based on the analysis provided in this report, ATRA proposes that regulatory evolution is now required to reflect the changing capability of the recycling sector to support improved environmental, economic and circular economy outcomes for industry, government and the broader community.

REPORT INTENT

This project analysed the conditions placed on mining licence holders – through licence conditions, legislation, regulation and other statutory tools – that govern how large mining tyres are managed at their end of life in Western Australia, New South Wales, and Queensland.

The purpose of the analysis was to assess:

- The key regulatory tools that shape and regulate how waste mining tyres are managed in assessed states
- The conditions placed on their management
- The processes followed by regulators when seeking to alter the conditions that drive waste tyre management practices
- Constraints on regulatory tools that hinder the use of license provisions to drive circular economy outcomes in mining tyre management.

THE ROLE OF DIFFERENT REGULATORY TOOLS

This research project examined mining legislation, major project planning legislation and environment protection legislation in each state as it pertains to the management of mining sector waste streams, along with subsidiary regulation and administrative tools (e.g. guidelines) as relevant. Individual approval documents were also reviewed, for eight large scale mining operations in each jurisdiction.

New mining operations and existing mining operations that undergo significant modifications in activity require approvals from mining regulators and planning authorities. Such approvals will typically include conditions that aim to improve operations and management standards, and to ensure that the premises is suitably remediated after mine closure. By and large, these conditions are general in nature, and do not go into detail in how specific waste streams are to be managed. They may include some requirements for annual disclosure and reporting however.

In contrast, permissions granted under environment protection legislation tend to be more specific in how solid waste streams are to be managed, including (in some cases) waste mining tyres. Such permissions include:

- In Western Australia, environment protection licences (EP licences) issued by Department of Water & Environmental Regulation (DWER)
- In New South Wales, EP licences issued by NSW EPA
- In Queensland, environmental authorities (EAs) issued by Department of Environment, Tourism, Science & Innovation (DETSI).

Further details on the use of EP licences (and EAs) and the application of licence conditions in each state are provided below.

WESTERN AUSTRALIA

The WA *Environmental Protection Act 1986* (WA EP Act) makes it an offence for occupiers of prescribed premises to cause an emission from a prescribed premises, unless they hold a licence for that premises. Licences contain conditions to protect the environment or public health from emissions from the premises.

The WA EP Act contains provisions for the emplacement of conditions on EP licences, and some kinds of conditions that may be imposed. These conditions can include specified manners in which a waste is disposed or made available for reuse (WA EP Act, S. 62A (j) and (k)), and can include measures to investigate options to prevent, control or abate pollution or environmental harm (WA EP Act, S. 62A (l)). In all cases the overarching framing for such conditions must relate back to addressing risks to the environment and human health. DWER officers have clarified that these risks are interpreted as being those in the vicinity of the prescribed premises.

DWER has the power to update licences, to reflect a revised understanding of potential risks and harms associated with a given premises and/or activities occurring on that premises. The procedure for this process, is laid out in the DWER's *Procedure: Prescribed premises works approvals and licences*. DWER may make risk-based decisions on amendment applications submitted by licence holders, and may also make amendments on its own initiative.

There is no requirement for the scope of conditions placed in an EP licence (issued to a mine operator or other prescribed premises occupier) to link with or cross reference activities or conditions placed on an Approvals Statement issued by Department of Mines, Petroleum and Exploration (DMPE), that is necessary to permit development of the premises for mining purposes. While the Approvals Statement and its conditions may inform DWER as to on site activities (i.e. the 'activity envelope') and their potential impacts, DWER is strictly guided and bounded by provisions laid out in the EP Act and subsidiary instruments.

NEW SOUTH WALES

Mining and related processing operations are listed as activities in Schedule 1 of the NSW *Protection of the Environment Operations Act 1997* (NSW POEO Act), requiring regulation through the issuance of an environment protection licence (EP licence). In cases where a Development Consent must be granted by a suitable planning authority (i.e. including major mining operations), an EP licence cannot be issued unless a Development Consent is in force.

The NSW EPA is the regulatory authority for all scheduled activities and scheduled development work. The NSW EPA's risk-based licensing system aims to make sure all EP licence holders receive an appropriate level of regulation based on the level of risk they pose to human health and the environment. When assessing an EP licence application and applying conditions to an issued licence, NSW EPA may pay regard to:

- Any protection of the environment policies
- The statutory objectives of the EPA
- The pollution caused or likely to be caused by carrying out the proposed work
- The likely impact of that pollution on the environment
- Practical measures that could be taken to prevent, control, abate or mitigate the pollution and protect the environment from the impact of that pollution
- Any green offset schemes, tradeable emission schemes or other economic measures
- Whether the applicant is considered to be a fit and proper person
- The 'environmental values of water' that may be affected by the activity or work
- Any relevant environmental impact statement and any other documents accompanying the application
- Any waste strategy in force under the *Waste Avoidance and Resource Recovery Act 2001*
- Public submissions.

Under the NSW POEO Act, the NSW EPA may vary a licence, including attaching, substituting, omitting or amending conditions of the licence. This variation may be undertaken in response to a request by the licence holder or may be initiated by the NSW EPA itself.

According to NSW EPA licensing officers, in order to include or update EP licence conditions that centre on a specific area of activity, there needs to be a direct reference to that activity in the Development Consent in force for that operation. Thus, if the Development Consent does not mention the activity in question, the NSW EPA is constricted in its ability to regulate practices through EP licence conditions. This clearly creates a necessary point of connection between the licensing framework and development approval processes.

QUEENSLAND

Environmental authorities (EAs) issued by the Department of Environment, Tourism, Science and Innovation (DETSI) are functionally equivalent to EP licences granted by NSW EPA and WA DWER. As in the cases of WA and NSW, a prescribed set of activities that require EAs are laid out by the Queensland Government. These activities are designated as 'environmentally relevant activities' or ERAs, and include mining activities which are designated a 'resource activity' under the Queensland *Environment Protection Act 1994* (Qld EP Act). The Act carries provisions for granting EAs that are specific to ERAs that are resource activities, with additionally specialised provisions for mining activities in particular.

The Queensland EP Act recognises ERAs according to whether they fit certain criteria, in which case EA applications may follow standard, variation or site-specific application processes. Mining activities that are eligible for standard or variation EA conditions are limited to those that are small in operation, and are not located in sensitive areas. Larger mining activities are required to undergo a site specific EA application process.

In making a determination for granting or refusing an EA, DETSI applies three broad categories of requirements, i.e.:

1. Matters that need to be complied with in order for an EA to be granted, and conditions that are needed to ensure legislated environmental outcomes are met by the activity
2. Prohibitions against activities affecting groundwater and surface water bodies, including aquifers and wetlands – which are grounds for refusal against granting an EA
3. Assessments of the activity in relation to meeting legislated environmental objectives, covering both land use and operational activities.

Guidance released by DETSI goes into considerable detail on how DETSI may apply these requirements in making an EA determination.[2] A Waste Objective is among the environmental objectives that need to be considered in EA decisions, which is framed as follows:

'Any waste generated, transported, or received as part of carrying out the activity is managed in a way that protects all environmental values.'

The following Performance Objectives for waste, as set out in the Queensland *Environment Protection Regulation 2019* (Qld EP Regulation), also apply:

(a) Waste generated, transported or received is managed in accordance with the waste and resource management hierarchy under the *Waste Reduction and Recycling Act 2011*

(b) If waste is disposed of, it is disposed of in a way that prevents or minimises adverse effects on environmental values.

[2] https://www.des.qld.gov.au/policies?a=272936:policy_registry/era-gl-approval-process.pdf

The above points suggest that there should be an explicit and meaningful exploration of non-disposal options for major waste streams when preparing and submitting EA applications. However, in practice, it appears that the assessment of solid waste management practices at mine sites is largely concerned with local environmental risks such as land and water contamination, and risks that may come to compromise land rehabilitation.

DETSI guidance on the EA process explains circumstances in which the authority may amend an EA's conditions without prior application by the EA holder. These circumstances are somewhat limited compared to similar provisions to alter EP licences in WA and NSW. In effect, DETSI may alter an EA when conditions set out in Section 215 of the Queensland EP Act are satisfied. Examples of such conditions include but are not limited to the following:

- A contravention of the EP Act or an environmental offence committed by the holder
- The authority was issued or schedule was approved because of a materially false or misleading representation or declaration
- The EA was issued on the basis of a miscalculation of the environmental values affected or likely to be affected by the relevant activity, or the quantity or quality of contaminant permitted to be released into the environment, or the effects of the release of a quantity or quality of contaminant permitted to be released into the environment
- The approval of an environmental protection policy or the approval of an amendment of an environmental protection policy
- A change in the way in which, or the extent to which, the activity is being carried out
- A report made by or for, or approved by, a *recognised entity* if the report:
    - Is relevant to the authority or schedule, or a relevant activity carried out under the authority or schedule; and
    - If the administering authority is not the chief executive—has been accepted by the chief executive.

The EA holder must be sent details of any proposed amendment and given an opportunity to make written representations about the change. After considering any written representation, DETSI may make the amendment if it still believes a ground exists to make the amendment.

LICENCE CONDITIONS & THEIR INFLUENCE ON MANAGING WASTE TYRES

This research included an examination of conditions relevant to the management of waste mining tyres as placed in EP licences (in WA and NSW) and in environmental authorities (in Qld), to understand the regulatory expectations placed on mining companies in each state. A total of eight mining sites' licences and environmental authorities from each state were examined.

WESTERN AUSTRALIA

- In WA, some EP licences do not directly or explicitly mention waste mining tyres at all, but instead provide some general provisions for disposing of more general categories of waste (inclusive of waste mining tyres).

- Other EP licences explicitly apply conditions for the on site disposal (burial) of waste tyres. These conditions are mainly devoted to ensuring safety, fire management and water quality standards.

- In general, the licence requirements do not unduly prevent or impede on site burial, nor do they encourage mining companies to explore or implement alternative options.

- Some annual volume limits for waste tyres, inert waste, and general waste are imposed on EP licences. However, in general, these volume limits are not so restrictive as to require mining companies to require off site solutions for a residual volume of tyres.

- None of the eight EP licence conditions examined in this study involve references to exploring, testing the feasibility of, or implementing options to manage waste mining tyres in a way that accords with the waste hierarchy or circular economy principles.

WA legislation allows for EP licence conditions to direct licence holders on waste disposal and making waste streams available for reuse. EP licences will be granted where the licence holder can show that it will manage risks to human health and the environment (i.e. in the near vicinity), based on approaches put forward in its licence application. The application must include all activities that may involve environmental and human health risks, including waste management.

EP licence conditions can be put in place to prevent or mitigate those risks, but cannot be used to coerce the licence holder to adopt an entirely different approach that does not appreciably alter the risk profile of licensed activities. Thus, if DWER determines that the licence holder’s method to dispose of waste mining tyres is adequate in managing human health and environmental risks, it cannot use licence conditions to dictate an alternative method.

NEW SOUTH WALES

- Waste tyres are permitted to be disposed at each mining site examined during this study, although additional conditions have been applied in the case of some EP licences. In most cases, these conditions set safety, fire management and water quality standards.

- Annual volume limits are also mentioned in some cases, but do not appear to be set at levels that would obstruct on site burial of an annual volume of tyres used on site.

- Some coalmining operations are required to submit Annual Heavy Plant Tyre Disposal Reports to NSW EPA with their Annual Returns, detailing volumes, locations, and identifying features of each tyre disposed on site.

- A smaller set of coalmine operators are required to perform a review of available recycling options for waste heavy plant tyres at least once every two years, and provide NSW EPA with a report covering the review findings. It is left to those licence holders to apply their own judgement as to whether tyre recycling or recovery is feasible compared to business as usual on site burial practices.

- There is no imperative in the licence conditions for the mining company to adopt tyre recycling, in response to this exploration of options.

- Even in the case where waste mining tyre recycling options must be investigated and reported on, EP licence conditions centre on the continued use of onsite burial (pending report findings that tyre recycling is not feasible) rather than on stipulations to engage recycling services and/or adopt offsite management practices.

NSW EPA licence compliance officers explained that, in some cases, EP licences for mines did not address waste mining tyres directly because there was no reference to the management of waste mining tyres in the Development Consent issued for that mine. Planning authorities may update Development Consents when the occupier submits a Development Consent Modification Application (for example, to allow expansions, upgrades, or changes to onsite activities), and can include updated conditions that were outside the areas of modification sought by the occupier.

NSW EPA is now coordinating with planning authorities to ensure that modified Development Consents for mining activities include reference to waste mining tyres, as this will then enable direct reference to waste mining tyre management requirements in EP licence conditions.

NSW EPA officers explained that a similar limitation to that occurring in WA is also in play in NSW, when looking to apply stricter controls on the management of waste mining tyres. That is, once a minimum standard of environmental risk and human health risk is addressed through licence conditions, the NSW EPA cannot then impose conditions that call for a different set of activities. Thus, the NSW EPA can require an exploration of alternatives to onsite disposal of waste mining tyres, but efforts to mandate recycling can be challenged as overreach.

QUEENSLAND

- Waste mining tyres or bulk rubber are explicitly mentioned in each of the environmental authorities for mining sites examined during this study. Some EAs have conditions stating that waste tyres can be disposed of in specified locations using prescribed methods. These conditions do not materially affect the EA holder’s practical opportunity to dispose of mining tyres on site instead of seeking recycling options.

- Some EAs reference the *Operational policy – Disposal and storage of scrap tyres at mine sites ESR/2016/2380*. This paper provides that, for new applications, EA conditions should stipulate that waste tyres are to be managed in preference according to the waste hierarchy. The paper omits any binding features or repercussions arising from failing to implement waste management solutions beyond on site burial, and does not set out guidance for how to apply the waste hierarchy via a decision flow chart or similar.

- In some mining operation EAs, the requirement to at least nominally explore waste tyre recycling or recovery is implied – with conditions allowing for on site burial where ‘no feasible recycling or waste-to-energy options are available.’ There is no direction as to what constitutes a legitimate investigation in this area or what threshold should be used to determine feasibility, nor what evidence needs to be shared with DETSI to satisfy this condition.

- In one mining operation EA, the holder is required to demonstrate to DETSI that 'no use higher in the waste hierarchy can be practicably implemented' before proceeding to dispose of waste tyres underground. But there is no further detail as to how this finding is to be demonstrated.

- DETSI compliance officers explained that EA conditions involving solid waste management are seldom updated in line with evolving perspectives, so long as environmental risks are prevented or mitigated. The conditions present in existing EAs may have been in place since the EA was first issued to the site in question.

PATHWAYS & CONSTRAINTS IN SHAPING FUTURE LICENCE CONDITIONS

From the above analysis, it is clear that current restrictions placed on mining companies' disposal of mining tyres, where they exist, mainly relate to safety, fire management and water quality concerns. Some conditions faced by mining companies require recordkeeping and reporting activity, adherence to annual volume limitations, and the exploration of alternatives to on site burial including practices that better align with the waste hierarchy.

There are some variations across the three states in these requirements, although the common result is <u>that no licence conditions or environmental authority conditions meaningfully require or pressure mining companies to adopt waste tyre recycling.</u>

This is not to say that there is an absence of pressure, but that such pressure does not come from licences or environmental authorities, nor does it come from other pieces in the regulatory arsenal available to mining, planning and environmental protection bodies.

Legislative provisions in each state may provide a pathway for the environment protection authority to revise licence conditions or pursue other stratagems in order to apply this pressure. The sections below cover some of the pathways available in each state, although the discussion should not be read as exhaustive.

Moreover, the discussion is mainly limited to measures that work within the existing environment protection permission, development approval and mining regulation framework. It does not explore wider instruments such as landfill bans, disposal fees, or new regulatory instruments. Equally, the discussion explores what may be possible given a 'face value' interpretation of the law, as opposed to an authoritative discussion of which options are more likely to succeed in driving change. However, some commentary regarding potential hurdles and challenges is provided where suitable to the discussion.

WESTERN AUSTRALIA

Amendment to Part 6 of the WA EP Regulations

Part 6 of the WA EP Regulations is devoted to provisions for the management of waste tyres, with requirements covering storage, handling, burial etc.

At present, it does not include any requirements specific to mining operations nor does it require that responsible parties have a duty to align waste tyre management with the waste hierarchy, other than to flag that storage of waste tyres at licensed premises is disallowed except where permitted in EP licence conditions for those premises.

This part of the WA EP Regulations may be a suitable place to introduce higher expectations in the management of waste mining tyres. This amendment could bring these provisions into closer alignment with other legislation, including the Western Australian *Waste and Resource Recovery Act 2007*. The waste hierarchy stands as a stated Object of that Act (per Schedule 5).

Any new rules would become universal for all covered activities and liable parties to which they apply. However, the regulation amendment process is somewhat onerous and involves a number of stages – it is not certain that the state would entertain the notion of amending Part 6 of the WA EP Regulations unless there was a wider driver to update other parts of the regulation.

Revised EP licence conditions

DWER has the capacity to update EP licences, based on its revised understanding of potential risks and harms associated with a given premises and/or activities occurring on that premises. The procedure for this process is laid out in the DWER's *Procedure: Prescribed premises works approvals and licences*.

Further to this, Section 62A of the WA EP Act allows for conditions:

- That specify manners in which a waste is disposed or made available for reuse
- That impose measures to investigate options to prevent, control or abate pollution or environmental harm.

A review of current EP licences for mines suggests that new licence conditions are signed off by the Manager, Resources Industries at DWER. However, any process to update licence conditions in this manner is likely to require input from the EPA, the WA Waste Authority, DMPE and other teams within DWER. The licence amendment process is legislated to include provisions for appeal by the licence holder, which may provide a path to contest new or amended conditions.

This work has confirmed that EP licence conditions are strictly applied to ensure risks to human health and the environment are prevented, mitigated or managed. This has tended to be interpreted in terms of risk *in the vicinity of* the premises in question.

If a mine operator can show that such risks are adequately addressed while undertaking on site burial of mining tyres, DWER does not have the means to impose an entirely different approach (such as recycling) through amended licence conditions. It may be simpler if some other measure motivated mining companies to adopt waste mining tyre recycling, which was then complemented (as opposed to directly enforced) through EP licences issued for the mining site.

Development of and reference to a waste mining tyres policy or guideline

There may be the option for DWER to prepare a more detailed framework that progresses and elaborates on the department's expectations for mining companies to investigate waste tyre management options, and to implement those that are deemed feasible.

There may be barriers to referencing this guideline as a prescriptive licence condition imposed on mining companies (i.e. EP licences are first and foremost concerned with nearby environmental and human health risks). Yet it may serve as a reference to place within EP licence conditions for those mining companies that *voluntarily* want to:

- Formally and actively explore beyond on site mining tyre disposal
- Show that they are taking a best practice approach to this exploration
- Use findings from the investigation to then engage with DWER on supporting measures to bring preferred tyre recycling options into reality.

The key idea is that one or more mining companies could opt to accept obligations to explore mining tyre recycling according to a given method, in exchange with DWER gaining access to abridged (i.e. commercially non-sensitive) findings and using those findings to explore support for one or more solutions.

Ideally, a subset of mining companies operating within a defined cluster (e.g. iron ore mines in the Pilbara, gold and polymetallic mines in the Goldfields) would sign on to this arrangement, to capture the benefits of scale economies. However, given that mining companies are generally adverse to more strict conditions (i.e. any proactive efforts may be more conveniently framed as going beyond compliance), there may be limited interest.

NEW SOUTH WALES

Modification to Development Consents under NSW EP&A Act

There are provisions for a planning authority to revoke or modify individual Development Consents issued to mining companies, under limited circumstances (including when a mining company has submitted a modification application). This could provide a means to introduce tighter recycling requirements into mining operations, including for mining tyres. Development Consents for mining activities presently include some reference to preferred waste management practices, although these are somewhat generic and do not provide imperatives towards adopting circular economy practices nor enforcing the waste hierarchy.

Failing the opportunity to explicitly include recycling requirements for mining tyres, Development Consent modification is needed to note the potential environmental impacts of waste tyre disposal, and to note the need to follow licence conditions placed on the management of waste mining tyres. Some reference to waste mining tyres as a source of environmental impacts in Development Consents is important, as it allows the NSW EPA to then take an explicit stance in EP licence conditions as directed to the mining site in question.

There is the separate question of timing and prioritisation of individual Development Consents that are to be modified in this manner – as roll out of these changes may only be practical as and when mining companies seek modifications to existing Development Consents for other purposes.

It is understood that NSW EPA and NSW planning authorities are aware of the interactions between EP licence conditions and Development Consents for mines, and are coordinating the update of Development Consents to include reference to waste mining tyre management.

Revised EP licence conditions

EP licence conditions are currently the main way in which practices in the management of waste mining tyres are regulated in NSW. It therefore stands to reason that licence condition amendment be explored as a pragmatic approach to setting more ambitious requirements for mining companies to consider and implement waste mining tyre recovery solutions.

The NSW POEO Act allows for the NSW EPA to update licence conditions without requiring an amendment application to be issued by a licence holder. This could enable a range of approaches to reset how waste mining tyres should be managed, including for example, influencing how tyre recycling feasibility should be assessed; more prescriptively requiring a shift to tyre recycling; or placing hard limits on what volume of tyres may be stored or buried on site.

The NSW POEO Act provides that an EP licence may carry 'conditions relating to the storage, handling, treatment and processing of waste.' The law also makes clear that waste processing includes 'non-thermal treatment of waste tyres, meaning the receiving of waste tyres from off site and their processing otherwise than by thermal treatment.' Thus, it may be interpreted that the NSW Act allows for conditions that require a given method of waste tyre processing, although this interpretation may require further confirmation.

To support stronger licence conditions, some level of independent research and industry engagement would be needed, to show that such conditions deliver materially improved environmental outcomes without introducing unreasonable costs to affected parties. (See the above section on WA licence condition amendment for further discussion in a similar area. In all likelihood, mining companies may contest tyre recycling requirements in licences, on the grounds that well managed on site disposal satisfactorily avoids significant environmental damage.)

Consideration may need to be given as to whether such amendments could be pursued on an individual basis, or whether a regional strategy towards licence amendment is needed. A regional approach may be useful in driving sufficient economies of scale as needed to drive the cost affordability of waste tyre recycling in critical areas of mining activity, while helping to improve the long term viability of one or more solutions that serve the region. Arguably, such a regional approach may better protect sensitive environmental features associated with a given location, compared to a more ad hoc approach to amending licence conditions.

Note: Under the discussion for WA above, the idea of a policy or guideline that covers more details for what is expected of mining companies in managing their waste tyres is presented, with the view that this could be referenced in EP licence conditions. This approach could possibly be applied in NSW.

Introduction of regulatory provisions to require waste mining tyre recycling

There could also be the option to introduce new sections of the NSW POEO Regulation that specifically deals with waste tyres, analogous to a revised version of the Part 6 of the WA *Environmental Protection Regulations 1987* (discussed above). However, as an amendment to regulation, this would need to follow a prescribed regulation amendment process incorporating regulation impact analysis and extensive industry and stakeholder consultation. It may be reasonable to expect considerable industry resistance to this approach.

QUEENSLAND

Arrangements in Queensland are at least explicit in mentioning that the issuance of EAs and formulation of EA conditions should at least have regard to specified Environmental Objectives, including a Waste Objective, as set out in the Queensland EP Regulation. This objective provides that *both* the following requirements are met:

- Waste generated, transported or received is managed in accordance with the waste and resource management hierarchy under the *Waste Reduction and Recycling Act 2011*
- If waste is disposed of, it is disposed of in a way that prevents or minimises adverse effects on environmental values.

While there is an 'in principle' requirement for DETSI to consider and enshrine the waste hierarchy in issuing EAs and incorporating EA conditions across the board, this has not had meaningful effect with respect to how these conditions are implemented for waste mining tyres. The following headings cover some areas in which amendments may be sought, in order to strengthen provisions towards the recovery of waste mining tyres.

Clarifying how 'accordance with the waste hierarchy' will be assessed in relation to the Queensland Environmental Objectives and their application to mining tyres

The Queensland EP Regulations requires that, when assessing activities, the administering authority will assess whether 'waste generated, transported or received is managed in accordance with the waste and resource management hierarchy.' As noted, this has had little effect in relation to waste mining tyres.

Separately, the Queensland EP Regulation require the administering authority (DETSI) to comply with the following provisions:

The administering authority must, for making an environmental management decision relating to an activity, consider whether to impose conditions about each of the following matters:

- Recycling, storing, transferring or disposing of waste in a particular way
- If under an environmental objective assessment, the assessor is not satisfied an environmental objective has been achieved—implementing measures for minimising the adverse effects of not achieving the environmental objective.

Together, these provisions place an onus on DETSI to substantiate its decisions in relation to wastes arising from practices such as waste tyres arising from mining activities – particularly for those streams that are not managed through methods that are higher in the waste hierarchy.

DETSI may be requested to clarify how it makes an assessment on the above points, and for this to be published as an explanatory note or guidance note.[3] While this in itself may not drive change in how waste mining tyres are managed, such clarification is important in disclosing a decision making process and evidence standard that can be contested or influenced.

Such transparency is of benefit to DETSI as it sets out a clear basis for where and when mining tyre recovery would be appropriate, and the EA conditions that are needed to enforce mining tyre recycling pending suitable investment in mining tyre recovery capabilities in Queensland. Pending this investment, new EAs could be issues with suitable conditions to enforce mining tyre recycling from the outset.

Revised EA conditions

As in the cases for amending EP licences in WA and NSW, DETSI can amend EAs in Queensland. The discussion above makes clear that EA conditions may be put in place for ERAs, that mandate a given method for dealing with particular waste streams, and/or that ensure that a given Environmental Objective is met with minimal adverse effect on the environment.

However, the circumstances under which DETSI may amend an EA without receiving an application from the EA holder are somewhat limited, compared to similar provisions to alter EP licences in WA and NSW (refer to p. iv above).

One circumstance through which DETSI may amend an EA follows from the preparation of a report made by or for, or approved by, a *recognised entity* if the report:

- Is relevant to the authority or schedule, or a relevant activity carried out under the authority or schedule; and
- If the administering authority is not the chief executive—has been accepted by the chief executive.

This is likely to be one of the more suitable and practical grounds under which DETSI may choose to revise EA conditions relevant to mining tyre disposal. ATRA may seek to engage with DETSI on its willingness to commission a study or similar, that investigates the impacts of waste mining tyre disposal compared with other solutions, and the comparative viability of each solution. The Qld EP Act provides clarity as to the types of public bodies and institutions that may be treated as *recognised entities*.

However, engagement with DETSI suggests that there has been a historic disinterest in revising EA conditions that target solid waste management practices (outside of hazardous mining wastes)

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[3] While the *Guideline – Application requirements for activities with waste impacts* provides some details as to how the Waste Objective Assessment is performed when undertaking EA approvals, these details are still somewhat general in nature.

undertaken by mining companies. In most cases, EAs have undergone little revision with respect to their solid waste management conditions, and remain unchanged from the date of issuance. ATRA's engagement may therefore need to build a strong case for why EA condition amendment is necessary, in line with the roles and responsibilities of mining companies as significant generators of solid waste.

Update to *Operational policy – Disposal and storage of scrap tyres at mine sites ESR/2016/2380*

Some EA conditions cite a separate operational policy explaining how scrap tyres at mine sites are to be disposed and stored. While this 2014 document refers to the waste hierarchy, it does not appear to have been effective in driving practices other than on site burial of mining tyres in Queensland.

Arguably, with the document now more than ten years old and with substantial updates to waste and resource recovery policy and legislation, the case can be made that the policy should be reviewed to make it more effective in driving the uptake of tyre recycling (and other measures that accord with the waste hierarchy). Such an update may involve repurposing the document to serve as a practical handbook for how mining companies are to show that their management of waste tyres accords with the waste hierarchy (i.e. referencing the legislated Waste Objective), and clarifying how DETSI proposed to evaluate compliance with respect to the waste hierarchy.

Once updated, the case can be made that new mining activity EAs should contain conditions that refer to the revised policy. Existing EAs could also be amended to reference the policy, noting that such EA amendments are subject to restrictions as set out above. This particular challenge in Queensland – i.e. where new mine EAs may adopt 'modern' conditions for managing waste tyres, while existing EA conditions face obstacles to modernisation – has ramifications for driving sufficient demand for waste tyre recycling in individual mine precincts that would otherwise have sufficient volumes of tyres to justify investment in local recycling facilities.

POTENTIAL NEXT STEPS

This investigation has identified the key pieces of legislation used to govern the management of waste mining tyres in three states, along with conditions imposed on individual mining sites. The general shape and intents of the regulatory frameworks applied in each state are roughly equivalent, with differences coming into focus when the finer details are investigated.

EP licence and EA conditions appear, at face value, to be the most immediately available means to update the requirements placed on mining companies in managing their waste tyres. However, in each state there are limitations in the extent that such conditions can be used to encourage mining tyre recycling.

Some of these limitations are procedural in nature, while other limitations depend on the extent that existing on site burial practices are viewed as continuing to impose risks on the surrounding environment. Engagement with state regulators may be most constructive when it acknowledges both the opportunities and limitations to effect change via EP licence and EA reform processes.

Moreover, it may be inefficient and lack pragmatism to tackle EP licences and EAs on a case-by-case basis, and it would be more effective to take on the process in a 'whole-of-sector' manner. This may take the form of an evidence-based process that recommends a set of model conditions to apply across all mines in each jurisdiction, which is then implemented through amendments according to a suitable roll out strategy (ideally coupled to the location, timing and capacity of OTR tyre processing infrastructure investment). This roll out would recognise the procedural requirements and dependencies present in each jurisdiction.

As a final point, this project is dedicated to reviewing the regulatory frameworks involved in governing waste mining tyre management practices across WA, NSW and Queensland. This task aimed at:

- Identifying the current obligations on mining companies
- Describing implications in how these obligations enable or continue to hinder greater levels of tyre recycling
- Uncovering change processes that may provide ATRA with a path to influence future regulatory settings.

Further work is required to assess the types of conditions and legislative provisions that may drive a desired result for the Australian end of life mining tyre market, and strategies to engage with regulatory bodies on potential activities.

These activities may be considered by ATRA as potential next steps in collaboration with government, recyclers and other related organisation, following from an initial engagement with relevant authorities to test their interest in setting higher regulatory expectations on the mining sector.

This engagement may also be coupled with corresponding discussions with each state's circular economy policy teams, based on the observations

i) that existing EP licence and EA conditions do not incorporate circular economy drivers into compliance requirements; and
ii) other circular economy measures such as waste levies and landfill standards fail to interact with the mining sector and its major streams including waste mining tyres.

CONCLUDING REMARKS

Current outcomes for OTR mining tyres in Australia remain deeply unsatisfactory, with recovery rates for mining tyres sitting at approximately 2%[4]. At the same time, the market conditions that historically constrained recovery are changing rapidly. Australian recyclers have now made substantial investments, supported through government grants, in specialised OTR processing infrastructure and have developed the capability to recover these materials at scale for the first time.

[4] https://www.tyrestewardship.org.au/tools-and-resources/tipping-the-balance-research-report-off-the-road-tyres-conveyors-tracks. P.7

ATRA members have committed significant capital toward establishing domestic processing capacity capable of transforming OTR tyres into valuable secondary materials and products for both Australian and international markets. Despite this progress, existing regulatory and licensing frameworks continue to favour low-cost “in-pit” disposal pathways, leaving major recycling investments underutilised and limiting the development of a viable circular market for mining tyres.

This analysis demonstrates that current regulatory settings across key mining jurisdictions remain primarily focused on managing immediate site-based environmental risks associated with disposal, rather than driving higher-order recovery outcomes consistent with circular economy objectives and waste hierarchy principles. As a result, disposal practices that would otherwise be considered inconsistent with broader resource recovery ambitions continue to persist as standard industry practice.

Importantly, this report does not suggest that reform should occur in a punitive or impractical manner. Rather, it highlights the opportunity for governments, regulators, mining companies and recyclers to work collaboratively toward modernised regulatory and associated settings that reflect the evolving capability of the recycling sector and the growing imperative for resource recovery outcomes.

There is now a clear opportunity to transition from a system that passively enables disposal to one that actively supports recovery and long-term circularity for OTR tyres. Strengthening regulatory expectations, improving alignment with waste hierarchy principles, and creating clearer pathways for recovery outcomes would help unlock existing industry investment, support domestic manufacturing and recycling capability, reduce long-term environmental liabilities, and deliver stronger environmental and economic outcomes for industry, government and the broader community.

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