Submission Cover Sheet

Fingerboards Mineral Sands Project Inquiry and Advisory Committee - EES

514

Request to be heard?: Yes

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Affected property:

Attachment 1: EPA_Submission_t

Attachment 2:

Attachment 3:

Comments: see attached submission

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Dear Sir/Madam

EPA Submission Regarding Fingerboards Mineral Sands Project Environment Effects Statement (EES)

Please find attached a submission regarding the Environment Effects Statement (EES) for the proposed Fingerboards Mineral Sands Project. This submission is made on behalf of EPA Victoria (EPA), to the Minister for Planning under Section 9(1) of the *Environmental Effects Act 1978*.

This submission is made to assist the joint Inquiry/Advisory Committee (the Committee) in understanding the requirements of the *Environmental Protection Act 1970* (the Act) and relevant subordinate legislation. In this context, EPA has also provided comment on the technical and scientific aspects of the EES relevant to the EPA.

EPA looks forward to contributing to the EES process through presenting the submission to the Committee.

Yours sincerely

[redacted]

Tim Eaton
Executive Director
Regulatory Standards, Assessments & Permissioning

VICTORIA State Government

Fingerboards Mineral Sands Project

EPA VICTORIA | Environment Protection Authority Victoria

EPA Submission October 2020

1 Executive Summary

This submission is made on behalf of the Environment Protection Authority Victoria (**EPA**) to the joint Inquiry and Advisory Committee (**IAC**) under the *Environment Effects Act 1978* (**EE Act**). This relates to the Environment Effects Statement (**EES**) and the Works Approval Application (**WAA**) for the proposed Fingerboards Mineral Sands Project (**Project**). The project is being proposed by **the Proponent**, Kalbar Operations Pty Ltd (**Kalbar**).

EPA is a statutory authority with the objective to protect human health and the environment by reducing the harmful effects of pollution and waste, as set out in the *Environment Protection Act 2017* (**2017 Act**). On 18 December 2016, the Minister for Planning decided that an EES is required for the Project, under section 8B of the EE Act.

As a member of the Technical Reference Group (**TRG**), EPA has provided advice about the preparation of the EES, Planning Scheme Amendment (**PSA**) C156eqip, and works approval application (**WAA**). Under the current law, a WAA under the *Environment Protection Act 1970* (**EP Act 1970**) is required for the Project's proposed off-site water discharges, with a Dissolved Air Flotation water treatment plant (DAF) proposed to treat the surface water prior to discharge. EPA is required to assess and determine the WAA, with due regard to the IAC's recommendations and the Minister's assessment of the environmental effects of the Project. The WAA was jointly advertised under section 20AA of the EP Act 1970, therefore section 19B(3B) of the EP Act 1970 applies to submissions made in relation to the EES and WAA.

The overarching objective of EPA's involvement in the joint EES/WAA process is to inform the IAC about:

1. whether environmental matters within EPA's remit have been properly considered in the EES documents;
2. whether potential environmental effects of the Project will be avoided or minimised to the extent practicable throughout the construction and operational phases of the Project; and
3. matters relevant to EPA's assessment of the WAA, to assist the IAC to provide advice that can be used to inform EPA's consideration of the WAA.

Accordingly, this submission contains EPA's current observations as to:

1. whether there are any deficiencies in the EES or the technical reports supporting it (by reference to the legislative and policy framework administered by EPA), and whether the Proponent should provide any further information;

2. whether there are deficiencies in the proposed mitigation measures for the Project, including those identified in the Project's proposed Environmental Management Framework (**EMF**), the Mitigation Register and the draft Work Plan; and

3. the proposed process for EPA's consideration and assessment of the WAA, including discussion of the key environmental and human health matters that will affect this assessment.

EPA's key recommendations include:

- the Proponent should provide more specific information about the off-site surface water and groundwater discharges;
- the EMF, Work Plan and plans under the Incorporated Document should be updated within 12 months of commencement of the New EP Act
- there should be appropriate monitoring of dust, noise, surface water and groundwater impacts to ensure early, proactive management can occur; and
- the assessment criteria for dust, noise, surface water and groundwater impacts as detailed in the relevant Risk Treatment Plans should be amended.

EPA advises that the legislative framework for environment protection applicable to the Project will change in the near future. By no later than December 2021, the EP Act 1970 will be repealed and replaced by the 2017 Act as amended by the *Environment Protection Amendment Act 2018* (**2018 Act**). This future version of the 2017 Act as amended by the 2018 Act is referred to in this submission as the **New EP Act**. At this stage, it is proposed that the New EP Act will commence on 1 July 2021. The commencement of the New EP Act will have material implications for the Project. It will introduce a new permissions (licence) regime, a 'general environmental duty' (**GED**) for risk of harm elimination and minimisation, and new duties in relation to the management of contamination. If the EPA makes a decision on the WAA after the commencement of the New EP Act, the WAA can be taken to be an application for the relevant 'development licence' under the New EP Act (however, further information may be required). This is discussed in greater detail in the submission.

Moving forward, EPA will regulate any works approval or licence for the off-site water discharges and will be responsible for enforcement of the EP Act 1970 and the New EP Act. EPA will be consulted on the Construction Noise and Operational Noise Plans for the ancillary infrastructure under the Incorporated Document. EPA recommends being consulted in relation to updating the EMF, Work Plan and plans under the Incorporated Document within 12 months of commencement of the New EP Act and on the development of the Project's air quality management and monitoring sub-plans.

Table of Contents

1 Executive Summary 1

2 Project Description 4

3 Role of EPA 4

3.1 Participation in the EES Process 4
3.2 Review of Planning Scheme Amendment: PSA C156egip 5
3.3 Assessment of a Works Approval Application 6

4 EPA Legislation and Approvals 6

4.1 EP Act 1970 6
4.2 Legislative Transformation 7
4.3 The New EP Act and the Project 8

5 EPA's Review of Planning Scheme Amendment: PSA C156egip 11

6 EPA's Review of the Project's EES 12

6.1 Surface Water 12
6.2 Groundwater 15
6.3 Air Quality 17
6.4 Noise and Vibration 22
6.5 Human Health 30

7 EPA's Assessment of the Works Approval Application 30

7.1 Design and Process Review 33
7.2 Water Discharges 33
7.3 Radiation 35
7.4 Energy Use, Greenhouse Gas Emissions and Climate Change 35
7.5 Noise 36
7.6 Other Considerations 36

8 Conclusion 37

8.1 Next Steps 37

2 Project Description

The Project is detailed in Chapter 3 of the EES document. Briefly, the Project is proposed to include:

- Extraction of 170Mt of mineral sands ore to produce around 8Mt of heavy mineral concentrate (**HMC**) over 15-20 years
- The Project would cover an area of approximately 1,675 hectares and involve open-cut mining of the ore
- On-site processing of the ore in a wet concentrator plant (comprising mineral separation processing and tailings thickening and disposal plant) to extract the valuable HMC from the main ore with the waste-by-products returned to the mine voids
- Installation of water supply infrastructure, tailings storage facility and ancillary site facilities, such as a site office, warehouse, workshop, loading facilities and fuel storage
- Management of stormwater and water extracted from off-site sources, including the use of a Dissolved Air Flotation (**DAF**) treatment plant to ensure off-site water discharges are appropriately treated prior to off-site discharge
- The progressive rehabilitation of the mine site to return the land to agriculture and native vegetation.

It should be noted that only the water discharges and the treatment of the water prior to discharge through the DAF component of the Project will require a works approval from EPA in accordance with the EP Act 1970.

3 Role of EPA

3.1 Participation in the EES Process

EPA has participated as a member of the TRG for the EES in accordance with the Terms of Reference for the TRG. The TRG is a forum that reviews and provides guidance on various issues including human health, sustainability, and the environment for projects requiring EES under the EE Act. In this capacity, EPA has had the opportunity to review and provide comment and advice on the EES studies in their draft form. This participation has enabled EPA to understand the Project and the identified risks and impacts as detailed in the EES. EPA has, during this review process, provided advice as it relates to the EP Act 1970, relevant subordinate legislation and guidance. This early and active engagement in the TRG has enabled EPA to identify certain information gaps in the EES which relate to the legislative framework that EPA administers.

EPA has undertaken a preliminary review of the impact assessment reports and their associated mitigation measures relating to the following environmental issues:

- Surface Water and Groundwater (Appendix A006)
- Air Quality and Greenhouse Gases (Appendix A009)

- Noise (Appendix A010)
- Contaminated Land and Soils (Appendix A001)
- Human Health (Appendix A019)
- Rehabilitation (Appendix A020)
- Horticulture (Appendix A016)
- Planning and Land Use (Appendix A013)
- Socioeconomic (Appendix A018)

EPA has reviewed these reports and considered them in the context of the relevant legal and policy framework.

EPA also reviewed relevant aspects of the draft Incorporated Document, Environmental Management Framework (**EMF**) chapter 12, the Mitigation Register and draft Work Plan.

For the avoidance of doubt, it is not within EPA's role to review the emergency preparedness and response plan or the community engagement plan for this Project.

EPA recommends that amendments are made to tables 12.3 and 12.8 of the EMF to reflect that EPA is not involved in the review of the emergency preparedness response plan or the community engagement plan.

3.2 Review of Planning Scheme Amendment: PSA C156egip

Ministerial Direction 19 (**MD19**) came into effect on 18 October 2018. It requires planning authorities to seek early advice from EPA when undertaking strategic planning processes and preparing planning scheme amendments that may significantly impact Victoria's environment, amenity and/or human health due to pollution and waste. The explanatory report for an amendment must include a statement of how the proposed amendment addresses the views of EPA.

The Ministerial Requirement for information is issued under section 12(1)(f) of the Planning and Environment Act 1987 (**P&E Act**). It requires planning authorities to give the Minister for Planning the following information when applying for authorisation to prepare an amendment under sections 8A or 8B of the P&E Act, or preparing an amendment under section 9 of the P&E Act:

- The written views of EPA, including any supporting information and reports
- A written explanation of how the proposed amendment addresses any issues or matters raised by EPA.

3.3 Assessment of a Works Approval Application

Under the EP Act 1970 and the *Environment Protection (Scheduled Premises and Exemptions) Regulations 2017*, the Project is a scheduled premises C01 (Extractive Industry and Mining). However, the following exemption applies:

> *"Premises, with solely land discharges or deposits, used only for the discharge or deposit of mining or extractive industry wastes and that are in accordance with the Mineral Resources (Sustainable Development) Act 1990 are exempt from works approval under section 19A of the Act and licensing under section 20(1) of the Act."*

The Project proposes multiple off-site water discharges (to surface water and groundwater) and therefore a works approval under section 19B of the EP Act 1970 is required. To ensure the quality of the surface-water discharge is of an acceptable quality, treatment is required prior to its discharge, with a Dissolved Air Flotation (DAF) treatment plant and associated infrastructure proposed as part of the WAA.

The Proponent has applied to EPA for a works approval (Attachment VIII of the EES).

If the EPA makes a decision on the WAA after the commencement of the New EP Act, the WAA can be taken to be an application for the relevant 'development licence' under the New EP Act (however, further information may be required by the EPA). This is discussed in greater detail in the submission.

4 EPA Legislation and Approvals

4.1 EP Act 1970

The EP Act 1970 defines EPA's powers, duties and functions, and provides for the enactment of a number of statutory instruments which address wastes, pollution and environmental risks. The instruments used by EPA that are relevant to the Project include State Environment Protection Policies (**SEPPs**), regulations made under the EP Act 1970, and environmental management guidelines.

Section 2(2) of the EP Act 1970[1] states that "*This Act does not apply to a radiation source within the meaning of the Radiation Act 2005 unless a condition of pollution or an environmental hazard has arisen or is likely to arise*." EPA is still considering this provision as part of the WAA and it is discussed in further detail in section 7 below.

The EES assesses the Project applying the EP Act 1970. EPA agrees that this is appropriate and EPA's comments throughout this submission reference the current legislation, regulations, policy and guidance. However, as set out below, the EP Act 1970 will be repealed at a date to be determined in 2021.

[1] An equivalent provision is also included in s 7(2) of the New EP Act

4.2 Legislative Transformation

EPA, and the legislation it administers, is currently undergoing a transformation:

1. The EP Act 1970 is currently in force and contains all operational substantive provisions (e.g. offences, requirements for approvals) and some operational procedural provisions (e.g. powers and functions).

2. The 2017 Act is currently in force and contains operational procedural and administrative provisions. For example, the 2017 Act establishes EPA and sets out its objective.

3. The New EP Act received assent on 28 August 2018 but most provisions will commence on the earlier of a day to be proclaimed or 1 December 2021 (**Commencement Date**). The Victorian Government's intention is that the New EP Act will commence on 1 July 2021. The New EP Act introduces substantive provisions into the 2017 Act and repeals the EP Act 1970. Many aspects of the New EP Act require regulations to activate the substantive provisions (e.g. permissions, parts of the waste scheme and noise provisions).

The New EP Act takes a fundamentally different approach to environmental regulation from the approach taken by the EP Act 1970. At the highest level, prescriptive offences (e.g. the offence of pollution of waters: EP Act 1970, section 39) will be replaced by duties, most prominently the general environmental duty (**GED**).

The GED will apply to any person who is engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste, and requires such a person to minimise those risks, so far as reasonably practicable (New EP Act, section 25(1)). A failure to comply with the GED is an indictable offence, and civil penalties are also available for breach.

In addition to the GED, the New EP Act will require a person in management or control of contaminated land to minimise any risks of harm to human health or the environment that arise from the presence of contamination on or in that land (New EP Act, section 39). There is also a duty to report certain contamination.

Other implications for the Project of the legislative transformation include:

1. Works approvals will be replaced by development licences. See below for a discussion of the application of this change to the Project.

2. Current licences will be replaced by a suite of permissions, including operating licences. Although the regulations prescribing the activities requiring an operational licence have not yet been made, EPA expects that the off-site discharge would require an operating licence under the New EP Act and the discharge of waste to aquifer would also be regulated by any operating licence.

3. Statutory instruments such as SEPPs will not be retained, with some possible exceptions which have not yet been confirmed (New EP Act section 502(4)). Although any new subordinate instruments are yet to be made, EPA expects that aspects of the SEPPs that describe "beneficial uses" are likely to be translated into

"environmental values" under a separate legislative instrument called the Environment Reference Standard. Other components of the SEPPs and Waste Management Policies (**WMPs**) are expected to be translated into regulations or will otherwise be addressed by the operation of the GED.

4. Many EPA Guidelines will continue to exist and inform how EPA applies the GED. Additionally, guidelines may be published by EPA to set out one or more means of complying with the GED. EPA is not yet in a position to specify what aspects of the GED will be the subject of supporting guidance.

4.3 The New EP Act and the Project

4.3.1 Compliance with the GED

Chapter 12 – Environmental Management Framework states:

> *"The Victorian Parliament recently passed the new Environment Protection Act 2018 (Vic), which comes into force from July 2020. The new act includes a general environmental duty (GED) that applies to all Victorians. The GED requires that Kalbar understand the risks from the project to human health and the environment and take reasonably practicable steps to eliminate or minimise these risks. The approach described in this EMF has been prepared to address this requirement and will be updated and revised as further guidance is provided on implementation of the new act."*

It is EPA's position that, even if the Project Proponent complies with the Incorporated Document, the EMF (including the Mitigation Register) and the Work Plan, that may not necessarily be sufficient to fulfill the requirements of the GED under the New EP Act. In particular:

1. The assessment by the Minister for Planning of the EMF, and any approval of the Incorporated Document and Work Plan does not automatically mean that the GED would have been discharged by the Proponent after 1 July 2021; and

2. Persons constructing and operating the Project will need to actively consider new instruments prepared under the New EP Act, as well as developments in the state of knowledge relevant to determining what is reasonably practicable to minimise risks of harm to the environment or human health from pollution or waste.

The GED will require a proactive approach to risk identification and minimisation on an ongoing basis post 1 July 2021. EPA's view in relation to compliance by the Project with the GED is that:

1. For a high-risk project, satisfaction of the GED will require a level of diligence that is proportionate to those potential impacts; and

2. There is real potential for the Project to have to perform beyond the current requirements of the Incorporated Document, the EMF and Work Plan over its lifetime in order to satisfy the GED.

EPA submits that it be made clear in the Incorporated Document / Work Plan that the GED is an additional requirement to the specific controls.

EPA recommends that the following amendments are made:

1. Add a new clause into the Incorporated Document as follows:

In addition to specific approval requirements, the Environment Protection Amendment Act 2018 will commence by 1 December 2021 and will amend the Environment Protection Act 2017. The amended Environment Protection Act 2017 will impose new duties, including in relation to the minimisation of environmental risks (the general environmental duty), contaminated land and pollution incidents. The amended Act will apply to those involved in the Project in addition to any specific approvals.

2. Include a note (or equivalent) on the Work Plan as follows:

In addition to specific approval requirements, the Environment Protection Amendment Act 2018 will commence by 1 December 2021 and will amend the Environment Protection Act 2017. The amended Environment Protection Act 2017 will impose new duties, including in relation to the minimisation of environmental risks (the general environmental duty), contaminated land and pollution incidents. The amended Act will apply to those involved in the Project in addition to any specific approvals.

3. Amend the following paragraph on page 12-5 of the EMF:

The Victorian Parliament recently passed the new Environment Protection Amendment Act 2018 (Vic), which will commence no later than 1 December 2021 ~~comes into force from July 2020.The new Act~~ The Environment Protection Act 2017, as amended by the Environment Protection Amendment Act 2018 (new Act), includes a general environmental duty (GED) that applies to all Victorians. The GED requires that Kalbar understand the risks from the project to human health and the environment and take reasonably practicable steps to eliminate or minimise these risks. The approach described in this EMF has been prepared to address this requirement and will be updated and revised as further guidance is provided on implementation of the new Act. The new Act will apply to those involved in the Project in addition to any specific approvals.

EPA also recommends that the EMF is amended to consistently refer to the Environment Protection Act 2017 (not 2018 which is an Amendment Act).

4.3.2 Updating references

The construction and operation of the Project will take place under the New EP Act.

The Incorporated Document and Work Plan are key environmental controls for the Project. If they do not refer to the New EP Act, the environmental regulatory regime applicable to the Project will not be accurately communicated by the key environmental control for the Project. This is not a desirable outcome. It is also not consistent with the principle – applicable to EPA specifically but relevant more generally – that "*members of the public should…have access to reliable and relevant information in appropriate forms to facilitate a good understanding of*

issues of harm or risks of harm to human health and the environment and of how decisions are made under this Act" (New EP Act, s 22; EP Act 1970, s 1L).

EPA submits that provision should be made in the Incorporated Document, the EMF and the Work Plan for updating them to reflect the imminent changes to the environmental regulatory regime for the Project.

EPA recommends the following amendments:

1. Add a new clause following clause 4.2 of the Incorporated Document as follows:

The above plans in Clause 4.1 must be amended to update references and requirements following commencement of the Environment Protection Amendment Act 2018, to the satisfaction of the responsible authority. The amendment must be conducted in consultation with the Environment Protection Authority and draft amended plans must be submitted to the responsible authority for approval within 12 months of the commencement of the Environment Protection Amendment Act 2018.

2. Include a condition on the Work Plan as follows:

The Work Plan must be amended to update references and requirements following commencement of the Environment Protection Amendment Act 2018, to the satisfaction of the Department. The amendment must be conducted in consultation with the Environment Protection Authority and the draft amended Work Plan must be submitted to the Department for approval within 12 months of the commencement of the Environment Protection Amendment Act 2018.

3. Amend the following paragraph on page 12-5 of the EMF:

The approach described in this EMF has been prepared to address this requirement and will be updated and revised in consultation with the Environment Protection Authority within 12 months of the commencement of the Environment Protection Amendment Act 2018 ~~as further guidance is provided on implementation of the new Act~~.

4.3.3 Works approval or development licence

As outlined above, at this stage, the New EP Act is expected to commence on 1 July 2021.

EPA is required to make a decision on the WAA within 1 month of receiving the Minister for Planning's assessment of the EES. The exact timing of this is currently unknown but is expected to be very close to 1 July 2021.

If EPA makes a decision on the WAA prior to the commencement of the New EP Act, it will be assessed and issued under the EP Act 1970, and will then 'transition' to a development licence under the New EP Act within the first 12 months (New EP Act, section 471).

If EPA makes a decision on the WAA after the commencement of the New EP Act, any development licence that is required would be assessed and, if issued, issued under the New EP Act (New EP Act, section 474). It does not matter that the WAA was submitted prior to the commencement of the New EP Act. In this case EPA will require the Proponent to provide

further information to demonstrate how the proposed works meet the specific requirements of the New EP Act, for example the Environment Reference Standard (which replaces SEPPs).

EPA expects to be in a better position to discuss timing (and if necessary further information required) at the IAC Hearing.

In addition, as outlined above, the GED would apply to the holder of any development licence (including one that transitions from a works approval) and would require ongoing evaluation of options to minimise risks of harm to human health or the environment from pollution or waste. The New EP Act provides that compliance with a licence only discharges the GED to the extent that a condition of the licence specifically provides for how the licence holder is to perform the duty (New EP Act, section 62). This means that a licence holder's compliance with licence conditions may not fully discharge the GED.

5 EPA's Review of Planning Scheme Amendment: PSA C156egip

As part of EPA's participation in the TRG, EPA provided early advice on the potential impacts of Amendment C156egip on the environment, amenity and human health.

EPA has since reviewed the proposed Amendment C156egip as included in the exhibited EES. This includes the draft Incorporated Document, Explanatory Report, and other related planning scheme documents.

Amendment C156egip proposes to, amongst other things, exempt the use or development of the land for the ancillary infrastructure for the Project from the requirement to obtain a planning permit or otherwise comply with the relevant planning scheme. Instead, the use and development of the land will be required to comply with conditions in the Incorporated Document which is achieved through the application of a Specific Controls Overlay (**SCO**).

The use of a SCO together with an Incorporated Document has the effect of allowing the works to proceed on the basis that any adverse impacts are assessed, in this case via the EES process, and assumed to be either acceptable without control, or acceptable provided conditions are complied with.

Relevantly for the EPA, the draft Incorporated Document requires the preparation of a Construction Noise Management Plan, Operational Noise Management Plan, Environmental Management Plan and a Construction Management Plan and sets out the framework for the timing and approval of these plans in the Incorporated Document. EPA has not been provided with drafts of the above plans, however, EPA has reviewed the brief description of their proposed content as set out in the EMF.

Section 6.4 of this submission sets out the EPA's recommendation in relation to the drafting of the Incorporated Document relating to the Noise Management Plans.

Section 4.3.2 of this submission sets out the EPA's recommendation in relation to updating references/standards in the plans under the Incorporated Document once the New EP Act commences.

EPA also recommends that table 12.4 in the EMF be amended to reflect that the Incorporated Document only requires consultation with the EPA in relation to the noise plans. EPA is not a referral authority under the P&E Act.

EPA recommends that table 12.4 of the EMF is amended as follows (and consequential amendments made to tables 12.7 / 12.8):

~~Referral authority~~ ***Consultation role*** ***for ~~construction environmental management plan, environmental management plan,~~ construction noise management plan and operational noise management plan, ~~native vegetation management plan, air quality sub-plan, surface water and groundwater sub-plan, radiation management plan, radioactive waste management plan, radiation environment plan and community engagement plan.~~***

Subject to the recommendations set out in this submission, EPA considers that Amendment C156egip will establish an appropriate framework to manage and mitigate the potential impacts of the ancillary infrastructure for the Project on the environment, amenity and human health.

6 EPA's Review of the Project's EES

The EES has identified key project risks and has referred to mitigation measures to manage and mitigate those risks. In this section, EPA reinforces the importance of a number of the mitigation measures and where new or amended mitigation measures may be required to ensure compliance with relevant standards and minimise potential adverse impacts on the environment and human health, EPA makes some recommendations for consideration by the IAC.

To the extent that this section addresses issues relevant to EPA's assessment of the WAA, they should not be understood as reflecting any concluded assessment of those issues or EPA's final determination of the WAA.

6.1 Surface Water

EPA has a key role in the protection and improvement of water quality in line with State Environment Protection Policy (Waters) (**SEPP (Waters)**). Surface waters must be maintained so that the protected beneficial uses (including ecological values) of surface water are protected.

EPA has reviewed *Appendix A006, Groundwater & Surface Water Impact Assessment* and *Attachment B, Draft Work Plan* and notes the following

The Project proposes to construct and operate a Dissolved Air Flotation water treatment plant (**DAF**) to treat up to 24 ML per day of mine contact water, to ensure water quality meets the required Water Quality Objectives (**WQO**) in the proposed receiving environment. Up to 630 ML/yr of treated water would be discharged to the Mitchell River in controlled discharges.

6.1.1 Dissolved Air Floatation Water Treatment Plant

*Chapter 12, Environmental Management Framework (**EMF**)* does not discuss the DAF. The DAF is a critical component of the Project for ensuring that the quality of mine contact water discharged to the Mitchell River is such that it does not impact the protected beneficial uses of surface water. It is important that a reference to the surface water discharge and the associated Dissolved Air Flotation (DAF) treatment plant and infrastructure be included in the EMF.

EPA recommends that the *EMF* give reference to the surface water discharge and the associated Dissolved Air Flotation (DAF) water treatment plant and infrastructure which would be subject to an EPA works approval and licence if approved.

6.1.2 Timing, Frequency and Volume of Discharge

Water treated by the DAF will be delivered back to the Mitchell River at a volume of 630 ML/yr. The EES does not describe the frequency and times of the year (e.g. summer, autumn etc) when discharges will occur. If water is delivered to the Mitchell River during times of low river flows (summer/autumn flows), this may impact water quality of the river due to reduced dilution of the discharge.

Similarly, the EES does not describe the volume of the discharge relative to river flows. Discharge during low summer flows could result in poor water quality in the downstream reach, potentially promoting algal blooms.

EPA requests that further information be provided to EPA (in response to a formal s 22 notice which will be issued in due course) and the IAC on the frequency, timing and volume of discharges from the DAF treatment plant to the Mitchell River.

6.1.3 Water Quality

The Project's modelling of the quality of water to be released from the DAF, as described in the EES, predicts that there will be no adverse impacts to the quality of the receiving waters of the Mitchell River.

However, EPA has had discussions with the Proponent which has highlighted concerns regarding the potential for elevated concentrations of nitrogen in water discharged from the DAF.

Furthermore, prior to discharge to the Mitchell River, it is proposed that water from the DAF will be sent to a Freshwater Dam. The EES does not describe the quality of water to be discharged from the Freshwater Dam to the Mitchell River. The transfer of water from the DAF to the Freshwater Dam may result in further dilution of nitrogen and other contaminants of concern. However, this is not clearly stated in the EES and EPA requires further information on this.

EPA requests that further information be provided to EPA (in response to a formal s 22 notice which will be issued in due course) and the IAC on the quality of water (including levels of nitrogen) to be discharged to the Mitchell River from the Freshwater Dam.

6.1.4 Monitoring

EPA notes that a water quality monitoring program will be implemented as described in the EMF which would include monitoring during pre-construction, construction and operation in both the Mitchell and Perry Rivers.

Monitoring of all aspects needs to be thorough to ensure the mine is operating in such a way that potential impacts to receiving waters are avoided or minimised. The monitoring is needed to demonstrate that aquatic values such as ecosystem health continue to be protected.

Monitoring needs to occur for any chemicals which have the potential to cause harm, such as suspended sediments (or turbidity), heavy metals and nutrients, as well as for other common measures of waterway health such as dissolved oxygen, pH and salinity. Monitoring needs to occur in both the Mitchell and Perry Rivers (as both are potentially affected by the mine) and needs to include sites both up and downstream of the mine.

EPA recommends that the *Water Quality and Hydrology Risk Treatment Plan (Table 9-1)* and the *EMF (Table 12.9 Monitoring Programs – Surface Water)* include that water quality monitoring of the Mitchell and Perry Rivers will be conducted at sites both up and downstream of the mine, and that the monitoring parameters would include (as a minimum) suspended sediments (or turbidity), heavy metals and nutrients, as well as dissolved oxygen, pH and salinity.

6.1.5 Acceptance Criteria

Tables 6-1 and 6-2 of the Water Quality and Hydrology Risk Treatment Plan provides acceptance criteria for surface waters, and are an interpretation of the SEPP (Waters). However, they fail to note that if the background levels of waters are better than the environmental quality objectives specified in SEPP (Waters), then the background levels would apply. Clause 17(3) of SEPP (Waters) specifically states:

> *The environmental quality indicators and objectives specified in Schedule 3 [of SEPP (Waters)] will apply to all waters unless any of the following apply –*
>
> *(a) the background levels of waters are better than the environmental quality objectives, in which case the background level will become the objective for the purposes of this Policy;*
>
> *(b) the environmental quality objectives are not able to be attained due to natural levels in environmental quality indicators, in which case the background level will become the objective for the purposes of this Policy.*

EPA recommends that the *Water Quality and Hydrology Risk Treatment Plan* (Tables 6-1 and 6-2) be amended to make it clear that the background level (as defined in SEPP (Waters)) will become the objective where it is better than the environmental quality objective.

EPA also notes that some objectives are lower levels, where the aim is to be above them, therefore the word “greater” is not accurate.

EPA recommends that the *Water Quality and Hydrology Risk Treatment Plan* (Tables 6-1 and 6-2) be amended to replace all references with "greater" in relation to SEPP (Waters) to "worse".

6.2 Groundwater

EPA has a role in the protection and improvement of groundwater quality, in line with SEPP (Waters). Groundwater must be maintained so that the protected beneficial uses (including ecological values) of groundwater are protected.

EPA has reviewed *Appendix A006, Groundwater & Surface Water Impact Assessment,* and *Attachment B, Draft Work Plan* and notes the following

6.2.1 Discharge to Groundwater

Following an initial period of temporary storage, the Project proposes to place fine and coarse tailings within the mine void (fine tailings would be placed into containment cells). Both types of tailing would remain wet upon disposal, and it is noted that water would be collected and returned to the process circuit as far as practicable. The Project has provided modelling which demonstrates a significant groundwater mound would develop below the mine due to water seeping from the wet tailings post disposal. The impact would initially be a 75 m mound above groundwater in the vicinity of the mine void, and would be detectable as a 0.5 m water level increase at up to 4 km from the site 15 years after mine commencement.

The Project has assessed the potential quality of the process water, with results suggesting that the quality will be within natural background levels for the upper aquifer. However, EPA is concerned that the capture and re-use of process water may cause increases in the concentration of leachable analytes over time. As such, there is potential for the quality of water seeping from the tailings to increase above background levels over time, thereby posing a changing risk profile to protected beneficial uses as the Project progresses.

EPA considers that the seepage of water from the tailings to groundwater may constitute a direct waste discharge to an aquifer by means of excavations, and therefore clause 53 of the SEPP (Waters) applies, which states (among other things) that:

> *(1) A person must not directly discharge waste to an aquifer by means of a bore, underground mine workings, infiltration basin, evaporation basin, excavations, or other similar structures, unless the Authority or other relevant protection agencies approve that discharge.*

EPA considers that this is an issue to consider as part of the WAA and any approval would be given via a WA and Licence (if any) issued for the Project. If, however, a decision is made after the New EP Act commences, SEPP (Waters) will no longer apply but EPA expects that the discharge to groundwater will be regulated by a development / operating licence (as per item 26 (A18—Discharge of waste to aquifer) in the Exposure Draft Environment Protection Regulations).

"Mine rehabilitation" is a purpose for which the EPA may approve a discharge to groundwater under Clause 53 (and also under the New EP Act), in instances where either the environmental

quality objectives in SEPP (Waters) (**EQOs**) are not exceeded or it can be demonstrated that risks to beneficial uses have been minimised and are not unacceptable.

The quality of the proposed discharge appears to present a low risk to beneficial uses, however, due to the Project's predictions that a noticeable impact from the tailings water plume would extend significantly off-site, and the potential that water quality would decrease over time, EPA has some concerns regarding potential impacts to protected beneficial uses of groundwater and therefore seeks further information.

EPA requests that further information be provided to EPA (in response to a formal s 22 notice which will be issued in due course) and the IAC on the measures proposed to minimise the discharge to groundwater, the concentrations of any potential contaminants, along with demonstration that either the discharge will not exceed the environmental quality objectives specified in SEPP (Waters) or that risks to beneficial uses of groundwater are minimised and are not unacceptable.

It is not clear from the EES whether the recovery of water draining from tailings will be applied only to the containment cells holding the fine tailings, or whether recovery also includes water draining from coarse tailings. EPA recommends that water recovery is to be maximised from the mine void (from all placed tailings), not just the containment cells within the mine void.

EPA recommends that GW15 in the *Water Quality and Hydrology Risk Treatment Plan (Table 7-1)* and the *Mitigation Register* be amended to read: *"Management techniques, such as underdrains, sumps and water recovery pumps will be used to maximise the recovery of water in the mine void ~~tailings containment cells~~ for both fine and coarse tailings."*

6.2.2 Monitoring

EPA considers it is important to understand the quality of water likely to seep from the tailings placed within the mine void into the groundwater and how that quality may change over time.

EPA recommends that a monitoring program should be implemented to monitor the water draining from the tailings to ensure the quality of this water remains within risk based trigger levels designed to ensure that the water seeping from the tailings would not lead to an unacceptable risk to protected beneficial uses of groundwater. This should include sampling and analysis. EPA considers that the most proactive form of monitoring would be for this monitoring to occur prior to placement of the tailings into the mine void. However, if this is not technically feasible, then a more reactive form of monitoring would be to monitor the water draining from the tailings after placement into the mine void (ie water collected as part of the recovery of water in the mine void).

This monitoring program is distinct from the monitoring of the process water dam as EPA considers it is possible that the process water dam is influenced by water collected from other parts of the system and would not be a good representation of water which may drain from the tailings. However, if there is consistency between the two monitoring programs over time, then the monitoring may be reduced.

EPA may review and provide comment on the Proponent's proposed trigger levels once specified.

EPA recommends that the *Water Quality and Hydrology Risk Treatment Plan (Table 9-2)* and the *EMF (Table 12.9 Monitoring Programs – Groundwater)* be amended to include a new monitoring program of water draining from the tailings prior to their placement in the mine void.

EPA recommends that the *Water Quality and Hydrology Risk Treatment Plan* (Table 7-1) be amended to include corrective actions that would be implemented should the results of this monitoring exceed specified risk-based trigger levels.

6.2.3 Acceptance Criteria

Tables 6-1 and 6-2 of the Water Quality and Hydrology Risk Treatment Plan provides acceptance criteria for surface waters. The Plan does not set out the acceptance criteria for groundwater.

EPA recommends that the *Water Quality and Hydrology Risk Treatment Plan (Table 6-1 and Table 6-2)* be amended to include acceptance criteria for groundwater in accordance with SEPP (Waters) and to make it clear that the background level (as defined in SEPP (Waters)) will become the objective where it is better than the environmental quality objective.

6.3 Air Quality

EPA has a key role in protecting Victoria's air quality. Relevant standards and guidance may be found in *State Environment Protection Policy (Air Quality Management)* (**SEPP AQM**) and *State Environment Protection Policy (Ambient Air Quality)* (**SEPP AAQ**).

Air pollution through the generation of dust is a potential impact from open-cut mining. Dust is generated from a range of activities including construction and earthworks. Airborne dust consists of particles suspended in air, whilst deposited dust is larger particles that have settled from air onto surfaces and structures. Dust has the potential to impact health and wellbeing, local amenity, visibility and ecosystems.

EPA recommends proponents adopt best practice design and controls to reduce air pollution and human health impacts for new mining and extractive industries projects where possible.

EPA has reviewed *Appendix A009, Stage 2 Air Quality and GHG Assessment,* and *Attachment B, Draft Work Plan* and notes the following

6.3.1 Dust Emissions: Criteria

The Protocol for Environmental Management for mining and extractive industries EPA Publication 1191 (**PEM**) is an incorporated document under the SEPP AQM. It was made in 2007. The assessment criteria contained within the PEM are based on the "Intervention Levels" in SEPP (AQM). That is, 36µg/m^3 for $PM_{2.5}$ and 60µg/m^3 for PM_{10} (24-hour average).

Intervention Levels were set at 20% higher than ambient air quality standards in SEPP AAQ and are not considered to be 'acceptable' levels but as levels that, if exceeded, would trigger

action to improve local air quality. The Intervention Levels are set at levels where impacts to health could be observed.

The SEPP AAQ environmental quality objectives are prescribed for the protection of beneficial uses, including health. They are science-based. The SEPP AAQ environmental quality objectives for particulate matter are as follows: 25µg/m^3 for $PM_{2.5}$ and 50µg/m^3 for PM_{10} (24-hour average).

The Project is proposed to operate for 20 years, commencing around the same time as commencement of the New EP Act. Upon the commencement of the New EP Act, the Proponent will need to actively consider new instruments prepared under the New EP Act, as well as developments in the state of knowledge relevant to determining what is reasonably practicable to minimise risks of harm to the environment or human health from pollution or waste.

The draft Environmental Reference Standard (**ERS**) which was released for public consultation in 2019 includes draft objectives for particulate matter as follows: 25µg/m^3 for $PM_{2.5}$ and 50µg/m^3 for PM_{10} (24-hour average). The Impact Assessment for the draft ERS states "*The ERS provides an appropriate benchmark for assessing and describing certain environmental impacts and relevant standards are likely to be drawn on in the development of ...[an] EES*."

EPA has advised the Proponent consistently formally and informally that, given the long-term nature of this Project and the transition from the EP Act 1970 to the New EP Act, that air modelling and monitoring data should be assessed against both the PEM and the SEPP (AAQ) environmental quality objectives.

EPA recommends that the *Airborne and Deposited Dust Risk Treatment Plan (Table 6-1)* 'Acceptance Criteria' be amended to include the following criteria: 25µg/m^3 for $PM_{2.5}$ and 50µg/m^3 for PM_{10}.

EPA also recommends that the *Rehabilitation Plan (Table 7-1),* under 'Rehabilitation amenity and environmental quality' be amended to include the following criteria: 25µg/m^3 for $PM_{2.5}$ and 50µg/m^3 for PM_{10}.

Regardless of the criteria ultimately included within the Work Plan, under the New EP Act the GED will require the Proponent to reduce the Project's risk of harm to human health or the environment from pollution or waste so far as reasonably practicable. Compliance with the criteria in the Work Plan may not necessarily be sufficient to fulfill this requirement. That is the criteria will not necessarily be levels that the Proponent can "pollute up to" and they will also not necessarily be levels below which no action is required.

6.3.2 Dust Emissions: Monitoring and Mitigation

Appendix A009, Stage 2 Air Quality and GHG Assessment describes the results of the Project's air quality modelling and potential for impacts to nearby sensitive receptors. Modelled results of average PM_{10} over a 24-hour time series show that with "standard" mitigation measures described in Table 17 of the report, that the PEM criteria of 60µg/m3 would still be exceeded on a number of days in years 5, 8 and 12. There are no modelled exceedances of $PM_{2.5}$.

The report demonstrates that with "additional" mitigation measures described in section 3.5.2.1 of the report, that exceedances of the PEM criteria can be reduced to zero days.

As set out above, EPA recommends that the monitored results also be assessed against the SEPP AAQ environmental quality objectives. EPA expects this will guide the Proponent to develop "further additional" mitigation and management measures in years 5, 8 and 12.

EPA recommends that the *Airborne and Deposited Dust Risk Treatment Plan (Table 7-1)* include further additional mitigation and management measures which can be implemented in years 5, 8 and 12 to reduce the number of exceedances against the SEPP AAQ environmental quality objectives.

The *Airborne and Deposited Dust Risk Treatment Plan* lists the controls and management practices for minimising the airborne and deposited dust emissions and impacts. These need to be best practice. The following are recommended for inclusion in the risk treatment plan

Section 9 'Monitoring' states that the "management action trigger level for hourly PM_{10} readings" will be set at 150µg/m^3. As discussed above, a 24-hour criteria is used for compliance purposes. However, it is well accepted that a shorter averaging period be used as "trigger level" which is designed to trigger mitigation actions to ensure the 24-hour criteria is met. This trigger is only an alert that dust levels are becoming high and that there may be some intervention required. In the absence of a 1-hour average, EPA's recommendation has consistently been to use 80mg/m3 as a trigger for PM10. EPA considers this level is indicative of elevated levels, which may result in the 24-hour criteria being exceeded. It is important that the Proponent has appropriate trigger levels to ensure proactive, early management can occur. Appropriate trigger levels can be refined and confirmed with onsite monitoring and observations.

EPA recommends that 1-hour average PM_{10} levels described in in the *Airborne and Deposited Dust Risk Treatment Plan (Table 9-1*) and the *EMF (Table 12.9 Monitoring Programs – Air Quality)* be amended to include a dust trigger level of 80µg/m^3 rather 150µg/m^3.

EPA understands that air quality management and monitoring sub-plans will be developed prior to the commencement of construction and operation of the Project. EPA also understands that it can be difficult to prescribe specific details for some aspects of air quality management and monitoring at the EES stage, such as requirements for the number of monitoring locations and the distance of these monitors in relation to sensitive receptors. This is due to the nature of the Project, in that mining activities will move to different locations around the site as mining operations progress, and also due to the need for allowing flexibility in adapting monitoring and controls as more is understood about conditions at the site. Therefore, EPA also recommends that EPA be consulted on the development of the air quality management and monitoring sub-plans.

EPA recommends that the *Airborne and Deposited Dust Risk Treatment Plan (Table 9-1*) and the *EMF (Table 12.9 Monitoring Programs – Air Quality)* be amended to include the following: *EPA will be consulted on the development of the Project's air quality management and monitoring sub-plans.*

Section 9 'Monitoring' and *section 7 'Controls to address hazard'* describe meteorological monitoring with a trigger level for management responses (including restricting operations if necessary), should average wind speeds be predicted to exceed 40 km/hr.

EPA recommends that an average wind speed trigger level of ≥ 25 km/hr be implemented as high levels of raised dust are generated at wind speeds below the proposed wind speed of ≥ 40 km/hr.

EPA recommends that the wind speed trigger level of ≥ 40 km/hr be amended to ≥ 25 km/hr in the *Airborne and Deposited Dust Risk Treatment Plan (Tables 7-1 and 9-1*) and the *EMF (Table 12.9 Monitoring Programs – Air Quality)*

Section 7 'Controls to address hazard' states that a speed limit of 50 km/hour for haulage vehicles will be implemented and enforced on unsealed project roads to minimise dust generation.

To reduce high dust hazards on unsealed roads and to minimise impacts to sensitive receptors, speed limits of 10-20 km/hr are commonly used. Speeds of 50 km/hr on unsealed roads generate high levels of dust.

EPA recommends that the vehicle speed limit of 50 km/hr on unsealed project roads as described in the *Airborne and Deposited Dust Risk Treatment Plan (Table 7-1)* be amended to 10-20 km/hr.

Section 9 'Monitoring' states that dust deposition monitoring will be conducted upwind and downwind of active mining areas to determine monthly average dust deposition rates.

EPA agree that dust deposition levels provide some understanding of general dust levels, however, do not provide useful information with regards to preventing dust impacts in a timely manner. EPA recommends undertaking visual observation monitoring, for example video monitoring, of high dust generation activities that can readily trigger controls and/or management practises that mitigate the generation of high dust and air pollution impacts rather than waiting over one month for dust deposition results.

EPA recommends that in addition to dust deposition monitoring, that continuous visual observation monitoring (e.g. video monitoring) of high dust generation activities be conducted. A commitment to this should be added to the *Deposited Dust Risk Treatment Plan (Table 9-1)* and the *EMF (Table 12.9 Monitoring Programs – Air Quality).*

The *Risk Management Plan, Attachment A* to the *draft Work Plan*, details risk events, mitigation measures to address those risks and residual risk ratings.

Risk ID's 37 and 38 concern the hazards from airborne and deposited dust from "ground clearing, mining, materials handling, vehicular traffic" and "wind erosion from disturbed surfaces and /or stockpiles". The likelihood of occurrence for these hazards has been listed as "unlikely". EPA is concerned that due to the nature of the activities and the fact that the modelling presented in *Appendix A009, Stage 2 Air Quality and GHG Assessment* shows the potential for a number of days above the PM_{10} SEPP (AAQ) criteria, it is demonstrated that the risk is possible if not likely, at least for PM_{10}. Changing the risk rating to possible should ensure that the appropriate controls are implemented to manage these risks.

EPA recommends that the rating for "likelihood over life of the activity" for risk ID's 37 and 38 in the *Risk Management Plan Table (Attachment A* to the *draft Work Plan)* be amended from "unlikely' to "possible" (before and after additional mitigation). Inherent risk, consequence and residual risk ratings will also need to be updated in the *Risk Management Plan Table (Attachment A* to the *draft Work Plan)* and *Table 8-1 of the Deposited Dust Risk Treatment Plan* to reflect this.

6.3.3 Rainwater Tanks and Dams

EPA is concerned about the potential health risks to offsite receptors where the use/consumption of water from rainwater tanks and dams may be impacted by dust emissions from mining operations.

A baseline assessment of rainwater tanks and dams in the vicinity of the Project was undertaken in August/September 2019 as outlined in *Appendix A019, Human Health Risk Assessment*. The Human Health Risk Assessment concludes that

> *The maximum predicted dissolved concentrations of metals in harvested rainwater in an off-site tank associated with project-related dust is predicted to be negligible (<1 x 10^{-10} mg/L per year),* and
>
> *Baseline data indicates that even where dam or surface waters are in contact with ore body soils, all results complied with the Australian drinking water guidelines*

Baseline data is essential when assessing potential future impacts of dust emissions associated with mine operations on rainwater tanks and dams. Due to seasonal variation in rainfall across Victoria, EPA considers a minimum of twelve months of monitoring is required so that there will be enough data to establish a robust baseline data set that can be relied on when assessing water quality of rainwater tanks and dams.

It is understood that regular monitoring of at least 13 rainwater tanks, pending consent of private property owners, will be carried out during mine construction and operation periods.

An ongoing monitoring program should also be implemented for dams to ensure and confirm that there are no adverse impacts to the drinking water quality during time.

EPA recommends that a commitment be described in the *Airborne and Deposited Dust Risk Treatment Plan (Table 9-1)* and the *EMF (Table 12.9 Monitoring Programs – Air Quality)* that the monitoring of rainwater tanks and dams be conducted for a minimum of twelve months prior to commencement of site works, and continue during construction and operation of the mine, to establish baseline data. Details of corrective actions should monitoring results exceed recommended health-based Australian Drinking Water Guideline limits should be described.

6.3.4 Horticultural Crops

Assessments of dust deposition on crops and its associated potential for impacts to the integrity of crops as well as human health was undertaken as outlined in *Appendix A019, Human Health Risk Assessment*. The Human Health Risk Assessment section 9.1.4 concludes that:

> *A dust deposition rate of 0.1 g/m2 per month was estimated in the crop farming areas associated with project activities based on dust modelling (Katestone, 2020). When combined with background dust deposition in this area, the annual measured deposition rate of 1.0 g/m2 per month was below the Tier 1 assessment criteria of 4.0 g/m2 per month; and*
>
> *The increased doses* [of radiation] *are not considered to be significant based on a comparison of the estimated doses for the years following commencement of project operations with those calculated as baseline intakes (current exposures). In addition, when considering the variation in natural radioactivity levels encountered in soils worldwide, the impact is negligible of dust deposition on existing soil concentrations as a result of emissions predicted from project activities.*

Based on the information provided in the Human Health Risk Assessment, EPA does not expect dust from the Project to adversely affect the integrity of crops grown or human health. However, EPA recommends, as a precautionary measure, that periodic monitoring (sampling and testing) of dust deposited on horticultural crops grown near the project site be carried out.

EPA recommends that a commitment be included in the *Airborne and Deposited Dust Risk Treatment Plan (Tables 7-1 and 9-1)* and the *EMF (Table 12.9 Monitoring Programs – Air Quality)* that periodic monitoring of deposited dust on nearby crops be conducted to validate the assumptions of dust assessments described in the Human Health Risk Assessment. The frequency and period of this monitoring should be agreed to with the local farmers and Community Reference Group. In the event that monitoring results show a likely risk to crop integrity and/or human health, the proponent should carry out required remedial action in consultation with local farmers and the Community Reference Group.

6.4 Noise and Vibration

EPA plays a key role in protecting the community from noise pollution (including vibration). It administers relevant policies and regulations and develops guidelines to prevent and control noise. EPA also partners with other agencies to provide advice on the best ways to implement these standards.

Part VIII of the EP Act 1970 concerns the control of noise. Section 46 of the EP Act 1970 requires noise emissions to be in accordance with *State Environment Noise Policy (Control of Noise from Industry, Commerce and Trade) No. N 1* (**SEPP N-1**). The SEPP N-1 only applies to the metropolitan area of Melbourne.

There is no State environment protection policy regulating noise in regional Victoria. Instead, EPA has issued the publication *1411, Noise from Industry in Regional Victoria Guideline* (**NIRV**), which recommends noise levels for regional Victoria to be applied through statutory instruments. The following EPA guidelines are also relevant to noise:

- *SEPP N-1 and NIRV Explanatory Notes (**EPA Publication 1412**);*

- *Applying NIRV to Proposed and Existing Industry,* (**EPA Publication 1413**);
- *Environmental Guidelines for Major Construction Sites*, (**EPA Publication 480**); and
- *Noise Control Guidelines,* (**EPA publication 1254**).

EPA has reviewed *Appendix A010, Noise and Vibration Assessment* and *Attachment B, Draft Work Plan.* Evaluation of noise, including expectations for monitoring and mitigation during construction, have developed substantially within the past few years. EPA notes the following

6.4.1 General

Engagement with the community is paramount to good practice management of noise and its impact.

EPA supports engagement with the local community (NV15 and NV18) and the relevant local government authorities (SE21). EPA also supports the establishment of an environmental review committee (SE19), a community reference group (SE20) and communication of noise monitoring results (SE02).

6.4.2 Acceptance Criteria

Table 6-1 of the Environmental Noise Risk Treatment Plan sets out the acceptance criteria for noise levels for the Project. The table includes two criteria for night-time *construction* noise. However, EPA Publication 1411 (NIRV) specifically states, in table 4 on page 13, that for mines in regional Victoria the applicable guideline for night-time construction noise is set out in EPA Publication 1254. As a result, the acceptance criteria is "inaudible within a habitable room, as specified in Publication 1254".

EPA recommends that the *Environmental Noise Risk Treatment Plan (Tables 6-1 and 10-1, and Sections 5 and 11)* be amended by removing the references to "Noise Control Guidelines - EPA Publication 480" to make it clear that only EPA Publication 1254 applies.

Contingency measures are required if noise emissions exceed the acceptance criteria.

EPA recommends that NV06 in the Environmental Noise Risk Treatment Plan (Table 7-1) and Mitigation Register be amended as follows: "Contingency procedures will be implemented if noise emissions during construction are observed to exceed the acceptance criteria in table 6-1 ~~those modelled for this EES~~"

6.4.3 Mining: Operational noise

The mitigation measures proposed for noise are generally consistent with good practice management of environmental noise for this type of project.

EPA notes however that the intent of the referenced guidelines for noise, NIRV and EPA publication 1254 (section 2), is that managing noise at the source is a primary consideration. This is achieved by adequate scheduling of works and activities, and by minimising noise emissions.

This requires that work processes and equipment are selected, operated and maintained to minimise noise and its impacts as far as reasonably practicable. Equipment and processes should be the quietest available.

EPA recommends that NV33 in the *Mitigation Register* be included in the *Environmental Noise Risk Treatment Plan (Table 7-1*) and be amended to read: *Equipment will be selected with noise emissions that do not exceed the sound values used in the project noise modelling. The quietest available plant and equipment will be selected for the project, where feasible.*

EPA notes that NV16 in the Environmental Noise Risk Treatment Plan (Table 7-1) will consequently need to be amended to be consistent with NV16 in the Mitigation Register.

EPA recommends that NV24 in the *Environmental Noise Risk Treatment Plan (Table 7-1*) and *Mitigation Register* be amended to read: *Plant machinery and vehicles will be maintained and operated in accordance with manufacturer's specifications and industry best practice to minimise emission of noise.*

EPA notes that, with the implementation of noise mitigation measures, compliance to the NIRV recommended maximum levels could be achieved. However, it is observed that the assessment presented in the acoustic report assumes that no adjustment for noise character applies. If the noise presents as tonal, impulsive or intermittent in character, an adjustment would be necessary, and the NIRV levels could be exceeded.

Noise character that increases intrusiveness of the noise and can aggravate annoyance should be avoided as far as possible. This includes not only intermittency and impulsiveness as mentioned in NV32, but also tonal character and high noise energy in the low frequency range (below 200 Hz).

EPA recommends that NV32 in the *Environmental Noise Risk Treatment Plan (Table 7-1*) and *Mitigation Register* be amended to read: *Equipment and processes that do not exhibit characteristics of tonality, intermittency or impulsiveness will be selected, where feasible. The risk of intrusive low frequency noise within noise sensitive areas is to be minimised as far as reasonably practicable.*

Several mitigation measures are consistent with good practice and to be conducted by personnel (employees and contractors) to minimise noise (NV22, NV23, NV24, NV25, NV27, NV28 and NV29). Adequate measures and requirements are to be informed during toolbox meetings (NV20) and inductions (NV35).

While this approach is supported, EPA notes that its efficacy depends on personnel adhering to the relevant practices and requirements. EPA recommends that the Proponent implement a program for verification that actions specified in NV22 to NV29 are effectively followed by personnel. Such a program could, for example, be in the form of regular site inspections and audits by an environmental officer.

EPA recommends that NV20 in the *Environmental Noise Risk Treatment Plan (Table 7-1*) and *Mitigation Register* be amended to read: *All personnel will be informed about the measures required to minimise noise including regular toolbox talks. Adherence to the relevant practices and requirements will be verified by an inspection and audit program.*

EPA recommends that NV35 in the *Environmental Noise Risk Treatment Plan (Table 7-1*) and *Mitigation Register* be amended to read: *Project inductions will include briefings for all employees and contractors on the key principles and requirements of the noise*

and vibration sub-plan as relevant to their work. Adherence to the relevant practices and requirements will be verified by an inspection and audit program.

6.4.4 Mining: Construction noise

EPA supports the early provision of permanent power supply to the site to minimise the use of diesel generators (NV31).

EPA understands that construction activities that will be undertaken prior to commencement of production include construction of infrastructure to support the initial extraction and processing facilities at the site, construction of transportation-related infrastructure and the erection of buildings (e.g. offices, laboratory) and the wet concentrator plant structure.

These activities are proposed to occur generally over a six-day week between 7am and 7pm and that outside these times, overburden removal, sub soil removal and reduced-intensity construction activities such as construction of the freshwater storage areas are proposed to occur on a 24-hour basis.

These site infrastructure construction activities are relevant to the scope of section 2 of EPA publication 1254.

The intent of the guidelines is that the primary consideration is adequate scheduling of works, with noisy activities at the less sensitive hours and inherently quiet (inaudible) activities in the night period. Achieving inaudibility does not relate to the mitigation of otherwise noisy works in order to comply to specified noise levels; unless the works are approved to be unavoidable or are approved to be low-noise or managed impact works.

Appendix A010, Noise and Vibration Assessment provides predictions for construction noise, assuming peak construction activities, occurring under atmospheric conditions favourable to the propagation of sound. It is understood that predictions for construction noise did not include stripping of overburden and earthmoving to access the ore (which have been included in modelling for operational noise).

Normal working hours[2]

Noise control measures are proposed, that are consistent with the works requirement specified in EPA publication 1254. With the amendments recommended in 6.4.3, these controls are consistent with the intent of the guidelines.

Weekend/evening work hours [3]

The acoustic assessment highlights a risk of exceedance of up to 13 dB over the criteria for construction noise during weekend/evening work hours for 9 of the 13 noise sensitive receptors assessed.

In practice, exceedances and the magnitudes of these will depend on the actual construction activities taking place, the location affected, the background noise (at the time of noise impact) and the atmospheric conditions.

[2] 7am to 6pm Monday to Friday; 7am to 1pm Saturdays (EPA Publication 1254)

[3] 6pm – 10pm Monday to Friday; 1pm to 10pm Saturdays; 7am to 10pm Sundays and public holidays

EPA notes that when compared to the definition of the weekend/evening work hours of the schedule in section 2 of EPA publication 1254, the proposed hours for construction activities (7am to 7pm six days a week) would overlap for only one hour during weekdays (6pm to 7pm) and between 1pm and 7pm on Saturdays.

Scheduling of works should be such that quieter activities are scheduled during the weekend/evening hours to ensure compliance with the noise criteria of EPA publication 1254 for weekend/evening work hours.

EPA recommends that NV17 in the *Environmental Noise Risk Treatment Plan (Table 7-1)* and *Mitigation Register* include the following addition: "Noisier activities will be scheduled for less sensitive times where feasible and works will be limited as much as practicable during the night and weekends. Where unavoidable works do occur during the night and weekends, only the quietest activities will be scheduled."

Night-time hours [4]

EPA understands that some construction activities are proposed during the night period. These would include not only overburden and sub-soil removal (which has been assessed as an operational activity), but also construction of infrastructure on the site (such as freshwater storage areas and transport-related infrastructure) that are proposed to occur on a 24-hour basis.

EPA is concerned that these infrastructure construction activities do not satisfy the definition of unavoidable works of EPA Publication 1254. EPA notes however that construction noise levels predicted for the night period would be low (at most 26 dB indoors). It is plausible that if it is audible, the intrusiveness of the noise would be limited.

In these specific circumstances, these works could be considered as managed-impact works, as considered in EPA publication 1254, provided the noise does not present a tonal, impulsive or intermittent character and does not include low frequency content that presents a risk of intrusiveness. Conducting these works may be acceptable if the Proponent can justify why there is a need to conduct the works outside the recommended standard hours, and that this is supported by the local community, for example via the Community Reference Group.

EPA recommends that NV17 in the *Environmental Noise Risk Treatment Plan (Table 7-1)* and *Mitigation Register* be amended (or a new mitigation measure added) to include the following addition: "In relation to construction noise, if works are scheduled during night time hours, they will be inaudible or approved by a person independent from the Project, prior to commencement, as meeting the definitions of "Unavoidable works" or "low-noise or managed-impact works" in EPA Publication 1254. Works will be considered "low-noise or managed-impact works" in EPA Publication 1254 if the predicted noise levels are below 26dB indoors, the noise does not present a tonal, impulsive or intermittent character, does not include low frequency content that presents a risk of intrusiveness, the Proponent can justify why there is a need to conduct the works outside the recommended standard hours and this justification is approved by a person independent from the Project, and the hours for works

[4] 10pm to 7am on any day.

considered to be low-noise or managed-impact works and it is supported by the Community Reference Group.

6.4.5 Mining: Monitoring

Noise level monitoring activities proposed in the *Environmental Noise Risk Treatment Plan (sections 9 and 10)* include ambient noise level monitoring at noise sensitive receptors and emission testing of selected fixed and mobile equipment. EPA has the following recommendations for inclusion into the risk treatment plan

EPA recommends that the *Environmental Noise Risk Treatment Plan (Table 9-1, item 2)* and the *EMF (Table 12.9 Monitoring Programs – Noise and Vibration)* be amended to include: *Targeted noise emissions testing would also be conducted in response to noise complaints and to investigate exceedances* (rather than only annually).

EPA recommends that where seven-day surveys are considered in the *Environmental Noise Risk Treatment Plan (Table 9-1, items 6 and 7)* and the *EMF (Table 12.9 Monitoring Programs – Noise and Vibration),* an amendment be made to include: *The details of monitoring should specify that a longer period of monitoring may be necessary to ensure enough valid data is collected to allow assessing the noise levels over several representative days, should the measurements be affected by adverse meteorological conditions*.

EPA recommends that that the *Environmental Noise Risk Treatment Plan (Table 10-1, items 1 and 2)* be amended to include: *Information obtained from noise emission testing will also be used to inform work practices and scheduling.*

6.4.6 Ancillary Infrastructure: Management Plans

Section 4.1.3, paragraph 10 of the Incorporated Document requires that the Construction Noise Management Plan and the Operational Noise Management Plan for the ancillary infrastructure be prepared and implemented "*to the satisfaction of the responsible authority and the Environment Protection Authority*".

The EPA does not have a role in regulating the *implementation* of the Incorporated Document. EPA has its own powers to regulate noise under the EP Act 1970.

Additionally, the EPA does not support a requirement for preparation of plans to be done "to the satisfaction of" EPA in the Incorporated Document. There are two principal reasons for this position:

- The proposal for a requirement for EPA approval should be assessed having regard to the costs and benefits of approval relative to the costs and benefits of consultation. The potential costs (in time and resources) of EPA approval are significant for EPA and for the proponent. A consultation obligation is less onerous but still provides for effective EPA input. In these circumstances, EPA's view is that any additional benefits of EPA approval – as compared to consultation with EPA – would be marginal, and that the costs would outweigh the benefits.
- EPA approving a plan is inconsistent with the general environmental duty, which places the onus on the duty holder to continuously evaluate how it will meet the duty. EPA

approving a plan is inevitably taken as "EPA says it is okay if we do this". That is not how the new regime works, and not consistent with how EPA seeks to operate currently. The content of a plan, whether or not to the satisfaction of EPA, is meaningless if the plan is not fully implemented, or fails to protect the environment. It is the role of duty holders to fully understand the risks of their activity and plan to satisfy the duty of compliance. It is EPA's role to identify non-compliance.

EPA recommends that the *Incorporated Document* (*paragraph 10 of Section 4.1.3)* be amended as follows: *The Construction Noise Management Plan and the Operational Noise Management Plan must be prepared ~~and be implemented for the duration of the operation of the Fingerboards mineral sands mine~~ in consultation with the Environment Protection Authority and to the satisfaction of the responsible authority ~~and Environment Protection Authority~~. The Construction Noise Management Plan and the Operational Noise Management Plan must be implemented for the duration of the operation of the Fingerboards mineral sands mine to the satisfaction of the responsible authority.*

The Incorporated Document refers to "*relevant Environment Protection Authority Victoria (EPA) Noise Control Guidelines*" and "*EPA Guidelines*". Both of these references are relatively vague. EPA recommends that the specific guidelines are referred to.

However, upon commencement of the New EP Act, EPA expects the relevant noise guidelines will be replaced and the "*Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises, and entertainment venues*" (**Noise Protocol**) will commence. EPA notes that the Noise Protocol is currently only in draft form.

EPA recommends that another clause is inserted to make it clear that subsequent instruments under the New EP Act will apply. This is particularly important where the Operational Noise Management Plan is likely to be prepared after the New EP Act commences (and potentially the Construction Noise Management Plan too) and the EPA has not recommended that the Incorporated Document be updated (because to do so would require a planning scheme amendment).

EPA recommends the *Incorporated Document (section 4.1.3)* be amended as follows:

9. Prior to the commencement of:

I. construction of the Project, a Construction Noise Management Plan must be prepared ~~in accordance~~ consistent with Section 2 of EPA Publication 1254: ~~relevant Environment Protection Authority Victoria (EPA)~~ Noise Control Guidelines; and

II. operation of the Project, an Operational Noise Management Plan must be prepared ~~in accordance~~ consistent with EPA Publication 1411: Noise From Industry in Regional Victoria ~~Guidelines~~.

If, however, the Environment Protection Amendment Act 2018 commences prior to the above, and EPA Publication 1254 and/or EPA Publication 1411 are replaced by one or more different instruments which purports to cover the same subject matter – the relevant plan must be prepared in accordance with the replacement instruments.

EPA also recommends the *EMF (table 12.8)* be amended to refer to both publications (not just EPA Publication 1411).

We note that EPA has separately requested the EMF be updated upon commencement of the New EP Act.

EPA considers it is important that the noise management plans include a monitoring and assessment programme and also contingency measures to address non-compliances. Table 12-8 of Chapter 12 indicates that these will be included in the noise management plans, however, it is not mandated in the Incorporated Document.

EPA recommends that the *Incorporated Document (paragraph 9 of section 4.1.3)* be amended by adding the following after *"a noise compliance procedure", "(including monitoring)"* and the following at the end of the dot points: "*Controls and contingency measures to address exceedances or other non-compliance with the performance requirements*".

6.4.7 Ancillary Infrastructure: Material transport

EPA understands that the ore material transport will generate significant truck traffic. The Project has considered and assessed several options for transport routes.

The preferred option is via a new railway siding in Fernbank South that will be accessed via a proposed private haulage road, which would be subject to compliance with NIRV. It is proposed that truck movements on this road and rail loading activities be restricted to the day and evening periods (NV36).

Other options considered would involve trucks to use public roads across, with an estimated 80 truck movements across the 24-hour day, seven days a week. A number of residences along these public roads would be impacted, in particular during the night period.

Only one property (R1) is located in the vicinity of the proposed private haulage road of the preferred option. The acoustic assessment report also identifies two properties (R52 and R60) that could be affected by noise from activities at the sidings.

Appendix A010, Noise and Vibration Assessment reports that for the preferred option, the predicted noise levels from the cumulated emissions from the proposed private haul road and siding would be below the NIRV levels during the day and evening period. EPA understands that when considering the predicted noise levels due to the main site, in combination with those from the haul road and the siding, the NIRV levels would still be satisfied for these periods.

Appendix A010, Noise and Vibration Assessment also predicts that night-time activity at the siding, which would have limited train movements, would satisfy the NIRV levels.

EPA supports the preferred option of a private haulage road serving a new siding with truck movements and rail loading activities restricted to the day and evening periods.

EPA recommends that NV36 in the *Mitigation Register* be amended to include the following: *Specific measures will be included in the Operational Noise Management*

***Plan to address the risk of impacts due to short term high noise levels and low frequency noise from truck by-passes to properties near the proposed haulage road*.**

EPA also recommends that NV36 in the *Mitigation Register* be amended to include the following: *Specific measures will be included in the Operational Noise Management Plan to address the risk of noise from train horns at the siding impacting on nearby properties.*

6.4.8 Ancillary Infrastructure: Rumble Strips

Mitigation Measure TT14 within *Attachment H, Mitigation Register* states that: "*Rumble or shaker strips will be provided on approach to the new Fingerboards roundabout and on the Fernbank East rail siding access road to prevent mud tracking onto the public road network."*

EPA notes that rumble and shaker strips are sources of high noise annoyance and recommends that potential impacts from these are mitigated as far as reasonably practicable through the Operational Noise Management Plan.

EPA recommends that a new mitigation measure be included in the *Mitigation Register* as follows: *Specific measures will be included in the Operational Noise Management Plan to address the risk of impacts from vehicles travelling on the rumble and shaker strips to properties near the proposed roundabout and rail siding.*

6.5 Human Health

Protecting public health has been a critical dimension of EPA's role since it was established in 1971. As of 14 December 2016, EPA is responsible for delivering environmental public health functions related to impacts from past, present and potential future waste and pollution events. This may include EPA raising understanding and awareness of environmental public health risks in the community and helping the community to access information about this.

Of the many EES documents, EPA has also reviewed *Appendix A019, Human Health Risk Assessment*. EPA's comments that relate to potential impacts on Human Health are included in sections 6.3 and 6.4 of this submission.

7 EPA's Assessment of the Works Approval Application

Under the EP Act 1970 and the *Environment Protection (Scheduled Premises and Exemptions) Regulations 2017*, the Project is a scheduled premises C01 (Extractive Industry and Mining). However, the following exemption applies:

> *"Premises, with solely land discharges or deposits, used only for the discharge or deposit of mining or extractive industry wastes and that are in accordance with the Mineral Resources (Sustainable Development) Act 1990 are exempt from works approval under section 19A of the Act and licensing under section 20(1) of the Act."*

The Project proposes multiple off-site water discharges (to surface water and groundwater) and therefore a Works Approval under section 19B of the EP Act 1970 is required. To ensure the quality of the surface-water discharge is of an acceptable level and meets SEPP (Waters), treatment is required prior to its discharge, with a Dissolved Air Flotation (DAF) treatment plant and associated infrastructure proposed as part of the WAA.

The Proponent has applied to EPA for a works approval (**WAA**) (Attachment VIII of the EES).

As outlined above, at this stage, the New EP Act is expected to commence on 1 July 2021. If EPA makes a decision on the WAA after the commencement of the New EP Act, any development licence that is required would be assessed and, if issued, issued under the New EP Act (New EP Act, section 474). It does not matter that the WAA was submitted prior to the commencement of the New EP Act. It may be that the EPA requires the Proponent to provide further information to demonstrate how the proposed works meet the specific requirements of the New EP Act, for example the Environment Reference Standard (which replaces SEPPs). EPA expects to be in a better position to discuss timing (and if necessary further information required) at the IAC hearing.

This section outlines the key issues that are currently under consideration in EPA's assessment of the WAA. EPA is only in the early stages of assessing the WAA and notes that throughout its assessment process it may become apparent that further information is required and if so EPA will issue a notice under s 22 of the EP Act 1970. EPA reserves itself from statements of support, recommendation or requirement in relation to the WAA. EPA will have regard to all relevant public submissions made to the IAC under the EE Act, attend the public hearings and will have regard for the Minister for Planning's assessment of the EES before finalising its assessment decision of the WAA. Therefore, EPA's submissions to the IAC should be understood as preliminary observations which may change as EPA undertakes more detailed assessment of relevant material. No part of this submission should be relied upon by any person as being indicative of EPA's final decision regarding whether a works approval or any other statutory authorisation will or will not be issued in respect of the Project.

In this respect, EPA recommends that table 12.3 of the EMF is amended to reflect that the EPA is a "decision maker" in relation to the works approval, rather than "approval decision".

In considering the WAA, section 20C(2) of the EP Act 1970 requires EPA to consider policy so that a works approval (and any of its conditions) is consistent with all applicable policies, in particular SEPP (Waters).

Section 20C(3)(a) provides that EPA may refuse to issue a works approval if, in EPA's opinion, it would:

- be contrary to, or inconsistent with, any applicable policy; or
- be likely to cause, or to contribute to, pollution; or
- be likely to cause an environmental hazard; or
- be likely to endanger public health.

The subject of the WAA is, currently, the proposed off-site surface water discharges and the proposed treatment of the water (in the DAF plant and associated water management system) prior to its discharge to ensure it meets the WQO for the Mitchell River.

With regard to the discharge of seepage water (as discussed in section 6.2 above), the EES predicts and models a groundwater mound establishing underneath the mine following the placement of wet tailings within mine voids. The predicted modelling indicates that this mound would extend into the aquifer and off-site. EPA considers that this off-site discharge is an issue to consider as part of any WAA and any approval would be given via any WA and Licence issued for the Project (or development / operating licence under the New EP Act). To date the WAA, has not considered such a groundwater discharge and EPA will be requiring further information from Kalbar on this discharge.

In outlining the key components of the WAA, it is worth noting that the surface water to be discharged is 'mine contact water' which is defined in subsection 5.2 of the WAA as being "*run-off that comes into contact with the mine void and other disturbed mine areas"*, as well as any excess water held in the Freshwater Dam (sourced from direct rainfall or the Mitchell River). Rainfall run-off from undisturbed or rehabilitated areas upstream of active mining areas within the wider Project Area is proposed to be diverted where possible and released to the downstream catchment. Run-off from topsoil stockpiles and minor disturbance areas will, following storage in sedimentation dams within the Project Area, be used as Process Water. 'Process Water', that is water used for the on-site gravity and mechanical separation of the ore body within the Wet Concentrator Plant will be recycled and reused on-site and will not be discharged off-site.

Key features of the proposed 'works' subject to the WAA are:

- the treatment of mine contact water through a combination of primary settling, flocculation and DAF (all of which are described in section 5.3 of the WAA);
- the periodic operation of the DAF treatment plant at a rate of up to 8ML/day to ease capacity within the mine contact water dams when the volume of water held in the dams exceeds the process water loss to tailings;
- storage of treated water in the Freshwater Dam prior to discharge;
- the periodic controlled discharge of up to 630 ML/year of treated water held in the Freshwater Dam to the Mitchell River; and
- accumulation of 5 tonnes per day of DAF solid material ('Category C' industrial waste) within the DAF plant when its operating at full capacity (between 100 and 125 tonnes per year);

It is highlighted that the WAA proposes no discharge to the Perry River catchment at the time but acknowledges that should this change in the future, Kalbar would require a new works approval (Development Licence under the new EP Act).

Key issues which EPA will assess as part of the WAA assessment process include:

- the design and effectiveness of the proposed treatment DAF plant and associated system to treat water being discharged off-site;
- surface water discharges to the Mitchell River, with potentially higher concentrations of suspended solid, nutrients and elements than undisturbed site run-off that may exceed WQO;
- discharges to groundwater due to seepage from wet tailings disposed into the mine void;

- potential for radionuclides to be present in the above discharges, as well as in any solid wastes settling out within the DAF and the appropriate consideration of radiation[5];
- Greenhouse gas emissions and climate change;
- The proposed DAF plant and associated dams holding mine contact water prior to off-site discharge are within the Project Area, whilst the proposed surface water discharge is to the Mitchell River (via a two-way transfer pipeline) approximately 6.5 km to the ENE.

Relevant sensitive receptors to the WAA are the Mitchell River (and its associated downstream beneficial uses).

A number of the issues below are also addressed in section 6 of this submission. The following discussion is intended to assist in understanding EPA's approach to the assessment of these issues in the context of determining the WAA.

7.1 Design and Process Review

A key component of all EPA assessments of works approval applications is a technical review of the proposed process and technology (its design, operation, associated controls) to establish if it can be considered to be best practice.

As part of the EPA's assessment of this WAA, EPA will undertake such a technical review with particular focus on whether all reasonable steps have been taken in the proposed treatment of mine water to meet WQO, minimise potential risk from discharges, reduce the size of any mixing zone in the Mitchell River (if such a zone is required) and any groundwater discharge and plume.

7.2 Water Discharges

SEPP (Waters) sets out aims and objectives for the protection and improvement of Victoria's waters, having regard to the principles of environment protection set out in the EP Act 1970, which includes the integration of social, economic and environmental considerations.

SEPP (Waters) relevantly requires that:

- Surface and groundwaters must be maintained so that the protected beneficial uses of the waters are protected;
- An applicant for a discharge of wastewater to surface waters must have made all reasonable efforts to avoid, reuse and recycle the wastewater;
- An application for such a discharge must demonstrate that the discharge is necessary, includes all reasonably practicable measures to ensure the discharge does not exceed the environmental quality objectives [WQO] and minimise risks to beneficial uses of the receiving waters;

[5] noting that EPA will seek referral input from the Radiation Unit at DHHS and the Application of the EP Act

- An applicant must apply for a mixing zone if it is not reasonably practicable to meet the objectives and minimise the risks;
- Direct discharge of waste (such as from tailings) to groundwater is prohibited, unless risks posed to protected groundwater beneficial uses by the mine rehabilitation are minimised and do not pose an unacceptable risk to the beneficial use of the groundwater.

7.2.1 Surface Water Discharges

The Project proposes to discharge treated wastewater into the Mitchell River, the largest unregulated river system in the State. The Mitchell flows into the Gippsland Lakes, and provides irrigation water to East Gippsland. Monthly flow varies with an over 130 fold difference between summer and winter months.

As outlined in section 6.1 of this submission, EPA will be requesting the Proponent provide further information on the quality of water (including levels of nitrogen) to be discharged to the Mitchell River from the Freshwater Dam, and the proposed operational procedures (inclusive of timing, frequency and volume of any discharges) that will identify when discharges will occur.

EPA will undertake an assessment of the likely impacts of the proposed discharges against the SEPP (Waters), that all reasonable steps have been taken, that the beneficial uses of the Mitchell River have been protected and that WQOs are not exceeded.

Should further information on the quality of water discharged from the Freshwater Dam to Mitchell River indicate that any contaminants would exceed environmental WQOs in the receiving environment, EPA may require a mixing zone as part of any WA issued.

Furthermore, consideration will be given to any controls on the timings of discharges to ensure there is sufficient base flows to dilute the discharge, i.e. a condition of a WA (if issued) that stipulates the circumstances or minimum flows in the Mitchell River under which off-site discharges can occur.

7.2.2 Groundwater Discharges

The Project proposes an uncontrolled discharge of process water entrained within the mine tailings on disposal into the mine void. Information on this discharge is currently lacking within the WAA, such that EPA will formally request further information from the Proponent to inform its determination of the WAA. As outlined in section 6.2 of this submission, further information will be sought on the measures proposed to minimise the discharge, the concentrations of any potential contaminants, along with demonstration that either the discharge will not exceed the environmental quality objectives specified in SEPP (Waters) or that risks to beneficial use of groundwater are minimised and are not unacceptable.

Once received, EPA will undertake an assessment of this discharge to establish if protected beneficial uses of the groundwater will be (unacceptably) affected.

7.3 Radiation

As set out in section 4.1 of this submission, an atypical important consideration within EPA's assessment of the WAA is the application of the EP Act 1970 under s2(2), with regards to the potential presence of a radiation source within the works subject to this WAA.

As described in the *Radiation Assessment Report* (Appendix A011 of the EES) the mineral sands ore body being mined for HMC contains low levels of Naturally Occurring Radioactive Material (NORM). Accordingly, wider consideration in the EES needs to be given for the potential establishment of specific exposure pathways, with the Proponent needing to obtain a Radiation Management License from the Radiation Unit at the Department of Health and Human Services (DHHS), under the *Radiation Act 2005*.

In considering whether the works the subject of the WAA are a "radiation source within the meaning of the Radiation Act 2005", EPA will need to consider whether:

- radionuclides may be present within the mine contact waters being treated;
- the effectiveness of the DAF plant to remove any potential radionuclides present in the suspended solids within the mine contact water;
- radionuclides may be present within the solid wastes from the DAF plant and their subsequent disposal;
- radionuclides may be present within the treated water being discharged into the Mitchell River and the potential to affect the beneficial uses of that surface water resources;
- radionuclides may be present within the discharge of water into the aquifer beneath the site and the potential to affect the beneficial uses of that groundwater resources; and
- whether the infrastructure of the DAF treatment plant could become irradiated such that when it comes to the decommissioning of the DAF and mine the concrete, steel etc would need to be buried within the mine voids.

In this regard, EPA will refer the WAA to the Radiation Unit at DHHS for their technical expertise and consider requesting further information from the Proponent.

EPA will be seeking further information from the Proponent on any potential radiation associated with the surface water and groundwater discharges and the DAF treatment plant.

7.4 Energy Use, Greenhouse Gas Emissions and Climate Change

Section 17(2) of the *Climate Change Act 2017* requires EPA to consider the following when assessing the WAA:

- the potential impacts of climate change relevant to the decision or action; and
- the potential contribution to the State's greenhouse gas (GHG) emissions of the decision or action.

Additionally, a key policy aim of the SEPP (AQM) is to *"support Victorian measures to address the enhanced greenhouse effect*". SEPP (AQM) also requires generators of greenhouse gas

emissions to manage their emissions in accordance with best practice management for greenhouse gas emissions (clause 33). The SEPP (AQM), together with the Protocol for Environmental Management: Greenhouse gas emissions and energy efficiency in industry (Greenhouse PEM), require that best-practice, energy-efficient plant and equipment is installed.

Energy use from the Project is estimated in section 5.4.1 of the WAA. As the estimated energy and emissions are below the 500GJ/annum energy use (or 100 tonnes of energy related CO_2 equivalent emissions per annum) no energy audit has been undertaken.

The potential effects of:

- climate change on the proposed works;
- the proposed works to contribute to climate change; and
- the effects of future climate change on the environment (principally rainfall events and flows)

are given within WAA and in the Section 13.2 of the WAA.

7.5 Noise

Noise from the proposed works (subject to the WAA) is expected to be limited to noise generated by the operation of pumps within the DAF and associated pumps pumping water from the Freshwater Dam down the transfer pipeline to the Mitchell River. As the DAF plant is located close to the Wet Concentrator Plant, and will only be operating on a periodic basis, it is expected noise from the WAA sources will not be a significant future contributor and will be indistinguishable from noise generated by wider Project activities.

Nevertheless, some consideration within EPA's assessment of the WAA will be given to potential noise emissions and compliance with NIRV.

7.6 Other Considerations

7.6.1 Water Resources

It is noted that the proposed works (subject to the WAA) will not directly require water resources, such that water resource use is not a key issue for EPA's assessment of the WAA.

7.6.2 Air Quality

It is noted that the proposed works (subject to the WAA) are unlikely to generate any significant air emissions (dust, odours or other emissions) such that air quality will not be key issue for EPA's assessment of the WAA.

7.6.3 Stormwater Run-off

It is noted that the proposed works (subject to the WAA) will not generate stormwater itself, such that stormwater run-off will not be an issue for EPA's assessment of the WAA.

7.6.4 Wastewater (Sewage) Treatment

It is noted that the Project's on-site wastewater (sewage) treatment facility for workers and visitors (during construction and subsequent operation) will be less than 5,000L/day. Accordingly, no approval is required from the EPA for such a facility now or under the New EP Act, however council approval will be required for such a facility.

7.6.5 Waste

As highlighted at the start of this section, the DAF plant will generate solid wastes. These wastes will be regularly removed and disposed of on-site within the mine voids. EPA will formally be seeking further information on the categorisation of the solids collected in the DAF and consideration will be given to the appropriate disposal option for those wastes.

7.6.6 Environmental Management

EPA's assessment of the WAA will also consider the potential risks to human health and the environment from non-routine operations and the linkages to the proposed Environmental Management Framework to ensure appropriate controls, environmental monitoring and management systems are in place to mitigate potential operational risks.

7.6.7 Environmental Public Health Risk Assessment

Consideration will also be given within EPA's assessment of the WAA as to the potential risks and effects of the proposed works and its discharges to human health.

8 Conclusion

8.1 Next Steps

EPA's comments are provided to the IAC to inform its inquiry into and report on the Project, and to enable it to provide advice that can be used to inform EPA's consideration of the WAA. The next steps in EPA's process will be:

- Attend the public hearings
- EPA legal representatives to present EPA's submission to the IAC
- EPA to provide advice and assistance to the Panel, as requested
- Continue discussions and consultation with the Proponent as required
- Continue EPA's assessment of the WAA including: formally requesting under a s 22 notice and subsequently considering any further information deemed necessary and relevant to the consideration of the WAA, referrals of the WAA to relevant protection agencies and the Radiation Unit of the Department of Health and Human Services and consideration of submissions.
- Following the Minister's assessment, finalise the assessment and decide the WAA.