

Ref: ROE – 2/5 Dam TSF Approvals

26 November 2015

Mr Derek Walter
Environment Protection Authority
Level 6, 134 Macquarie St
HOBART TAS 7001

Dear Derek

MMG 2/5 Dams TSF, Rosebery – Supplementary Information

We refer to the EPA's letter dated 23rd November 2015 (Ref: EN-EM-EV-DE-238597-H482115).

Please find our responses attached.

If you have any further queries or comments please let us know. We would be more than happy to discuss any queries or concerns if required.

Yours faithfully



Gary Mueller

Senior Specialist SHEC Approvals

T +61 3 6473 2167

M +61 403 035 935

E Gary.Mueller@mmg.com

cc David Lenel, Edith O'Shea- pitt&sherry

Response to representations provided by letter from the EPA's - 23rd November 2015 (Ref: EN-EM-EV-DE-238597-H482115)

Representation no./ Agency	DPEMP section no.	DPEMP page no.	Comments and issues	Additional information required
2	6.1.3 - 6.1.5	92-94	Dust impacts (toxic chemicals)	Provide information on the potential for toxic substances (including metals) to be present in dust particles blown from the site (in both the construction and operational phases), the potential human health effects of this and proposed management measures if applicable. (This issue does not appear to be explicitly addressed in the DPEMP or the appended air quality report. It should be noted that the representor raising this issue lives in close proximity to the site.)

MMG response:

During the construction period dust may be generated from clearing and preparation of the site (including excavation), from transportation of materials around the site and from stockpiling of soil and vegetation for rehabilitation. No existing tailings material from the 1, 2 or 5 Dam areas will be disturbed during the construction period. Excavation in the 1 Dam area will disturb rock fill only. Although 5 Dam north will be dewatered during construction the dam has recently been used for the treatment of wastewater and the top layers of sediment will therefore not comprise tailings material. Additionally, the dam surface will only be exposed for a very short period (a period of days) prior to lining the dam with lime and rock fill in preparation for a geotextile liner. Any dust generated during the construction phase will be generated from activities located in natural ground and the potential for toxic substances (including metals) occurring in these areas is therefore minimal.

Due to the majority of the completed project footprint being water there is very low potential for dust to be generated from the facility during operation. Modelling indicates that emissions during operation are likely to be several orders of magnitude lower than the current background levels in the Rosebery township and are unlikely to be detectable. In addition, tailings will be deposited into the new facility subaqueously and will therefore remain underwater at all times with no potential for dust generation. There is therefore minimal potential for toxic substances (including metals) to be present in dust generated during the operational phase of the project.

During both construction and operation of the site dust will be monitored using both HVAS and real-time aerosol monitoring stations. Two stations will be operational at Giblin Street and Alec Street specifically to monitor for dust impacts to nearby residential areas.

Dust will be managed in accordance with MMG's Dust Management Plan which includes the following mitigation measures:

- Vegetation clearance will not be undertaken during hot, dry and windy periods
- The construction works will be planned and supervised by a qualified engineer so that construction is undertaken in the most efficient and effective manner
- Existing native vegetation will be maintained for windbreaks where possible
- Vehicular speeds will be limited to 25 km/h in unconsolidated areas and on unsealed roads within the construction site
- The site access road will be sealed up to the site's wash-down facility, which equates to approximately 15 metres from the edge of the Murchison Highway, as part of the early site construction activities; thereafter, new and unsealed access roads will be maintained and managed to the extent necessary to minimise dust generation during hot, dry and windy conditions
- Construction areas and materials stockpiles will be watered as necessary during hot, dry and windy conditions
- Areas of disturbed soil will be revegetated as soon as practicable.

The local community will be kept informed of the progress of construction works and the timing of any works with the potential to result in dust in accordance with the current MMG community liaison program.

In the unlikely case that the dust monitoring detects dust at or above the trigger level the following will be undertaken:

- Additional application of dust management such as watering of dry surfaces or further limits on vehicle speeds
- Review of the dust management plan to incorporate additional measures as appropriate
- Temporary cessation of dust generating works until weather conditions improve or until sufficient management measures can be implemented.

Given the monitoring and management measures described above and the likely dust sources comprising natural ground areas, there is an extremely low likelihood of toxic substances (including metals) from dust generated during either the construction or operational phases of the project impacting on nearby residential areas.

Representation no./ Agency	DPEMP section no.	DPEMP page no.	Comments and issues	Additional information required
3	6.1.3 - 6.1.5	92-94	Dust impacts (human health impact . advanced emphysema sufferer)	Provide information on the potential impacts of dust blown from the site (in both the construction and operational phases) on emphysema sufferers, and proposed management measures if applicable. (This issue does not appear to be explicitly addressed in the DPEMP or appended air quality report. It should be noted that the representor raising this issue lives in close proximity to the site.)

MMG response:

The *National Environment Protection (Ambient Air Quality) Measure* (NEPM) is the guiding document for air quality standards in Australia. Standards within the NEPM been set based on extensive health risk characterisation and evaluation of the environmental, social and economic costs and benefits of meeting a range of different standards for airborne particles.

The Air Quality NEPM identifies particulate matter 10 micrometers or less in diameter (PM₁₀) as having the potential to impact on human health due to the particle being able to be drawn deep into the lungs.

The major health impacts associated with particles that were considered in the development of the Air Quality NEPM PM₁₀ standard are as follows¹:

- increased mortality
- aggravation of existing respiratory and cardiovascular disease
- increased hospital admissions and emergency department visits
- altered lung clearance and other host defence mechanisms
- respiratory mechanics and symptoms.

¹ *National Environment Protection (Ambient Air Quality) Measure Discussion Paper Air Quality Standards*, July 2010. Prepared for the National Environment Protection Council.

The Air Quality NEPM specifies that levels of PM₁₀ should not exceed 50 µg/m³ based on a 24 hour average. Ambient air that meets the standard can be considered to be of a satisfactory quality. The NEPM does allow 5 exceedence events per year and therefore accepts that levels can on occasionally exceed 50 µg/m³ without compromising human health. Adopting 50 µg/m³ as an action trigger level, as described below, will therefore be a conservatively protective measure that will ensure that the NEPM average will not be exceeded.

Air quality monitoring using HVAS is conducted at 4 different areas in the Rosebery township, with each location being in close proximity to sensitive receivers including residential areas. The following comments can be made about air quality within the Rosebery township:

- Total Suspended Particles (TSP) results are well below than both the EPN trigger value (0.15 mg/m³ 24 hour average) and the compliance value (0.09 mg/m³ annual average).
- PM₁₀ results are well below both the EPN trigger value (0.05 mg/m³ 24 hour average) and the compliance value (0.15 mg/m³ 24 hour average).
- The results are also well below the NEPM standards for PM₁₀ (50 µg/m³ 24 hour average).
- HVAS sampling indicates that the maximum concentrations recorded during the sampling events for both TSP and PM₁₀ were also well below EPN (TSP and PM₁₀) and NEPM (PM₁₀) requirements. The air quality within the Rosebery township can therefore be considered satisfactory based on existing monitoring results.

During both construction and operation of the site dust will be monitored using both HVAS and real-time aerosol monitoring stations. Two stations will be operational at Giblin Street and Alec Street specifically to monitor for dust impacts to nearby residential areas. The EPN trigger and compliance limits will apply both during construction and during operation. The specified trigger level for PM₁₀ in the EPN is 0.05 mg/m³ 24 hour average which equivalent to the standard specified in the Air Quality NEPM (50 µg/m³ 24 hour average).

During the construction period dust may be generated from clearing and preparation of the site (including excavation), from transportation of materials around the site and from stockpiling of soil and vegetation for rehabilitation. Due to the majority of the completed project footprint being water there is very low potential for dust to be generated from the facility during operation. Modelling indicates that emissions during operation are likely to be several orders of magnitude lower than the current background levels in the Rosebery township and are unlikely to be detectable.

Dust will be managed in accordance with MMG's Dust Management Plan which includes the following mitigation measures:

- Vegetation clearance will not be undertaken during hot, dry and windy periods
- The construction works will be planned and supervised by a qualified engineer so that construction is undertaken in the most efficient and effective manner
- Existing native vegetation will be maintained for windbreaks where possible
- Vehicular speeds will be limited to 25 km/h in unconsolidated areas and on unsealed roads within the construction site

- The site access road will be sealed up to the site's wash-down facility, which equates to approximately 15 metres from the edge of the Murchison Highway, as part of the early site construction activities; thereafter, new and unsealed access roads will be maintained and managed to the extent necessary to minimise dust generation during hot, dry and windy conditions
- Construction areas and materials stockpiles will be watered as necessary during hot, dry and windy conditions
- Areas of disturbed soil will be revegetated as soon as practicable.

The local community will be kept informed of the progress of construction works and the timing of any works with the potential to result in dust in accordance with the current MMG community liaison program.

In the unlikely case that the dust monitoring detects dust at or above the trigger level the following will be undertaken:

- Additional application of dust management such as watering of dry surfaces or further limits on vehicle speeds
- Review of the dust management plan to incorporate additional measures as appropriate
- Temporary cessation of dust generating works until weather conditions improve or until sufficient management measures can be implemented.

It is therefore anticipated that levels above the Air Quality NEPM standard would not occur during either construction or operation of the facility. As the Air Quality NEPM has been set with consideration of the potential effects of dust on respiratory health it is therefore also anticipated that meeting the NEPM standard would mitigate any impacts from construction or operational activities on the respiratory health of residents in the Rosebery township.