



17 May 2018

Clay Preshaw
NSW Department of Planning and Environment
GPO BOX 39
SYDNEY NSW 2001

Dear Clay,

RE: CLEAN TEQ SUNRISE PROJECT MODIFICATION 4 – RESPONSES TO ADDITIONAL INFORMATION REQUEST

Please find below a response to the Department of Planning and Environment's (DP&E's) request for additional information arising from the DP&E's meeting with Ms Helen Quade regarding the Clean TeQ Sunrise Project (the Project) in the letter dated 14 May 2018.

1. Noise and Air Quality Modelling

Issue

DP&E requested clarification on the noise and air quality modelling undertaken for the Project (including Modification 4).

Response

Noise Modelling

A noise assessment was prepared for the Project (Richard Heggie Associates, 2000) as part of the Environmental Impact Statement which included noise modelling of a number of construction and operational scenarios. A subsequent assessment completed for Modification 1 demonstrated there would be no material change to the potential noise impacts of the approved Project (Heggies Australia, 2005).

For Modification 4, a Noise and Blasting Assessment was undertaken by Renzo Tonin & Associates (2017) and is presented in Appendix B of the Modification 4 Environmental Assessment (the EA). The assessment was conducted in accordance with the *NSW Industrial Noise Policy* (INP) (Environment Protection Authority [EPA], 2000) and *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009). Consideration was also given to the NSW Government (2014) *Voluntary Land Acquisition and Mitigation Policy – For State Significant Mining, Petroleum and Extractive Industry Developments* (VLAMP).

It is noted that the *Noise Policy for Industry* (EPA, 2017) was released on 27 October 2017. As outlined in Clean TeQ's letter to the DP&E dated 7 November 2017, the Noise and Blasting Assessment (Renzo Tonin & Associates, 2017) was prepared in accordance with the INP rather than the *Noise Policy for Industry* (EPA, 2017) in accordance with the EPA's *Implementation and transitional arrangements for the Noise Policy for Industry* (2017).

The Environment Protection Authority (EPA) reviewed the Noise and Blasting Assessment prepared for Modification 4 and raised no concerns regarding the noise modelling methodology adopted (Attachment A). The EPA concluded:

... The EPA can support the modification based on the predicted levels for noise and blasting, with the incorporation of mitigation measures, as described in the noise and blasting assessment.

All of the noise assessments undertaken for the Project were undertaken in accordance with the relevant NSW Government noise assessment guidelines at the time of their preparation.

Air Quality Modelling

An air quality assessment was prepared for the Project (Zib & Associates, 2000) as part of the Environmental Impact Statement which included dispersion modelling of a number of construction and operational scenarios. A subsequent assessment completed for Modification 1 demonstrated there would be no material change to the potential air quality impacts of the approved Project (Heggies Australia, 2005).

For Modification 4, a contemporary Air Quality and Greenhouse Gas Assessment was undertaken by Ramboll Environ (2017) and is presented as Appendix A of the EA. The assessment was prepared generally in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (EPA, 2016).

The AERMOD modelling system used by Ramboll Environ (2017) is a contemporary steady-state plume dispersion model that has been accepted by the EPA as suitable to assess potential air quality impacts of mining projects in NSW.

The EPA reviewed the Air Quality and Greenhouse Gas Assessment prepared for Modification 4 and raised no concerns regarding the air quality modelling methodology adopted (Attachment A).

2. Predicted Noise and Air Quality Exceedances

Issue

DP&E requested a summary of predicted exceedances of relevant noise and air quality criteria.

Response

Noise

The Noise and Vibration Assessment (Renzo Tonin & Associates, 2017) prepared for Modification 4 considered the relevant construction noise criteria from the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009). Renzo Tonin & Associates (2017) predicted **no exceedances of the construction noise criteria** at any privately-owned receivers both within and outside of recommended standard construction hours.

Operational noise criteria from the INP considered by Renzo Tonin & Associates (2017). The Project-specific noise levels developed in accordance with the INP are outlined in Renzo Tonin & Associates (2017).

The VLAMP provides some useful context in regard to characterising the practical implications of exceedances of the INP operational noise criteria (Table 1). For the purposes of assessing potential noise impacts, exceedances can be separated into a Noise Management Zone (i.e. negligible, marginal or moderate impacts of 1 to 5 dBA above the criteria) and a Noise Affectionation Zone (i.e. greater than 5 dBA above the criteria, with impacts considered to be significant) (Table 1).

Table 1: Characterisation of the Significance of Noise Impacts and Treatments

Residual Noise Exceeds Industrial Noise Policy Criteria By	Characterisation of Significance of Residual Impacts	Potential Treatment
0 to 2 dBA above the Project-specific noise level	Impacts are considered to be negligible	The exceedances would not be discernible by the average listener and therefore would not warrant receiver based treatments or controls.
3 to 5 dBA above the Project-specific noise level in the INP but the development would contribute less than 1 dB to the total industrial noise level	Impacts are considered to be marginal	Provide mechanical ventilation/comfort condition systems to enable windows to be closed without compromising internal air quality/amenity.
3 to 5 dBA above the Project-specific noise level in the INP and the development would contribute more than 1 dB to the total industrial noise level	Impacts are considered to be moderate	As for marginal impacts but also upgraded façade elements like windows, doors, roof insulation etc. to further increase the ability of the building façade to reduce noise levels.
>5 dBA above the Project-specific noise level in the INP	Impacts are considered to be significant	Provide mitigation as for moderate impacts and see Voluntary Land Acquisition and Mitigation Policy provisions.

After: NSW Government (2014).

Renzo Tonin & Associates (2017) predicted that **no privately-owned properties would experience marginal, moderate or significant exceedances of the Project-specific noise levels** (i.e. greater than or equal to 3 dBA above the Project-specific noise levels) with the implementation of the proposed mitigation measures.

With the implementation of the assumed mitigation measures, **seven properties are predicted to experience negligible exceedances of the Project-specific noise levels** (i.e. 1 to 2 dBA above the Project-specific noise levels). The impact of potential exceedances of the Project-specific noise levels of 1 to 2 dBA is negligible and not discernible by the average listener based on the characterisation of noise impacts described in the VLAMP (Table 1).

A summary of the privately-owned properties with predicted exceedances of the Project-specific noise levels is provided in Table 2.

Table 2: Summary of Potential Operational Noise Exceedences at Privately-owned Receivers

Zone	Exceedence Level	Maximum Predicted Noise Level		
		Year 6	Year 11	Year 21
Noise Management Zone	Negligible 0 to 2 dBA above the Project-specific noise levels	Currajong Park [M08 and M23], Wanda Bye [M31]	Abandoned 2 [M04] Currajong Park [M08 and M23], Glenburn [M10], Rosehill [M28], Slapdown [M29], Wanda Bye [M31]	Abandoned 2 [M04] Currajong Park [M08 and M23], Glenburn [M10], Brooklyn [M22], Slapdown [M29], Wanda Bye [M31]
	Marginal/Moderate 3 to 5 dBA above the Project-specific noise levels	-	-	-
Noise Affectionation Zone	Significant >5 dBA above the Project-specific noise levels	-	-	-

After: Renzo Tonin (2017).

Air Quality

The Air Quality and Greenhouse Gas Assessment (Ramboll Environ, 2017) prepared for Modification 4 considered the relevant gaseous and particulate matter criteria from the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (EPA, 2016) (Table 3).

Table 3: Summary of Relevant Criteria from the Approved Methods for the Modelling and Assessment of Air Pollutants

Pollutant	Averaging Periods	Criteria
Gaseous Emissions		
Carbon monoxide ¹	15-minute	100,000 µg/m ³
	1-hour	30,000 µg/m ³
	8-hour	10,000 µg/m ³
Nitrogen dioxide ¹	1-hour	246 µg/m ³
	Annual	62 µg/m ³
Sulphur dioxide ¹	10-minute	712 µg/m ³
	1-hour	570 µg/m ³
	24-hour	228 µg/m ³
	Annual	60 µg/m ³
Sulphuric acid ^{2,3}	1-hour	18 µg/m ³
1,3-butadiene	1-hour	40 µg/m ³
Benzene ^{2,3}	1-hour	29 µg/m ³

Table 3: Summary of Relevant Criteria from the Approved Methods for the Modelling and Assessment of Air Pollutants (continued)

Pollutant	Averaging Periods	Criteria
Particulate Matter Emissions		
TSP ⁴	Annual	90 µg/m ³
PM ₁₀ ⁴	Annual	25 µg/m ³
	24-hour	50 µg/m ³
PM _{2.5} ⁴	Annual	8 µg/m ³
	24-hour	25 µg/m ³
Dust Deposition (Maximum Increase)	Annual	2 g/m ² /month
Dust Deposition (Maximum Total) ⁴	Annual	4 g/m ² /month

After: Approved Methods (EPA, 2016).

¹ Gas volumes are expressed at 0 degrees Celsius (°C) and at an absolute pressure of 1 atmosphere.

² Gas volumes are expressed at 25°C and at an absolute pressure of 1 atmosphere.

³ Expressed as the 99.9th percentile value.

⁴ Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).

µg/m³ = micrograms per cubic metre.

g/m²/month = grams per square metre per month.

Ramboll Environ (2017) predicted **no exceedances of the criteria for gaseous pollutants** described in the Approved Methods at any privately-owned receivers, or beyond the site boundary. In fact, the predicted concentrations were well below the relevant criteria for gaseous pollutants (i.e. less than 50% of the relevant criteria).

Ramboll Environ (2017) also predicted **no exceedances of the criteria for particulate matter** described in the Approved Methods at any privately-owned receivers.

3. Verification of Modelling Results

Issue

DP&E requested a description of the measures that would be undertaken to verify whether noise and air emissions are consistent with the noise and air quality modelling undertaken for the Project.

Response

Clean TeQ will prepare an Annual Review to review the environmental performance of the Project each year in accordance with Condition 5, Schedule 5 of Development Consent DA 374-11-00. The Annual Review is required to include a comprehensive review of the monitoring results of the Project, including a comparison of these results against the relevant predictions in environmental assessment documentation (e.g. the noise and air quality modelling undertaken for Modification 4).

In addition to the above, Condition 8, Schedule 5 of Development Consent DA 374-11-00 specifies relevant incident reporting requirements:

The Applicant must immediately notify the Secretary and any other relevant agencies of any incident that has caused, or threatens to cause, material harm to the environment. For any other incident associated with the development, the Applicant must notify the Secretary and any other relevant agencies as soon as practicable after the Applicant becomes aware of the incident. Within 7 days of the date of the incident, the Applicant must provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.

4. Noise and Air Quality Monitoring

Issue

DP&E requested an outline of, in broad terms, the noise and air quality monitoring that will be undertaken at the Project.

Response

Noise

A Noise Management Plan will be prepared for the Project in accordance with Condition 9, Schedule 3 of Development Consent DA 374-11-00. The Noise Management Plan will include a noise monitoring program for evaluating and reporting on:

- compliance against the noise criteria; and
- compliance against the noise operating conditions.

It is anticipated that noise monitoring will consist of quarterly operator-attended noise monitoring at locations representative of the privately-owned receivers most likely to be affected by noise generated by the Project. Monitoring will be conducted by a suitably experienced and capable person in accordance with AS 1055-1997 *Acoustics – Description and Measurement of Environmental Noise General Procedures*, the INP and the requirements (including applicable meteorological conditions) of Appendix 4 of Development Consent DA 374-11-00.

In addition, meteorological monitoring will be undertaken at the Project in accordance with Condition 25, Schedule 3 of Development Consent DA 374-11-00.

Noise and meteorological monitoring will also be undertaken in accordance with the Project's Environment Protection Licence (to be issued under Part 3 of the *Protection of the Environment Operations Act, 1997* by the EPA).

A summary of all noise and meteorological monitoring results will be reported in the Annual Review.

Air Quality

An Air Quality Management Plan will be prepared for the Project in accordance with Condition 23, Schedule 3 of Development Consent DA 374-11-00. The Air Quality Management Plan will include an air quality monitoring program for evaluating and reporting on:

- baseline monitoring undertaken prior to the Project;
- compliance against the air quality criteria; and
- compliance against the air quality operating conditions.

Air quality monitoring will be conducted at locations representative of the privately-owned receivers most likely to be affected by air quality emissions generated by the Project. It is anticipated that deposition, PM₁₀ and relevant gaseous pollutants will be monitored. In addition, it is anticipated that gaseous pollutant emissions will be monitored at the stack.

Monitoring will be conducted by a suitably experienced and capable person in accordance with relevant Australian Standards and the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (EPA, 2016).

In addition, meteorological monitoring will be undertaken at the Project in accordance with Condition 25, Schedule 3 of Development Consent DA 374-11-00.

Air quality and meteorological monitoring will also be undertaken in accordance with the Project's Environment Protection Licence (to be issued under Part 3 of the *Protection of the Environment Operations Act, 1997* by the EPA).

A summary of all air quality and meteorological monitoring results will be reported in the Annual Review.

Yours sincerely,

CLEAN TEQ HOLDINGS LIMITED



JOHN HANRAHAN
ENVIRONMENTAL & APPROVALS LEAD – CLEAN TEQ SUNRISE PROJECT

ATTACHMENT A
ENVIRONMENT PROTECTION AUTHORITY SUBMISSION
ON MODIFICATION 4



Reference : DOC17/613706
Date : 19 December 2017
Contact : Helen Smith, 02 6883 5374

Rose-Anne Hawkeswood
Senior Planning Officer
NSW Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Dear Ms Hawkeswood

Sunrise Mine Modification 4

I refer to the Environmental Assessment ("EA") and accompanying information provided to the Environment Protection Authority ("EPA") on 28 November 2017 for the Sunrise Mine (formerly the Syerston Mine) Modification 4. The EPA understands that Modification 4 proposes changes to the approved processing methods, mine layout and water infrastructure as previously approved under DA 374-11-00.

The EPA has reviewed the information in the EA and has determined that it is able to support the modified proposal, subject to the proponent addressing additional information requirements outlined below and in **Attachment A**.

Additional information is required regarding the proposed impacts upon and measures to protect surface water and groundwater from pollution. Specifically, the EA does not provide adequate information to characterise the water pollution risks and consider potential impacts to receiving waterways. Further information is required in relation to:

- Identify the location and characterise pollutants in any water discharge points;
- Assess the potential impact of discharges on receiving waters; and
- Consider measures to avoid, minimise pollution and mitigate potential impacts.

Additional information is also required regarding the underdrainage and seepage collection system of the Tailing Storage Facility ("TSF"). Further information is required in relation to:

- Clarification of the location of the interception drains being below or above the clay liner of the TSF;
- Confirm the seepage into the interception drains will not interfere with the functionality of the TSF's clay liner;
- Clarification of the depth and permeability of the proposed clay liner beneath the TSF's seepage collection sumps;
- Clarification of the number and location of the seepage collection sumps; and
- Clarification of where seepage collected in the sumps is being pumped to including accounting for water movement in the modified water supply schematic.

The EPA also notes that any seepage from the TSF's underdrainage and seepage collection system is proposed to be pumped to the TSF decant pond or the evaporation pond. The applicant should consider the appropriateness of pumping any seepage to these structures as these would also need to be lined.

The EPA notes that Modification 4 assesses noise impacts under F stability category meteorological conditions. The EPA can support the modification based on the predicted levels for noise and blasting, with the incorporation of mitigation measures, as described in the noise and blasting assessment.

The EPA recommends that the proponent be required to provide additional information specified above and in Attachment A and that the EPA is provided with a further opportunity to review this information before the project proceeds to the determination stage.

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The EPA also notes that the proponent proposes to prepare an Air Quality Management Plan to include management measures to manage dust and prevent off-site impacts. This should be incorporated as a condition of consent.

The EPA notes that the proposal will require an Environmental Protection Licence pursuant to the *Protection of the Environment Operations Act 1997* to operate. The proponent will need to make a separate application to the EPA to obtain this licence once development project approval is granted.

If you have any questions, or wish to discuss this matter further please contact Helen Smith at the EPA's Central West – Dubbo office by telephoning 02 6883 5374 or by email at central.west@epa.nsw.gov.au.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Brad Tanswell', written over a horizontal line.

BRAD TANSWELL
Unit Head Central West – Dubbo
Environment Protection Authority

Attachment A – Assessment and Justification

ATTACHMENT A

Assessment of the proposal and request for additional information

WATER

Impact assessment

The EA does not characterise discharges, so it is unclear what pollution could occur due to the development. The EA does not provide any estimates of pollutant concentrations and loads and is therefore inadequate for predicting impacts associated with discharges that are likely to contain pollutants at non-trivial levels.

A key issue for any site discharge will be the potential for metals, process chemicals and/or rare earth elements, such as scandium, to be present in site discharges from the water storage dam or sediment basins. The potential impact of rare earth elements and other metals that do not have water quality guidelines may require additional assessment if there is potential for these analytes to be present in discharges.

Water Storage Dam

The EA identifies that overflow from the water storage dam spillway is predicted during extreme rainfall events. It is noted that no overflow is modelled to occur during dry or average conditions. Modelled overflow volumes have been provided as a total at the end of 20-year simulation, where it is predicted that 895 ML will be discharged from the water storage dam in Scenario 3 (based on the wettest sequential 20 years).

Sediment Basins

The EA states that water collected from the disturbed footprint (e.g. internal haul roads and waste rock emplacements) would be 'temporarily contained' in sediment basins. Where opportunities arise, water would be recycled for dust suppression or use in the processing facility, or otherwise discharged in accordance with the requirements of an Environment Protection Licence (EPL).

EPL discharge criteria, if appropriate, can only be derived following characterisation of the pollution, assessment of the potential impacts of that pollution on the receiving environment, and consideration of the practical measures that could be taken to prevent, control, abate or mitigate that pollution with the aim of restoring or maintaining the environmental values of receiving waters.

The proponent must:

- 1. identify the location of all proposed discharge points*
- 2. characterise the quality of all water leaving the premises in terms of the expected concentrations of all pollutants present that pose a risk of non-trivial harm to human health and the environment. This should be informed by a risk profile of the pollutants potentially mobilised from activities on the premises.*
- 3. clarify the frequency and volume of any discharges from contaminated water storages*
- 4. quantify the loads of pollutants expected to be discharged and consider the potential impacts on receiving waters.*
- 5. assess the potential impact of discharges on the environmental values of the receiving waters with reference to the relevant ANZECC (2000) trigger values or site-specific trigger values derived consistent with the methodology outlined in ANZECC (2000).*
- 6. consider the practical measures that could be taken to restore or maintain the environmental values of the receiving waters.*

