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Attention: Shaun Williams

EPA Advice on Submissions Report

Dear Mr Williams

Thank you for the request for advice from Public Authority Consultation (PAE-15712002), requesting the review by the NSW Environment Protection Authority (EPA) of the Response to Submissions Report for the proposed New Berrima Brickworks facility (Application SSD-10422) at 416 and 524 Berrima Road, Moss Vale (Lot 1 DP 785111 and Lot 1 DP 414246).

The EPA has reviewed the following documents:

- Response to Submission Letter – Willow Tree Planning – 1 March 2021
- Air Quality Impact Assessment – Response to NSW EPA advice on submissions report – 25 February 2021

The EPA understands the proposal is for the construction and operation of a 50 million brick per annum (mbpa) brickworks plant with a proposed 24/7 operation. The new plant is proposed to replace the current Bowral plant and will have an increased production capacity of 15 mbpa. The plant would operate as a dry press brick plant with a tunnel kiln, producing premium dry pressed brick products including “Bowral Blues”.

Based on the information provided, the proposal will require an environment protection licence under sections 43, 47, and 48 of the Protection of the Environment Operations Act 1997 (POEO Act) for scheduled activity clause 7 (Ceramic Works) of Schedule 1 of the POEO Act. As advised in our submission dated 21 August 2020, other scheduled activities may also apply including clause 16 (crushing, grinding or separating).

The EPA has reviewed the Submissions Report and advises that while some of the matters previously identified in EPA’s letter dated 20 November 2020 have been addressed, the information does not adequately address all the matters raised. The EPA has provided additional comments in Attachment A to assist the Department of Planning, Industry and Environment in assessing the proposed application. The EPA has also provided recommended conditions of approval in Attachment B.

The EPA has the following additional comments and recommendations:

| | | | | |
|--|---------------------------|--------------------|-------------------------|--|
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| Phone +61 2 9995 5555 (from outside NSW) | ABN 43 692 285 758 | Parramatta | 12 Darcy St, Parramatta | www.epa.nsw.gov.au |
| | | NSW 2124 Australia | NSW 2150 Australia | |

1. Matters to be addressed with conditions

a. Air quality

The EPA recommends that conditions be included to monitor and ensure compliance with the air emission limits deemed achievable in the Air Quality Impact Assessment (AQIA) as part of the EIS. These conditions are included in Attachment B.

The information provided by the proponent indicates that there has been a significant reduction in emission concentrations from the initial concentrations proposed for the project. The proposed emission performance is in-line with industry best practice.

In addition to the proposed recommended conditions of approval provided in Attachment B, the EPA has provided some additional comments in Attachment A to address the matters that have not been adequately address.

b. Noise management

The EPA recommends that conditions be included to monitor and ensure compliance with the noise limits deemed achievable in the Noise Impact Assessment (NIA) as part of the EIS. These conditions are included in Attachment B.

The NIA predicted that the noise levels generated by the proposed activity will be close to the proposed project specific noise criteria identified for the project. The EPA recommends that the proponent be required to undertake attended noise monitoring to assess and demonstrate compliance with the noise limits once the facility is operational. This will include undertaking regular noise monitoring as well as completing a noise verification monitoring campaign to verify that the activity complies with the noise limits set out in the Project Approval.

As indicated in our previous response provided in November 2020, the EPA also recommends that the proponent be required to prepare and implement a noise management plan to ensure that all noise mitigation strategies and measures are implemented to ensure compliance with the proposed noise limits. The response provided by Willow Tree Planning dated 1 March 2021 indicates that the proponent agrees with this approach. The plan should cover all premises-based activities and transport operations and include but not be limited to the following information:

- i) all measures necessary to ensure compliance with the project specific noise criteria at all times,
- ii) a system that allows for periodic assessment of Best Management Practice (BMP) and Best Available Technology Economically Achievable (BATEA) that has the potential to minimise noise levels from the facility,
- iii) Effective implementation of identified BMP and BATEA measures, where considered feasible and reasonable,
- iv) Measures to monitor noise performance and respond to complaints,
- v) Measures for community consultation including site contact details,
- vi) Noise monitoring and reporting procedures.

If you have any questions about this request, please contact Craig Patterson on (02) 4224 4100.

Yours sincerely



24/3/2021

CHARLES HAJEK
Manager Regulatory Operations – Regional South

Attachment A – EPA Review of Response to Submissions Report - Airlabs Environmental
 Attachment B – Recommended conditions of approval

Attachment A
Review of Response to EPA Advice on Submissions Report prepared by Airlabs
Environmental – 25 February 2021.

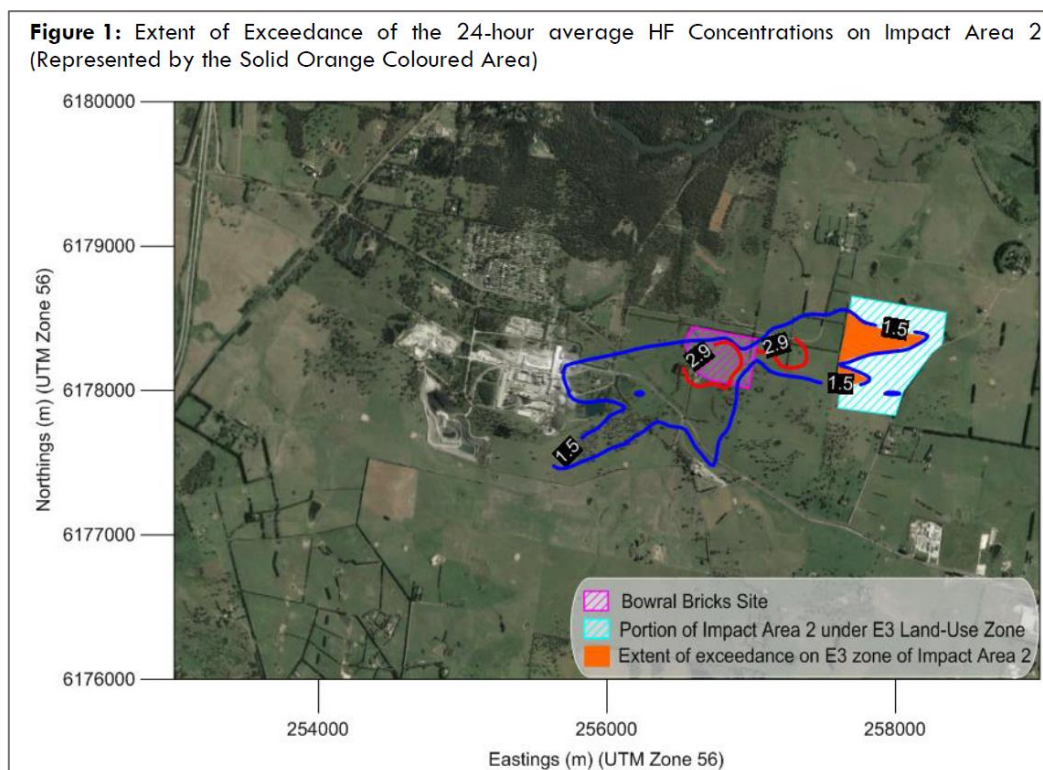
1. Hydrogen fluoride (Hf) impacts on sensitive land

The EPA previously requested that the proponent be required to provide supporting evidence of the information considered in Airlabs survey of the potential for sensitive lands surrounding the proposed project site.

The proponent has undertaken a review of the areas where exceedances of the EPA's sensitive land use impact assessment criterion for Hydrogen Fluoride (Hf) were predicted to occur. Two land parcels have been identified where impacts are predicted to occur. Lot 1 DP 414246 (Impact Area 1) and Lot 1 DP 623038 (Impact Area 2).

Impact Area 1 is owned by Austral and as such has been excluded from further review. Impact Area 2 has a combination of E3 and IN1 zones. The Proponent considers it unlikely that sensitive vegetation will be grown in the impacted area as it is located adjacent to land zoned IN1, for industrial use and is within the vicinity of the planned Austral Bricks Quarry and the existing Boral Cement Works.

No further assessment of Hf emissions was undertaken. As such, minor exceedances of the EPA's Hf sensitive land use criterion of 1.5 ug.m^3 (24-hour average) are still predicted to occur on land zoned E3. Future potential land use in the potentially affected areas may be impacted. An area of approximately 10ha is likely to be impacted as shown in Figure 1 below.



The proponent has committed to install a cascade scrubber, designed for treating kiln emissions, which is in line with best practice Hf control. The scrubber should be capable of achieving an emission performance below 20 mg/m^3 on an ongoing basis. The adopted emission concentration of 20 mg/m^3 is considered to be conservative and that the associated Hf impacts may be overpredicted. Notwithstanding this, the assessment demonstrates that best practice control and management of Hf emissions are required to ensure impacts on nearby future land use planning are minimised.

The EPA has recommended strict emission limits and monitoring conditions be applied to regulate the performance of the plant. The EPA has also recommended a condition for post commissioning emission monitoring following the commencement of operations.

The EPA advises the Department of Planning, Industry and Environment (DPIE) that the results of the dispersion modelling show predicted impacts above the EPA's impact assessment criteria in the land zoned E3 to the North West of the proposed facility. Future specialised land use potential in this area may be affected, including vegetation sensitive to fluoride, such as grape vines and stone fruits.

2. Incremental impacts predicted

The EPA previously requested that the AQIA V2 be revised to include a detailed feasibility assessment of engineering options and control measures to minimise emissions of pollutants including, but not limited to, particles, hydrogen chloride, nitrogen oxides and sulfur dioxide as far as practicably achievable. The results of dispersion modelling must not be used as the sole basis for not proposing emission controls. Where controls are proposed, the estimated level of emission performance must be supported using engineering specifications or performance guarantees.

Airlabs has revised the pollutant emission rates estimates adopted in the previous assessment based on advice from the kiln manufacturer, as per the table below;

Table 1: Revised Discharge Concentrations from the Proposed Facility Kiln Exhaust Stack

| Pollutant | Units | Corresponding Standard of Concentration – Ceramic Works, Group 6, Schedule 3 POEO Clean Air Regulation 2010, | Revised Maximum Discharge Concentrations proposed by Austral Bricks | Discharge Concentrations presented in AQIA V2 | Percentage Reduction in the Revised Discharge Concentrations when compared to Concentrations presented in AQIA V2 |
|------------------------------------|---|--|---|---|---|
| TSP | mg/Nm ³ corrected to 273K, dry and 101.325 kPa | 50 | 33 | 45 | 27% |
| PM ₁₀ | | n.d. | 30 | 37 ^(a) | 19% |
| PM _{2.5} | | n.d. | 22.5 | 22.5 ^(b) | No additional reduction |
| HF | | 50 | 20 | 20 | No additional reduction |
| SO ₂ | | 1,000 | 120 | 400 | 70% |
| NO _x as NO ₂ | | 500 | 250 | 450 | 44% |
| Sulfuric acid mist | | 100 | 26 | 75 | 65% |
| HCl | | 100 | 80 | 100 | 20% |

The response provided by Airlabs has not provided:

- information to justify the reduced emission concentrations
- supporting documentation such as emission performance guarantees from the kiln manufacturer and cascade scrubber supplier
- detailed specifications for the cascade scrubber.

The information provided by the proponent indicates that there has been a significant reduction in emission concentrations from the initial concentrations proposed for the project. The proposed emission performance is in-line with industry best practice and are below the performance limits set for existing austral brick plants.

The EPA recommends that supporting evidence from the equipment manufacturers regarding the expected emission performance of the plant should be provided prior to construction of the kiln and cascade scrubber. This information will be important for the proposed post commissioning emission testing program.

3. Cumulative NOx emissions

The EPA previously advised that there is potential that cumulative NOx impacts have been slightly underpredicted and that additional NOx controls must be considered in the final design stages of the project.

The revised modelling presented in the assessment predicts a minor exceedance of the 1-hour average cumulative NO₂ impact assessment criterion (IAC) of 246 ug/m³ at a residential receptor 20. The predicted impact of 253 ug/m³ is 6 ug/m³ above the IAC.

While cumulative NOx impacts appear to be primarily driven by the neighbouring Boral Cement Works, 1-hour incremental impacts of up-to 50.9 ug/m³ (21% of the IAC) for the project are predicted. The assessment appears to have adopted conservative assumptions which are likely to have resulted in overpredicted NOx impacts. Conservative assumptions include;

- NOx emissions are assumed to be released at a maximum of 250 mg/m³ on a continuous 24 hour per day, 365 days per week basis. It is expected the plant should achieve lower NOx emission concentrations than 250 mg/m³ on an annual basis.
- Cumulative impacts have assumed a maximum annual NOx emission rate of 4000 tonnes per annum from Boral Cement Works, which is significantly (~1500 tonnes) above the preceding 5-year annual average NOx emission rate reported to the NPI.
- no additional exceedances of the 1-hour average NO₂ ground level concentrations are predicted at any of the worst impacted receptors due to the proposed facility's operations.
- 100% conversion of NOx to NO₂ has been assumed

The EPA has recommended strict emission limits and monitoring conditions be applied to regulate the performance of the plant. The EPA has also recommended a condition for post commissioning emission monitoring following the commencement of operations.

4. Kiln emissions during oxidation and reducing conditions

The EPA previously requested that the AQIA V2 be revised to include supporting evidence of emissions profiles under both oxidising and reducing conditions to support the emissions inventory adopted in the assessment.

Table 5 of the response to submission includes a high-level comparison of pollutant discharge concentrations under oxidation and reduction conditions. The data is averaged from measurements collected across austral bricks' manufacturing sites. The specific details of the products and manufacturing sites has not been included due to commercial-in-confidence reasons.

The data presented is limited to a single result for each of the pollutants and shows minor variation in the pollutant concentrations measured. Information on the number of samples used to derive the average results and the statistical variation in the data has not been provided.

The EPA has recommended strict emission limits and monitoring conditions be applied to regulate the performance of the plant under both oxidation and reduction conditions. The EPA has also recommended a condition for post commissioning emission monitoring following the commencement of operations.

Attachment B – Recommended Conditions

Application SSD-10422 - Proposed New Berrima Brickworks facility 416 and 524 Berrima Road, Moss Vale (Lot 1 DP 785111 and Lot 1 DP 414246).

Environment Protection Licences (EPL) issued by the EPA under the Protection of the Environment Operations Act 1997 contain other generic conditions/ requirements in addition to those identified below. The EPA may also have additional conditions and/or requirements upon submission and review of the proponent's EPL application.

Location of monitoring/discharge points and areas

P1.1 The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

| <i>Air</i> | | | |
|------------------------|---|---|---|
| EPA identification no. | Type of Monitoring Point | Type of Discharge Point | Location Description |
| 1 | Discharge to air; Air emissions monitoring | Discharge to air; Air emissions monitoring | Scrubber exhaust/ Kiln exhaust stack |

Limit Conditions

Concentration limits

L2.1 For each monitoring/discharge point or utilisation area specified in the table below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

L2.2 Air Concentration Limits

POINT 1

| Pollutant | Units of measure | 100 percentile concentration limit | Reference conditions | Averaging period |
|---|----------------------------|------------------------------------|-----------------------|------------------|
| Fluorine (F ₂) or any compound containing fluorine, as total fluoride (HF equivalent) | milligrams per cubic metre | 20 | Dry, 273 K, 101.3 kPa | 1 hour |
| Solid Particles (Total) | milligrams per cubic metre | 35 | Dry, 273 K, 101.3 kPa | 1 hour |
| Nitrogen dioxide (NO ₂) or nitric oxide (NO) or both, as NO ₂ equivalent | milligrams per cubic metre | 250 | Dry, 273 K, 101.3 kPa | 1 hour |
| Sulfuric acid mist and sulfur trioxide (as SO ₃) | milligrams per cubic metre | 30 | Dry, 273 K, 101.3 kPa | 1 hour |
| Sulfur Dioxide | milligrams per cubic metre | 120 | Dry, 273 K, 101.3 kPa | 1 hour |
| Hydrogen chloride | mg/m ³ | 80 | Dry, 273 K, 101.3 kPa | 1 hour |

Noise Limits

- L6.1 Noise generated at the premises must not exceed the noise limits at the times and locations in the table below.

| Location | Noise Limits in dB(A) | | | |
|------------------------------------|------------------------------|------------------------------|------------------------------|--------------------|
| | Day | Evening | Night | Night |
| | L _{Aeq} (15 minute) | L _{Aeq} (15 minute) | L _{Aeq} (15 minute) | L _{AFmax} |
| All residential receiver locations | 40 | 40 | 38 | 52 |

- L6.2 For the purposes of condition L6.1:

- Day means the period from 7am to 6pm Monday to Saturday and the period from 8am to 6pm Sunday and public holidays.
- Evening means the period from 6pm to 10pm.
- Night means the period from 10pm to 7am Monday to Saturday and the period from 10pm to 8am Sunday and public holidays.

- L6.3 Noise-enhancing meteorological conditions

- The noise limits set out in condition L6.1 apply under the following meteorological conditions:

| Assessment Period | Meteorological Conditions |
|-------------------|---|
| Day | Stability Categories A, B, C and D with wind speeds up to and including 3m/s at 10m above ground level. |
| Evening | Stability Categories A, B, C and D with wind speeds up to and including 3m/s at 10m above ground level. |
| Night | Stability Categories A, B, C and D with wind speeds up to and including 3m/s at 10m above ground level; or Stability category E and F with wind speeds up to and including 2m/s at 10m above ground level. |

- For those meteorological conditions not referred to in condition L6.3(a), the noise limits that apply are the noise limits in condition L6.1 plus 5dB.

- L6.4 For the purposes of condition L6.3:

- The meteorological conditions are to be determined from meteorological data obtained from the meteorological weather station identified as Bureau of Meteorology AWS at Moss Vale.
- Stability category shall be determined using the following method from Fact Sheet D of the *Noise Policy for Industry* (NSW EPA, 2017):
 - Pasquill-Gifford stability classification scheme (section D1.3.1).

- L6.5 To assess compliance:

- with the L_{Aeq}(15 minutes) or the L_{Amax} noise limits in condition L6.1 and L6.3, the noise measurement equipment must be located:
 - approximately on the property boundary, where any residence is situated 30 metres or less from the property boundary closest to premises; or where applicable,
 - in an area within 30 metres of a residence façade, but not closer than 3 metres where any residence on the property is situated more than 30 metres from the property boundary closest to the premises; or, where applicable,
 - in an area within 50 metres of the boundary of a National Park or Nature Reserve,
 - at any other location identified in condition L6.1
- with the L_{Aeq}(15 minutes) or the L_{Amax} noise limits in condition L6.1 and L6.3, the noise measurement equipment must be located:

- (i) at the reasonably most affected point at a location where there is no residence at the location; or,
- (ii) at the reasonably most affected point within an area at a location prescribed by condition L6.5 (a).

- L6.6 A non-compliance of conditions L6.1 and L6.3 will still occur where noise generated from the premises is measured in excess of the noise limit at a point other than the reasonably most affected point at the locations referred to in condition L6.5 (a) or L6.5 (b).
NOTE to L6.5 and L6.6: The reasonably most affected point is a point at a location or within an area at a location experiencing or expected to experience the highest sound pressure level from the premises.
- L6.7 For the purpose of determining the noise generated from the premises, the modifying factor corrections in Table C1 in Fact Sheet C of the *Noise Policy for Industry* (NSW EPA, 2017) may be applied, if appropriate, to the noise measurements by the noise monitoring equipment.
- L6.8 Noise measurements must not be undertaken where rain or wind speed at microphone level will affect the acquisition of valid measurements.

Note: Additions to Definition of Terms of the licence

- i) Noise Policy for Industry - the document entitled "*Noise Policy for Industry*" published by the NSW Environment Protection Authority in October 2017.
- ii) Noise – 'sound pressure levels' for the purposes of conditions L6.1 to L6.8.
- iii) $L_{Aeq(15\text{ minute})}$ - the value of the A-weighted sound pressure level of a continuous steady sound that, over a 15 minute time interval, has the same mean square sound pressure level as a sound under consideration with a level that varies with time (Australian Standard AS 1055:2018 *Acoustics: description and measurement of environmental noise*).
- iv) L_{AFmax} – the maximum sound pressure level of an event measured with a sound level meter satisfying Australian Standard AS IEC 61672.1-2013 *Electroacoustics - Sound level meters - Part 1: Specifications* set to 'A' frequency weighting and fast time weighting.

Potentially offensive odour

- L7.1 No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the Protection of the Environment Operations Act 1997.

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

Operating Conditions

Activities must be carried out in a competent manner

- O1.1 Licensed activities must be carried out in a competent manner. This includes:
- a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
 - b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

Maintenance of plant and equipment

- O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
- must be maintained in a proper and efficient condition; and
 - must be operated in a proper and efficient manner.

Dust

- O3.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.
- O3.2 All operations and activities occurring at the premises must be carried out in a manner that will minimise the emission of dust from the premises.
- O3.3 Trucks entering and leaving the premises that are carrying loads of dust generating materials must be covered at all times, except during loading and unloading.

Monitoring and Recording Conditions

Requirement to monitor concentration of pollutants discharged

- M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Air Monitoring Requirements

POINT 1

| Pollutant | Units of Meaature | Frequency | Sampling Method |
|--|----------------------------|-----------|-----------------|
| Hydrogen fluoride | milligrams per cubic metre | 6 monthly | TM-9 |
| Total Solid Particles | milligrams per cubic metre | 6 monthly | TM-15 |
| Nitrogen Oxides | milligrams per cubic metre | 6 monthly | TM-11 |
| Sulfuric acid mist and sulfur trioxide (as SO ₃) | milligrams per cubic metre | 6 Monthly | TM-3 |
| Sulfur Dioxide | milligrams per cubic metre | 6 Monthly | TM-4 |
| Hydrogen chloride | milligrams per cubic metre | 6 Monthly | TM-8 |
| Moisture | Percent | 6 Monthly | TM-22 |
| Oxygen | Percent | 6 Monthly | TM-25 |
| Temperature | Celsius | 6 Monthly | TM-2 |
| Velocity | Metres per second | 6 Monthly | TM-2 |
| Volumetric flowrate | Cubic metres per second | 6 Monthly | TM-2 |

Noise monitoring

- M8.1 Attended noise monitoring must be undertaken in accordance with Condition L6.5 and must:

- a) occur annually in a reporting period;
- b) occur during each day, evening and night period as defined in the *Noise Policy for Industry* for a minimum of:
 - 1.5 hours during the day;
 - 30 minutes during the evening; and
 - 1 hour during the night.
- c) occur for three consecutive operating days.

Reporting Conditions

Noise Monitoring Report

- R4.1 A noise compliance assessment report must be submitted to the EPA within 30 days of the completion of the annual monitoring. The assessment must be prepared by a suitably qualified acoustical consultant and undertaken in accordance with the EPA Noise Policy for Industry. The report must include:
- a) an assessment of compliance with noise limits presented in Condition L6.1 and L6.3; and
 - b) an outline of any management actions taken within the monitoring period to address any exceedences of the limits contained in Condition L6.1 and L6.3.

Special Conditions

Post Commissioning Emission Testing

Within three months post construction of the kiln and scrubber and following the commencement of normal operations, the licensee must undertake post commissioning emission testing to confirm the emission performance of the plant.

The post commissioning emission testing must:

- a) be performed by a suitably qualified consultant
- b) be undertaken in accordance with a site-specific emission monitoring test plan to provide a suitable characterisation of the emissions during normal operations under both oxidation and reduction operating conditions.
- c) monitor for all pollutants listed for Point 1 of Condition M2.2; and
- d) include a minimum of two rounds of testing for both oxidation and reduction operating conditions.

All sampling must be undertaken in accordance with the Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales.

A detailed report must be provided to the EPA by <insert date> on the post commissioning emission monitoring. The report must include, as a minimum:

- 1) a copy of the site-specific emission monitoring test plan
- 2) all monitoring results and all information listed under Analytical report, Stationary source monitoring in accordance with the Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales.
- 3) an assessment of compliance with the licence emission limits listed for Point 1 in Condition L2.1; and
- 4) if the monitoring identifies any non-compliance with the licence emission limits, a description of actions to address the non-compliances must be provided.

Noise verification assessment

Within three months following the commencement of operations, the licensee must submit to the EPA a noise compliance assessment report to confirm the findings of the Noise Impact Assessment included in the Environmental Assessment and demonstrate compliance with the

licence noise limits. The assessment must be prepared by a suitably qualified acoustical consultant and be undertaken in accordance with the EPA Noise Policy for Industry.

If the noise monitoring identifies any non-compliance with the licence noise limits, the licensee must detail:

- a) what additional improvement measures will be implemented to ensure the activity complies with the noise limits set out in the licence.
- b) the estimated reduction in noise levels proposed to be achieved by implementing the additional measures.
- c) the timeframe for implementing the additional measures; and
- d) a clear strategy of how the effectiveness of the additional measures will be measured and reported to the EPA.