



Your reference: DA 345-11-01; DA 251-09-01; PA 06_168
Our reference: EF13/2844; DOC13/84694-01
Contact: Jason Price 02 6969 0700

The Environmental Planning Officer
Mining Projects
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Ms Smith

Re Cristal Mining – proposed modifications to Murray Darling Basin operations

Thank you for your electronic mail dated 19 November 2013 to the Environment Protection Authority (EPA) seeking written submissions on the Environmental Assessment (EA) that supports the proposed modifications to the Cristal Mining Australia Limited (Cristal Mining) mineral separation plant at Broken Hill and their Snapper and Ginkgo mineral sand mines in the Wentworth Shire.

We have reviewed the information provided and determined that we can support the proposed modifications subject to the Department of Planning and Infrastructure (DoPI) incorporating the recommended conditions provided in Attachment 'A' into the development consent. We expect that all other existing development consent conditions relating to environmental issues will be retained in any modified approval.

Attachment 'B' contains our assessment of the EA, including justification for our recommended conditions of consent.

Please note that inclusion of our recommended conditions in any modified development consent granted by the DoPI is important for our ongoing support of the proposal. It is expected that the EPA will be given an opportunity to review and comment on the DoPI's draft conditions of consent for this proposal.

Where modified development consents for the mineral separation plant and two (2) associated mineral sand mines is granted an application for a variation to Environment Protection Licence No's 12314, 12264 and 12799 held by Cristal Mining will be required to be submitted to the EPA prior to any construction work or activities associated with the proposal.

If you have any further enquiries about this matter please contact Jason Price by telephoning 02 69690700.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Darren Wallett', written over a horizontal line.

11/12/13

DARREN WALLETT
Head, Griffith Unit
Environment Protection Authority

ATTACHMENT 'A'

We recommend that the following conditions are included in any modified development consent.

Operational

Broken Hill Mineral Separation Plant (DA 345-11-01)

- Processing of mineral sands and associated activities must not occur post 31 December 2032.
- The premises must not process more than 1,200,000 tonnes of mineral sand in any 12 month period.

Noise

Broken Hill Mineral Separation Plant (DA 345-11-01)

Noise mitigation measures

- Upon receiving a written request for noise mitigation measures from the owner of the property described as 'R3 – Smith' in Appendix B (MSP Noise Assessment) of the Cristal Mining Australia Limited environmental assessment titled 'Murray Darling Basin Operations' and dated November 2013, the applicant must arrange the commencement of the physical implementation of noise mitigation measures at that property within 3 months.

Note: Noise mitigation measures include but are not limited to double glazing of windows, the installation of insulation in walls and ceilings and/or air conditioning.

Noise limits

- The applicant must ensure that noise associated with the development does not exceed the noise limits at surrounding residential premises detailed in the Table below.

Location	Day / Evening / Night (excluding temperature inversions) dB(A) LAeq (15 minute)	Day / Evening / Night with temperature inversion dB(A) LAeq (15 minute)
R3 - Smith	35	39
All other residential premises	35	35

- Compliance noise monitoring must be undertaken at the location known as 'R3 – Smith' within 12 months after the commissioning of all approved development at the Broken Hill mineral separation plant.

Note: All noise measurements must be undertaken in accordance with the NSW Industrial Noise Policy (INP). All measurement terms in the table have the same meaning as defined in the INP.

Operating noise conditions

- All external auxiliary equipment identified as noise generating must be acoustically treated with cladding or be enclosed.
- The approved zircon, rutile and ilmenite kiln/roaster circuits must be constructed so as to be housed within a building.
- Any front end loader operating in the night time period must be fitted with a noise suppression kit.

Construction noise

- All construction work at or associated with the development must only be conducted between the following hours:
7.00am to 6.00pm Monday to Friday, and
8.00am to 1.00pm Saturdays.

Waste

Ginkgo (DA 251-09-01), Snapper (PA 06_0168) and Atlas-Campaspe (SSD-5012) mineral sand projects

- Waste able to be disposed;
 1. Waste generated outside the premises from the processing of mineral concentrates produced at the **Snapper Mine, the Ginkgo Mine or the Atlas-Campaspe Mine**, AND
 2. Waste that is assessed as General Solid Waste (non-putrescible), following the technical procedure outlined in Waste Classification Guidelines, Part 1:Classifying Waste or that is specified as General Solid Waste (non-putrescible), in Schedule 1 of the Protection of the Environment Operations Act 1997; OR
 3. Waste that is assessed as hazardous waste on the basis it contains radioactive substances and except for this radioactive component would be classified as General Solid Waste (non-putrescible), following the technical assessment procedure outlined in Waste Classification Guidelines, Part 1: Classifying waste.

Note: Waste permitted to be disposed at the premises must comply with item 1 and at least one other item in this list at either item 2 or 3.

ATTACHMENT 'B'

Air Quality

The primary concern for this development in terms of air quality is the potential for impacts from particulate matter becoming airborne through mineral concentrate handling and storage and oxides of nitrogen emissions associated with the combustion of fossil fuels at the Broken Hill mineral separation plant (MSP).

The methodology used in the Pacific Environment Limited Air Quality Impact Assessment dated November 2013 has been completed generally in accordance with the EPA guidelines "Approved Methods for the Modelling and Assessment of Air Pollutants in NSW".

The dispersion modelling results indicate predicted emissions at surrounding sensitive receptors from modified operations at Cristal's MSP in Broken Hill are minor and comply with all relevant annual and 24 hour criteria for particulate matter with a diameter less than 10 micrometres and total suspended particulates. The annual and 1 hour criteria for nitrogen dioxide are comfortably met.

Particulate matter, dust and oxides of nitrogen monitoring at the MSP is already included in DA 354-11-01 and encompasses all existing and proposed emission points. Upon commission of the proposed processing circuits and associated stacks, additional monitoring will be included within the environment protection licence attached to the premise.

This proposed modification does not affect potential air quality impacts at the Ginkgo, Snapper or proposed Atlas-Campaspe mines.

Noise Impact Assessment

The 'Noise Assessment' (NA) dated November 2013 undertaken by Renzo Tonin and Associates was completed generally in accordance with the New South Wales Industrial Noise Policy (INP).

The ambient background noise levels in the absence of the MSP are assessed at 30dB(A) L90 (15 minute) based on previous noise monitoring.

Under worst case scenario conditions (night time winter temperature inversions) the modelling from the NA predicts noise impacts from plant and vehicle movements from this proposal will exceed the project specific noise criteria of 35dB(A) LAeq (15 minute) at 1 residential receptor (R3 – Smith). The proposal also exceeds the recommended night time sleep disturbance noise criteria of 45dB(A) L1 (1 minute) at the residential receptor 'R3 – Smith'.

The INP indicates that noise levels above the project specific noise criteria are considered intrusive and unacceptable and that where project specific noise criteria are exceeded all feasible and reasonable noise mitigation measures should be implemented, to reduce noise impacts back towards the project specific noise criteria.

The NA considered several mitigation measures including retrofitting the front end loader operating at night with a noise suppression kit, cladding around or enclosure of external auxiliary equipment to the processing circuits and housing the proposed processing circuits in a building structure. These mitigation measures are proposed to be implemented and are recommended by the EPA as conditions of consent. However, these measures were not sufficient for the MSP to meet the project specific noise criteria during night time winter temperature inversions.

Based on there being no further feasible and reasonable measures that can be applied on site, the NA proposes noise mitigation measures are assigned to the receiver R3 – Smith and the EPA has detailed noise mitigation measures in our recommended conditions of consent.

Ground and Surface Water

There are no modifications in this proposal that affect current ground and surface water protection measures for the Broken Hill MSP (DA 345-11-01), Ginkgo (DA 251-09-01) and Snapper (PA 06_0168) mineral sand projects.

Ground and surface water mitigation measures have been submitted to the DoPI for the proposed Atlas-Campaspe mineral sands project in response to Cristal's development application SSD-5012.

Groundwater and surface water impacts from potential mining activities at the Ginkgo and Snapper mines are monitored through extensive water quality monitoring programmes. The EPA does not propose any additional monitoring.

Waste

In addition to approved waste disposal of MSP waste at the Ginkgo and Snapper mines, this modification proposes to add processed mineral sand concentrate waste from the Atlas-Campaspe mine to the Ginkgo and Snapper waste loads in the mine void behind the advancing ore extraction areas.

At year 12 of the Atlas-Campaspe mine (in a proposed 20 year life) mineral sand process waste from the MSP will be transported in sealed containers by rail to Ivanhoe and then by road to the Atlas-Campaspe mine. The process waste will be blended with sand residues and coarse rejects and deposited in the mine void behind the advancing ore extraction areas. The process waste will be deposited above the current groundwater table and covered with a minimum of 10 metres of overburden.

The Atlas-Campaspe mineral sand is from the same Loxton Parilla sand deposits found in the Ginkgo and Snapper mineral sands and has similar radioactive and geochemical properties, making this disposal option acceptable.

Mineral sands are extremely insoluble in saline water and leachable only under the most extreme chemical or thermal conditions and are intrinsically not a risk to groundwater by leaching.

The EPA has recommended that a 'Waste Management Plan' is required in the approval conditions for the Atlas-Campaspe proposal which details the waste disposal methods and radioactive waste management. This will ensure appropriate handling, transport and disposal of mineral sand waste is employed, as described in the Environmental Assessments for the Ginkgo, Snapper and now the Atlas-Campaspe mine.