NSW GOVERNMENT | Department of Primary Industries

OUT13/34552

Mr Kane Winwood
Mining Projects
NSW Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

25 NOV 2013

Kane.Winwood@planning.nsw.gov.au

Dear Mr Winwood,

Dubbo Zirconia Project (SSD-5251)
Response to exhibition of Environmental Impact Statement

I refer to your email dated 13 September 2013 requesting advice from the Department of Primary Industries (DPI) in respect to the above matter.

Comment by Crown Lands
Crown Lands advise:

(i) The use of any Crown road area will require that road to be closed under the *Roads Act 1993* and either purchased or some other access/occupation arrangement authorised. The proponent should make early contact with Crown Lands in relation to the occupation of any Crown road.

(ii) The project area includes Lot 7300 DP 1149010 (Reserve 753220, reserved for Future Public Requirements and currently subject to Licence 454835 for Grazing & Agriculture) and Lots 41 & 61 DP 753220 (Reserve 62545, reserved for Public Recreation and currently subject to Licence I 454836 for Grazing). The Crown is in the process of negotiating the sale of these lots to adjoining owners. If the sale does not proceed any use of these lots will need to be authorised by the appropriate mechanism under the *Crown Lands Act 1989*. The proponent should make early contact with Crown Lands to that end before commencing any use or occupation of these lots.

For further information please contact Jody Burgess, Property Management Project Officer (Dubbo office) on 6883 5404, or at: jody.burgess@lands.nsw.gov.au.

Comment by NSW Office of Water
The NSW Office of Water provides the following key comments, and the detailed advices and recommended conditions, should the application be approved, in Attachment A:

(i) Annual water demands for the project include 4.05 GL of makeup water for processing. The proponent recognises the need to purchase additional regulated river entitlement to ensure adequate supply is available. This will be subject to existing entitlements being made available for purchase which is a commercial risk. The proposed use of groundwater in the fractured rock and alluvial aquifers is yet to be confirmed.

(ii) The significantly high salinity water to be stored in the Liquid Residue Storage Facility represents a risk to local groundwater and surface water systems. The ability to ensure adequate initial investigations and the implementation of mitigating measures and contingency plans is critical.

(iii) The proposal includes a requirement to evaporate 2.5 GL/yr at peak processing rate. This represents approximately 60% of the make up water demand. Continued investigations to improve reuse are recommended to maximise water use efficiency.

(iv) Additional assessment is requested to consider the impacts of reduced water availability for riparian rights downstream of the project site.

(v) Works within waterfront land are proposed for a range of activities including road and rail bridge upgrades, natural gas and water pipeline installation, and infrastructure within the main project site. It is recommended these works be carried out in accordance with the NSW Office of Water Guidelines for Controlled Activities on Waterfront Land.

(vi) Licensing under the *Water Act 1912/Water Management Act 2000* will need to be considered in consultation with the NSW Office of Water for additional monitoring bores and works on the floodplain.

For further information please contact Tim Baker, Senior Water Regulation Officer (Dubbo office) on 6841 7403, or at: Tim.Baker@water.nsw.gov.au.

Comment by Fisheries NSW

Fisheries NSW advise:

(i) the project involves the construction of a pump station on the Macquarie River, and the construction of a pipeline to extract up to 4 gigalites of water annually from the Macquarie River. In addition the project will involve a number of road and rail bridges, culverts, and pipelines that will be crossing Key Fish Habitat and threatened species habitat areas.

(ii) this project has the potential to have significant impacts on the aquatic ecology, and needs to be viewed in reference to the Orange Pipeline project also involving extraction of water from the Macquarie River.

(iii) that any approval of the application should include the conditions detailed in Attachment B.

For further information please contact David Ward, Fisheries Conservation Manager Tamworth office) on 6763 1255, or at david.ward@dpi.nsw.gov.au.

Comment by Office of Agricultural Sustainability & Food Security

In accordance with arrangements for mining projects that affect agricultural land, the Office of Agricultural Sustainability & Food Security will respond direct to your Department.

For further information please contact Mary Kovac, Resource Management Officer (Dubbo office) on 6881 1250, or at: mary.kovac@dpi.nsw.gov.au.

Yours sincerely

Phil Anquetil
Executive Director Business Services

Attachment A

Dubbo Zirconia Project (SSD-5251)
Response to exhibition of EIS

Additional comments by NSW Office of Water

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1. Water Supply and Sources

- The EIS indicates the project will require approximately 4.05 GL in make up water per year for processing and approximately 39.6 ML/yr for dust suppression activities. The proponent currently holds 846 ML of High Security (HS) regulated river entitlement and 750 ML of General Security (HS) entitlement within the Macquarie-Cudgegong Regulated River Water Source. Additional entitlement is therefore required to meet the water demands. In terms of the regulated river entitlements these are subject to allocation announcements which may reduce the security of supply. As indicated in Appendix 7 the ability to purchase additional HS entitlement may be limited. The proponent may therefore be reliant on purchasing additional GS entitlements which will be more subject to reduced allocations.
- Water is proposed to be sourced from a range of sources including the regulated Macquarie River, on-site runoff harvesting and potentially groundwater.
- The Office of Water considers the fractured rock aquifers of the Lachlan Fold Belt Water Source recommended for investigation in Appendix 8 may not yield the proposed volume of 1 GL/yr. The Upper Macquarie Alluvial Water Source however has characteristically higher yields and it is advised any proposal to extract water from this water source will require the development of a plan to mitigate impacts to existing water users and the environment.

2. Surface Water Impacts

- Section 4.5.4.3 (main EIS) details the proposed sediment and water supply dams proposed for the project and the applicability of Harvestable Rights. A key issue for the proponent to be aware of is the need for landholdings considered in the Harvestable Rights calculation to be contiguous and the water must be used on the same property.
- Section 4.5.5.2 (main EIS) indicates a total reduction in annual runoff during mine life of approximately 453 ML. This comprises a 20% reduction to an undefined catchment leading directly to the Macquarie River, a 5% reduction in the Cockabroo Catchment and a 1.3% reduction in the Wambangalang Ck catchment. The Office of Water confirms there are no existing water licences on watercourses downstream of the proposed site. There are however properties which have riparian frontage and hence the ability to extract water for stock and domestic requirements. It is recommended further assessment of the impacts to these properties be completed, with particular focus on the undefined Macquarie River Catchment.
- Section 4.5.5.2 (main EIS) indicates at mine closure the runoff reduction will be limited to the area of the open cut which is 36 ha.
- Based on Figure 4.22 and 4.23 (main EIS) the buffer distances between proposed infrastructure and the banks of Watercourse C are not defined. The NSW Office of Water recommends the "*Guidelines for Controlled Activities on Waterfront Land*" (CAA guidelines) be addressed when finalising the locations of these structures. A key aspect is that a 20 metre buffer relates to Watercourse C as it is a second order watercourse. It is recognised however that Section 4.1.9 of the SW Assessment indicates construction would remain at least 20 metres from Watercourse C.
- Section 4.5.5.7 (main EIS) indicates the flood assessment identified the potential for parts of the processing plant to be inundated in the downstream section of Watercourse C. Proposed embankments to mitigate the floods are predicted to increase the flow velocity by 0.4-0.5 m/s however this will be below 1.6 m/s which is stated as an accepted velocity for vegetated channels. The proposed mitigating measures to enhance stability on the bottom embankment of the Liquid Residue Storage Facility (LRSF) are supported.

- Section 4.1.9 of the Stormwater Assessment refers to approval requirements in relation to structures built within the floodplain. As stated the proposed works within the floodplain may require a Part 8 approval under the *Water Act 1912*. It is recommended the proponent consult with the NSW Office of Water to confirm the necessary approval requirements prior to commencement of works.
- Section 8 of the Stormwater Assessment indicates the proposal to modify road bridge structures to improve the flood clearance level. The NSW Office of Water recommends works within 40 metres of waterfront land is carried out in accordance with the CAA guidelines.
- The proposed water pipeline and natural gas pipeline will cross several minor drainage lines. In addition, the water extraction point on the Macquarie River will require disturbance to the river bed and banks. The NSW Office of Water recommends works within 40 metres of waterfront land be carried out in accordance with the CAA guidelines.
- A number of clean water diversions are proposed to divert water around proposed infrastructure and in some instances infrastructure is proposed over an existing watercourse (eg. SRSF in upper reach of Watercourse C shown in Figure 4.27). It is recommended diversion structures and consideration of offset requirements be developed in accordance with the CAA Guidelines.
- The Office of Water supports the proposal to develop a detailed Water Management Plan prior to commencement of activities.

3. Groundwater Impacts

- Based on the information provided in Section 4.6 of the main EIS the open cut is not predicted to intercept the regional groundwater table. An assessment under the Aquifer Interference Policy has therefore not been carried out.
- A reduction in recharge due to the SRSF is predicted to result in a 1 to 3 metre reduction in the water table. An increase in recharge from the open cut is predicted to minimise the impacts, however this has not been considered in term of timing of the impacts. The proposed monitoring is supported to verify impacts to enable consideration of contingency requirements as necessary.
- The potential for contaminants to enter the groundwater from the Solid Residue Facility, Liquid Residue Storage Facility and Salt Encapsulation Cells is recognised in the EIS. The proposed lining, detection and monitoring systems is supported by the Office of Water. In addition to this the Groundwater Assessment recommends further investigations be carried out to confirm the presence of permeable aquifers to enable consideration of adequate mitigation measures, which is also supported.
- The significantly high salinity water to be stored in the LRSF represents a risk to local groundwater and surface water systems. The ability to ensure adequate initial investigations and the implementation of mitigating measures and contingency plans is critical.
- Section 6.2.3 of the Groundwater Assessment indicates a decision on whether the Salt Encapsulation Cells (SEC) will remain on-site or be removed is yet to be made. It is recommended this be confirmed prior to determination of the project to ensure adequate consideration of mitigating and monitoring requirements. The proposal in Section 2.9.4.4 of the main EIS to pump any leakage from the SEC's post closure to the LRSF may not be possible if the liner of the LRSF has been removed. It is therefore recommended this be given further consideration.
- The Office of Water supports the proposal to develop a Groundwater Management and Mitigation Plan prior to commencement of activities. Monthly groundwater level measurements are recommended to ensure early detection of any potential leakage. The recommendations in Section 7 of the Groundwater Assessment are supported.

4. Recommended conditions of approval

The NSW Office of Water requests the following conditions be included in any determination issued for the Dubbo Zirconia Project:

- The proponent is required to obtain the necessary water licenses for the project under the *Water Act 1912* or *Water Management Act 2000* prior to commencement of activities.

- The proponent shall ensure works within waterfront land are carried out in accordance with the NSW Office of Water Guidelines for Controlled Activities on Waterfront Land.

- The Proponent shall prepare a Water Management Plan for the project. This Plan must be developed in consultation with the NSW Office of Water and include:
  - details of water use, metering and water management on site,
  - details of water licence requirements,
  - Surface Water Management Plan, and
  - Groundwater Management Plan.

- The Surface Water Management Plan must include:
  - a program to monitor:
    - surface water flows and quality,
    - surface water storage and use, and
    - sediment basin operation,
  - sediment and erosion control plans,
  - surface water impact assessment criteria, including trigger levels for investigating any potentially adverse surface water impacts, and
  - a protocol for the investigation and mitigation of identified exceedences of the surface water impact assessment criteria.

- The Groundwater Management Plan must include:
  - baseline data on groundwater levels and quality,
  - a program to monitor groundwater levels and quality,
  - groundwater impact assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts,
  - a protocol for the investigation and mitigation of identified exceedences of the groundwater impact assessment criteria.

End of Attachment A

Attachment B

Dubbo Zirconia Project (SSD-5251)
Response to exhibition of EIS

Additional comments by Fisheries NSW

Fisheries NSW has reviewed the EA in accordance with the provisions of Part 7 and Part 7A of the *Fisheries Management Act 1994* (FM Act) and relevant policies and guidelines applicable to the application of the Act. This project has the potential to have significant detrimental impacts on the aquatic ecology of the Macquarie River. In light of this, *Fisheries NSW* recommends the following Conditions of Consent should the application be approved:

1. Formulate an adaptive monitoring program for the local endangered Murray-Darling population of Freshwater Catfish within Wambangalang Creek, Toongi. In particular, monitor and manage the aquatic ecological impacts and proposed mitigation measures during the replacement of the rail bridge.

2. Detailed designs of the water extraction pump and proposed pump screens on the intake structure at the Macquarie River are to be provided to *Fisheries NSW* for review and comment, to ensure that *Fisheries NSW* is satisfied that entrainment and entrapment of juvenile fish and larvae is minimised. Details of the operation and management of the pump and intake structure should also be provided to *Fisheries NSW,* in particular the "start up" operations and water intake velocity.

3. Detailed Construction Environmental Management Plans (CEMPs) are to be provided to *Fisheries NSW* for review and comment prior to the construction of the intake structure at the Macquarie River, and are to outline:
   - details of the dredging footprint,
   - details of proposed coffer dams during works,
   - translocation protocols for fish if site dewatering is required,
   - erosion and sedimentation control plans, and
   - potential blockages to fish passage and how they are to be managed.

4. Waterway crossings are to be designed so as to comply with the Department's *Policy and Guidelines for habitat conservation and management, chapter 4, In-stream structures and barriers to fish passage, 2013.* www.dpi.nsw.gov.au/fisheries/habitat/publications/policies,-guidelines-and-manuals/fish-habitat-conservation.

5. Details of the designs for all waterway crossings (bridges, culverts, access tracks and pipeline crossings) and detailed Construction Environmental Management Plans (CEMPs) are to be provided to *Fisheries NSW* for review and comment prior to the construction, and are to outline:
   - details of the footprint and damage to aquatic or riparian vegetation,
   - construction details of coffer dams where required,
   - erosion and sedimentation control plans,
   - construction methods for the crossing,
   - potential blockages to fish passage, and
   - site rehabilitation.

6. A construction notification system must be in place for any waterway crossings (bridges, culverts, access tracks and pipeline crossings) to ensure that *Fisheries NSW* are notified prior to construction activities occurring within waterways.

End Attachment B