

For Decision

PURPOSE

To determine a proposed modification to the approval for the Mangoola Coal Project.

BACKGROUND

The Mangoola Coal Project is located near Wybong in the Upper Hunter Valley (see Figure 1). The project was approved by the Minister on 7 June 2007, at which time it was known as the "Anvil Hill Coal Project".



Figure 1: Location of the Mangoola Coal Project

The approval allows the development of a new open cut coal mine to extract a total of 150 million tonnes of coal over 21 years, at a rate of up to 10.5 million tonnes of run-of-mine coal a year, as well as a range of supporting infrastructure including coal processing, rail loading and water management facilities.

In October 2007, Xstrata Mangoola Pty Limited (Xstrata) bought the project from Centennial Hunter Pty Limited, and subsequently renamed it the Mangoola Coal Project. Shortly following this acquisition, Xstrata applied for a modification to the original approval to allow certain 'early works' to be undertaken prior to commencing construction on the mine infrastructure. This application was approved in July 2008 and the early works began in January 2009.

Since acquiring the project, Xstrata has undergone an extensive review of Centennial's original design plans, in particular the layout of the infrastructure and facilities. The review identified the need for several changes to approved (but as yet unbuilt) infrastructure to optimise the performance of the project.

Xstrata is now seeking to implement some of these changes, most notably relocating the pipeline for supplying water to the mine from the Hunter River. It has lodged an application and supporting Environmental Assessment requesting a modification to its project approval under section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to allow these changes.

PROPOSED MODIFICATIONS AND NEED

Xstrata's proposed alterations to approved project infrastructure are considered under separate subheadings below and depicted in Figure 2, where relevant.

Hunter River Water Supply Pipeline

Water-balance modelling undertaken as part of the assessment process for the original project approval determined that additional water would need to be imported to supplement water obtained from on-site sources, such as groundwater inflow to mining areas and surface runoff.

To this end, the original Environmental Assessment (EA) included conceptual design plans for a pipeline and associated pump station to extract this 'make-up' water from the Hunter River. The alignment contained in these plans comprised a roughly 4km section lying within the disturbance footprint for the rail loop, a 500m section adjacent to Mangoola Road and the Muswellbrook-Ulan Rail Line, and a final 1.5km section to the Hunter River traversing privately-owned agricultural land (see Figure 2).

Xstrata's proposed modifications to this arrangement involve:

- relocating the alignment for the pipeline to a more direct route located entirely on land owned by Xstrata. This route is roughly half of the original length and joins the river approximately 800 metres north of the approved route;
- constructing a pump station consisting of two pumps (the original plans included one pump), each with capacity to pump up to 50ML per day, in an approximately 10m wide excavated section on the banks of the Hunter River;
- upgrading an existing access track adjacent to the Muswellbrook-Ulan Rail Line, to enable heavy vehicle access to the pump station site and the portion of the pipeline between the railway and the Hunter River; and
- allowing access for construction vehicles from the south via Mangoola Road and the Golden Highway.

These modifications would not involve any change to Xstrata's water extraction entitlements under the existing project approval. The reason the additional pumping capacity is being sought is to allow Xstrata to maximise its harvesting of water during isolated high rainfall events, when significant short-term flow increases are experienced.

The pipeline would be constructed from approximately 3km of 700mm diameter high-density polyethylene pipe and buried 1.5m below ground.



Legend
 [Red outline] Approved Project Disturbance Boundary
 [Orange outline] Proposed Modification Area

FIGURE 1.2

Figure 2: Location and Footprint of Proposed Modifications

Tailings Dam Change of Use and Capacity Increase

Under the approved design plans, three dams are designated for tailings storage over the life of the project. The first of these is described as a 'start-up' tailings dam with an indicative capacity of 900 megalitres (ML), while the remaining two would be constructed in-pit. The 'start-up' refers to the expected 12 to 18 month period for mining operations to have advanced sufficiently to provide the necessary space for the first of the in-pit tailings dams to be constructed.

However, Xstrata has determined that it is feasible to store all tailings inside the pit over the life of the project and now proposes to:

- change the function of the 'start-up' tailings dam to a storage dam for 'raw' water extracted from the Hunter River; and
- increase its approved capacity by 1600ML to approximately 2500ML.

Increasing the capacity of the dam would involve increasing its footprint. However this disturbance would still be within the approved project disturbance area, which was subject to detailed ecological and archaeological assessment studies as part of the original project approval.

This raw water dam would operate in conjunction with the approved 1650 ML capacity in-pit 'dirty' water dam to supply the majority of the mine's operational water demands.

The proposed modifications to the tailings dam are related to those proposed for the Hunter River Water Supply Pipeline, in that they are directed towards optimising water management across the operation and maximising opportunities for recycling and reuse.

Modification of Rail Loop Disturbance Footprint

Xstrata has determined that the approved disturbance footprint for the rail loop is highly restrictive for construction access in particular sections.

To improve this access it is proposing to increase this disturbance footprint in two areas, each approximately 2.5 hectares in size (see Figure 2).

Construction of the proposed modifications is expected to be completed within 6 months.

STATUTORY CONTEXT

Approval Authority

The Minister was the approval authority for the original project application, and is consequently the approval authority for this modification application. However, as the proposed modification involves development with a capital investment of less than \$50 million and generated less than 25 submissions, the Deputy Director-General (Development Assessment and Systems Performance) may determine the application under the Minister's delegation of 4 March 2009.

Modification

The proposed modification does not involve changes to any of the mine's operating functions. Consequently the Department is satisfied that the proposed modification would not involve a "radical transformation" of the project and that it can be determined under section 75W of the EP&A Act.

CONSULTATION

The Department is not required to notify or exhibit applications under section 75W of the EP&A Act.

However, after accepting the modification application, the Department:

- placed the EA on public exhibition from 15 to 30 January 2009 at:
 - the Department's Information Centre and on its website;
 - Muswellbrook Shire Council's offices; and
 - Nature Conservation Council's offices;
- notified relevant State government authorities and Muswellbrook Shire Council by letter; and
- advertised the exhibition in the Hunter Valley News on 14 January 2009 and in the Muswellbrook Chronicle on 16 January 2009.

Eight (8) submissions were received during the exhibition period, including:

- 5 from government authorities;
- 1 from a special interest group; and
- 2 from the general public.

These submissions are considered in turn below.

Government Authorities

All of the government authorities were generally supportive of the proposal, however most expressed some residual concerns with certain aspects of the proposed modifications and provided recommendations to minimise their potential environmental impacts. The key issues raised by each authority are considered below.

Muswellbrook Shire Council (Council) considered that heavy vehicle access from the south via Mangoola Road and the Golden Highway should not be permitted, in keeping with the existing approval conditions, and also recommended a range of conditions to maximise the environmental performance of the proposal.

The **Department of Environment and Climate Change** (DECC) expressed doubts that all potential impacts on Aboriginal Heritage could be managed within the existing Aboriginal Cultural Heritage Management Plan and suggested that insufficient survey work was conducted along the proposed pipeline realignment.

The **Roads and Traffic Authority** (RTA) shared Council's view that construction traffic should not be allowed to access any of the proposed modification areas using Mangoola road from the south.

The **Department of Water and Energy** (DWE) expressed concern over the proposed location of the Hunter River pump station, largely because it is situated immediately downstream of a bend in the river. Xstrata and its consultants involved with the design of the pump station subsequently held a meeting with DWE over this matter. DWE has since indicated that it accepts the proposed location, based on the pump design details and site rehabilitation measures put forward at that meeting.

The **Department of Primary Industries** made no specific comments on the proposal.

Special Interest Group

The Hunter Environment Lobby objected to the proposal on a number of grounds, including:

- perceived inconsistency with the aims of the Muswellbrook LEP 1985;
- the clearing of native vegetation, and the absence of any compensatory offset measures; and
- potential impacts on water resources within the Wybong Creek catchment.

Public Submissions

The two public submissions both objected to the proposal. The main grounds for objection were:

- the use of Mangoola Road by construction traffic, in particular that such use would be inconsistent with the recommendations of the traffic assessment undertaken for the original project approval;
- insufficient details of the proposed upgrade to the access track adjacent to the Muswellbrook-Ulan Railway line; and
- lack of justification for the proposed increased water pumping and storage capacity, and whether there would be an increase in the amount of water extracted from the Hunter River than currently approved.

Xstrata has provided a detailed response to these submissions (see Appendix B).

CONSIDERATION

The Department has assessed the application, EA, submissions and Xstrata's response to submissions on the proposed modifications. The following provides a summary of the key issues.

Traffic

The EA includes a specialist traffic impact assessment by Parsons Brinckerhoff Pty Ltd, which is confined to a consideration of the traffic associated with the works on the pipeline and pump station.

The Department is satisfied that the traffic associated with the other proposed modifications would essentially represent traffic already approved for the construction phase of the project, and therefore that the scope of the assessment is sufficient.

The assessment is based on three proposed access routes (see Figure 3):

- Construction Route 1, for access from the mine's Northern Access Road via Wybong Road and Bengalla Link Road;
- Construction Route 2, for access from the south via Mangoola Road and the Golden Highway; and
- Operational Route 1, which Xstrata proposes to use infrequently for ongoing monitoring and repairs on the pump station. The Department believes that the impacts associated with the use of this route would be negligible and has given them no further consideration.

The assessment assumes that all traffic associated with the construction of the western portion of the pipeline (ie west of the Muswellbrook-Ulan Railway) would use Construction Route 1, while traffic entering the pump station site and eastern portion of the pipeline route would be evenly distributed between Construction Route 1 and 2.

On this basis, the assessment indicates that traffic generation during the peak of construction activities, at which time construction activities would be concentrated at the pump station site, would involve up to 28 light vehicle movements per day (ie. 14 in, 14 out), and up to 8 heavy vehicle movements per day (ie. 4 in, 4 out).

The assessment concluded that these traffic movements would have virtually no impact on the operation of the intersections of Mangoola Road/Golden Highway and Wybong Road/Northern Access Road.

The Department agrees with these conclusions and also points out that the impact of this traffic has already been assessed to a significant extent, as it would have been required to

construct the pipeline and pump station under the approved design plans, and would have needed to use a significant proportion of Construction Route 1 in order to access the designated areas.



FIGURE 3.1
Pipeline Construction
Traffic Routes

Figure 3: Proposed Access Routes

However, the Department notes that the use of Mangoola Road (ie Construction Route 2) is not permitted under the project approval, and the EA generally provides little justification for the use of Construction Route 2.

In response to the objections that Council, RTA and both public submissions raised in relation to the use of this route, Xstrata clarified that it was required to allow safe access to the proposed pump station site for equipment-laden heavy vehicles which would experience difficulties in negotiating some sections of Construction Route 1, particularly the sharp turn required to join the access track immediately after crossing the railway line.

The Department considers that these safety concerns could be overcome as part of the proposed upgrade of the access track, by ensuring it incorporates a sufficient turning circle to accommodate heavy vehicles at this particular section, and has accordingly recommended that Construction Route 2 not be approved.

Finally, the Department considers that there are some remaining safety concerns associated with the small section of Mangoola Road (approximately 1km) that forms part of Construction Route 1, but is confident that these can be satisfactorily addressed through amendments to Xstrata's approved Construction Traffic Management Plan.

This plan currently commits Xstrata to a range of safety measures on Wybong Road, such as temporary speed limits and warning signage. The Department recommends that the plan be updated to extend these measures to that part of Mangoola Road that is incorporated within Construction Route 1, and to include specific measures for managing traffic during the time construction works are taking place on Mangoola Road. This would effectively formalise a commitment Xstrata provided in its response to submissions.

The Department is confident that by restricting traffic to Construction Route 1, and requiring Xstrata to update its Construction Traffic Management Plan to manage any residual impacts on Mangoola Road, there would be no significant change to the traffic impacts currently approved.

Noise

The EA includes a noise impact assessment undertaken by Wilkinson Murray Pty Ltd, with separate modelling of construction, road traffic and operational noise impacts.

With regard to road traffic noise, the noise assessment indicated that potential impacts would only be associated with the use of Construction Route 2. As the Department has recommended against the use of this route, these are not considered any further.

The noise assessment also considered the contribution of the pump station to operational noise over the life of the project. The modelling indicated that it would generate noise levels more than 10dB below the day/evening/night operational noise criteria at the closest residence, which would not discernibly contribute to predicted operational noise levels.

Construction noise would be generated by a range of activities including excavation works, under-boring of the Ulan-Muswellbrook rail line, pump station construction and traffic on the access track.

The assessment of construction noise has been undertaken in accordance with the DECC's *Draft Construction Noise Guideline* (August 2008) which stipulates a noise criterion of background +10dB. The guideline further states that where exceedances of

this criterion are predicted at private residences, the Proponent should be required to implement reasonable and feasible mitigation measures to the landowner's satisfaction.

The results of the modelling suggest that up to five residences (designated in Figure 4 below as 192, 193, 125A, 125B and 125E) would exceed this criterion at certain stages of construction. Of these residences, 125E and 192 are predicted to exceed the criterion by up to 13dB and 6dB respectively, while the remaining three residences are predicted to exceed the criterion by between 1-5dB. All of these residences have previously been identified as being within the 'noise management' zone for the project, and are already entitled to have noise mitigation measures installed at their properties.

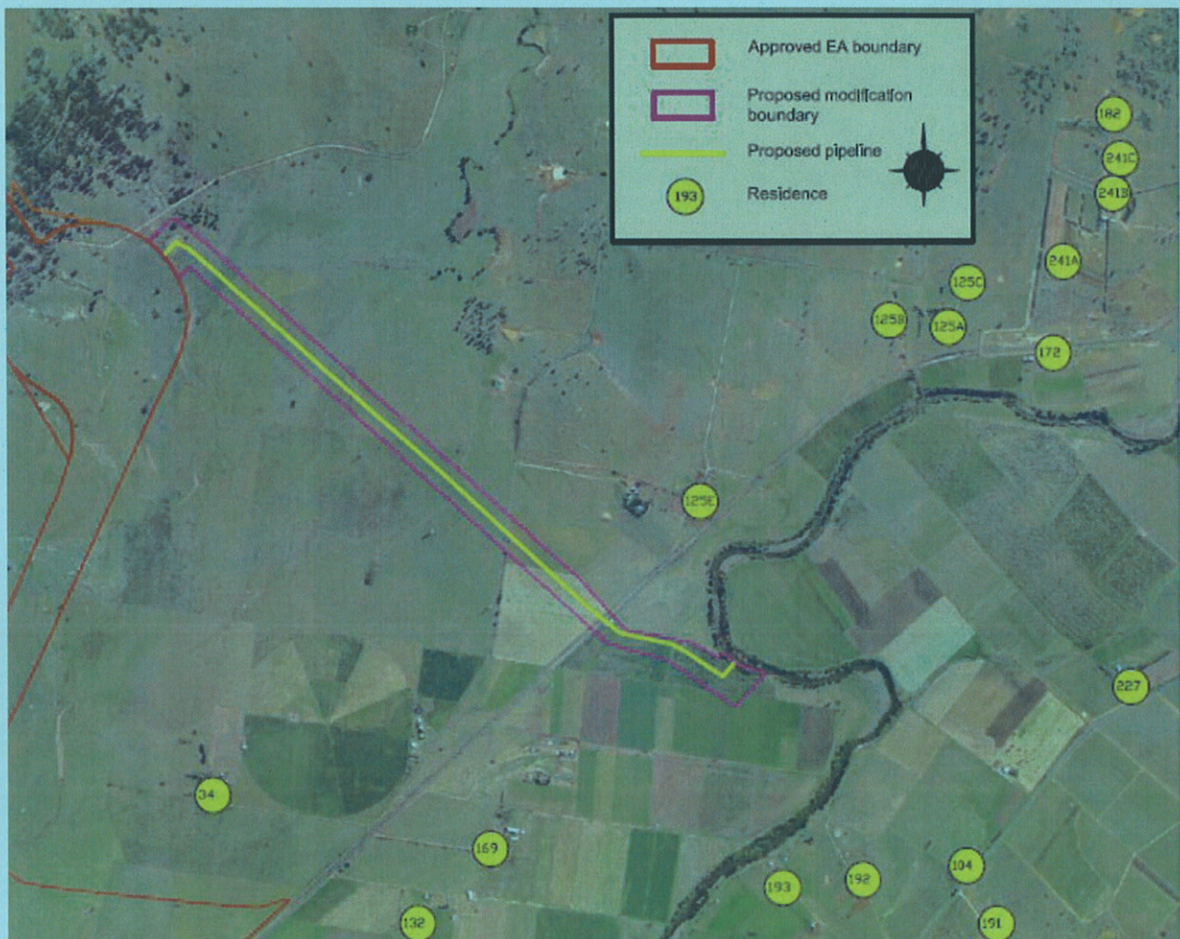


Figure 4: Potentially noise affected residences

Given these existing noise mitigation entitlements, the temporary nature of the exceedances and the fact that they would only occur during designated daytime construction hours, the Department is satisfied that they would be justified for their short-term duration.

Flora and Fauna

The proposed modifications would disturb up to 46 hectares (ha) of land. Detailed ecological surveys undertaken as part of the EA determined that this land is comprised of four highly modified vegetation communities with the following distribution:

- 35 hectares of highly disturbed agricultural land;

- 8 hectares of derived grassland;
- 2.5 ha of Slaty Box Woodland (associated with the additional rail loop footprint); and
- 0.5 ha of River Oak Riparian Forest (associated with the Hunter River pump station).

The EA states that the first two of these vegetation communities are of little to no conservation significance. The Department agrees with this assessment, and further considers that the impacts on these communities that would be generated by construction works for the pipeline and rail loop would be relatively minor, and that these lands could be readily restored to their prior agricultural purposes.

The clearing of an additional 2.5 ha of Slaty Box Woodland would constitute a 1% increase in the clearing of this community already approved for the project. The Department considers that a sufficient offset for Slaty Box Woodland, considered to be a regionally significant vegetation community, is already in place as part of the existing Biodiversity Offset Strategy for the project, which sets aside 282 ha of this community for conservation in perpetuity, and does not believe that increasing this offset is warranted.

With regards to River Oak Riparian Forest, also classified as a regionally significant vegetation community, the Department notes that this community occurs along the banks of the Hunter River over much of its length, and considers that the clearing of 0.5 ha of this community essentially represents the transferring of approved disturbance from one place to another. For this reason, the Department also considers that the existing 0.6 ha offset for this community is sufficient.

Soil and Water

The proposal is situated within the Sandy Creek catchment area. Under the approved Site Water Management Plan for the project, there are already a range of controls in place for managing impacts on surface waters and riparian values resulting from project activities in the Sandy Creek catchment. These include the preparation of individual erosion and sediment control plans for discrete areas of activity, prior to disturbance.

The Department is satisfied that these measures are sufficient to manage any potential impacts from excavation works associated with the construction of the pipeline and the expansion of the tailings dam.

DWE was initially critical of the proposed location for the pump station, because it considered the location would be particularly susceptible to scour and erosion impacts during periods of high flow. DWE and the Department are now confident that the design of the pump site includes sufficient protective armouring and revegetation measures to minimise the likelihood of these impacts occurring.

Although Xstrata is not seeking to change its permitted extraction from the Hunter River as part of this proposal, total water storage on site would increase by 1600ML with the expansion (and conversion to raw water storage) of the start-up tailings dam. The Department has accordingly recommended that Xstrata update its site-water balance to accommodate this increase.

Aboriginal Heritage

The original project approval required the development of an Aboriginal Cultural Heritage Management Plan in consultation with representatives of the Aboriginal Community. This plan has now been endorsed by DECC and the majority of the Aboriginal Community and includes detailed procedures for the protection, salvage and long-term management of Aboriginal sites and artefacts, both identified during site surveys or over the course of operations.

The proposed modification areas were subject to detailed field and/or literature surveys as part of an Aboriginal Archaeological assessment undertaken for the EA, in accordance with the consultation protocols in DECC's *Interim Community Consultation Requirements for Applicants*. The field surveys were attended by 15 registered Aboriginal stakeholder groups, and identified 10 sites (6 artefact scatters and 4 isolated finds). Following agreement from these Aboriginal groups, all of these sites have now been salvaged.

Due to problems with accessibility and poor ground surface visibility impeding the field surveys in some areas, the Archaeological assessment also concluded that the area between the proposed pump station site and the limit of the Hunter River alluvium possessed a high potential for Aboriginal sites.

DECC considered that this potentially warranted further survey work in the area, with additional consideration given to alternative locations for the pipeline and pump station in the event that highly significant Aboriginal sites were identified during these surveys.

Xstrata has indicated that any alternative location for the pipeline would not reduce the likelihood of encountering any Aboriginal sites, as this high potential is common to the alluvial areas of the Hunter River over much of its length. This assessment has been endorsed by the Aboriginal stakeholder groups involved in the field surveys, which also indicated that further survey work would not be necessary.

The Department is confident that the proposal would be unlikely to generate any significant impacts on Aboriginal Heritage, given the prior salvage of all the sites identified during field surveys and the provisions in the Aboriginal Cultural Heritage Management Plan for managing any newly identified sites, which encompasses any sites that may be encountered in the vicinity of the Hunter River and its alluvial extent.

RECOMMENDED CONDITIONS

The Department has drafted recommended conditions for the modifications. Xstrata has reviewed and accepted these conditions. The Department has also taken the opportunity to update the conditions of approval relating to land acquisition, to reflect the Department's contemporary land acquisition procedures. The changes clarify certain procedures in the land acquisition process.

CONCLUSION

The Department has assessed the application, EA, submissions on the proposal and Xstrata's response to these submissions in accordance with the relevant requirements of the EP&A Act, including the objects of the EP&A Act and the principles of ecologically sustainable development.

Based on this assessment, the Department considers that the proposed modifications represent minor changes in the context of the approved project, and is confident that they are able to be carried out with minimal environmental impact on surrounding land users and the local and regional environment.

The Department is satisfied that the proposed relocation of the Hunter River pipeline is required to overcome land access restrictions, and that this location represents the most environmentally sound and feasible alternative.

The Department also considers that the proposed modifications have merit from an operational perspective, as they would allow Xstrata to improve the performance of the project over its 21 year life.

On balance, the Department is satisfied that the benefits of the proposal outweigh any residual costs, and that it is in the public interest and should be approved, subject to conditions.

RECOMMENDATION

It is **RECOMMENDED** that the Deputy Director-General, as delegate of the Minister:

- consider the findings and recommendations of this report;
- determine that the proposed modification would not "radically transform" the approved project;
- approve the application, subject to conditions; and
- sign the attached notice of modification.

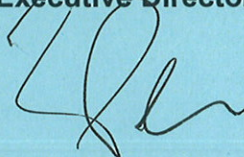
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