



ASSESSMENT REPORT: Proposed Austar Coal Mine Modification



Environmental Assessment Report
Section 79C of the
Environmental Planning and Assessment Act 1979

September 2006

Cover: Aerial view of the Austar Colliery Holding.

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1. BACKGROUND

Austar Coal Mine Pty Ltd (Austar), a subsidiary of Yanzhou Coal Mining Company Limited (one of China's largest coal producers), owns and operates the Austar underground coal mine, approximately 6 kilometres south of Cessnock in the Hunter Valley (see Figures 1 and 2).

The mine (formerly known as the Southland Colliery) is an amalgamation of several older mines and operates under 10 separate consents issued by Cessnock City Council and a consent granted by the Minister for Planning on 14 February 1996 (DA 29/95).

The Ministerial consent allows Austar to extract coal at a rate of up to 3 million tonnes a year, continue longwall mining operations, process coal at the nearby Pelton coal handling and preparation plant (CHPP), dispose of coal rejects and tailings, and transport coal via rail to the Port of Newcastle for export.

The areas surrounding the mine are dominated by the Aberdare State Forest, abandoned mine workings and various rural properties. There are also a number of residential areas in the vicinity including Ellalong, Pelton Bellbird and Kitchener (see Figure 2).

In 2003, the mine was placed on care and maintenance following a fire in the underground workings, and in 2004, Austar purchased the mine and recommenced mining operations in accordance with the Minister's consent.

Austar is now seeking to modify the Minister's consent to allow it to utilise a new longwall mining method known as longwall top coal caving in 2 of its 26 approved longwall panels (panels A1 and A2) at the mine.

This method of longwall mining allows a greater proportion of a coal seam to be safely extracted, and would allow Austar to extract an additional 1.18 million tonnes of coal that would otherwise be sterilised if conventional longwall mining methods were used.



Figure 1: Regional Location

Austar is also proposing to install and upgrade a range of surface facilities to support the ongoing underground operations at the mine, improve safety, and minimise the risk of spontaneous combustion which was the cause of the 2003 underground fire.

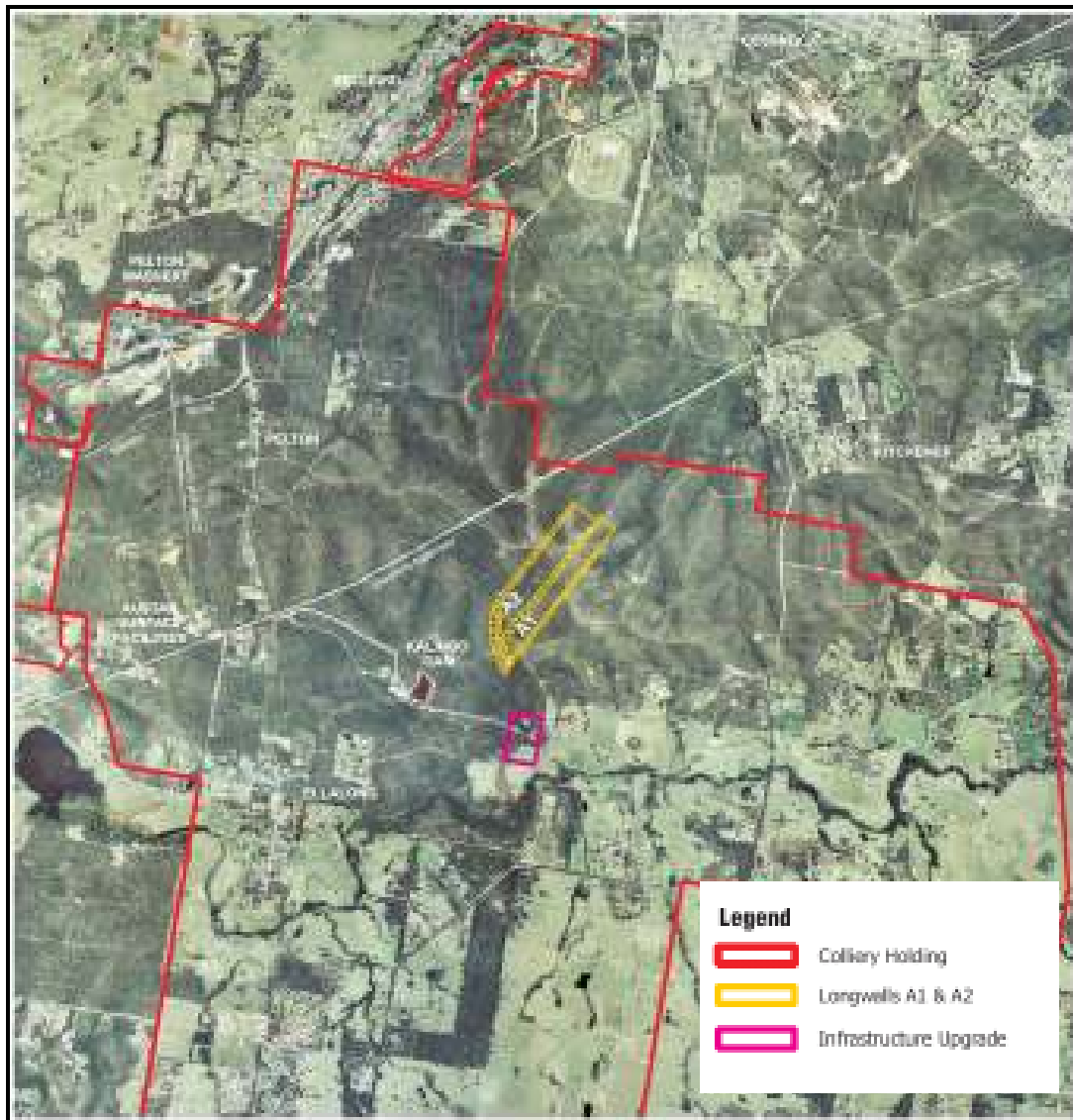


Figure 2: Austar Colliery Holding & Surrounds

2. PROPOSED MODIFICATION

On 11 April 2006, Austar lodged a modification application (49-4-2006) under section 96(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and an accompanying Statement of Environmental Effects (SEE). The proposed modification (see Figures 3 and 4) involves:

- mining coal from panels A1 and A2 using longwall top coal caving (LTCC) method to recover an additional 1.18 million tonnes of coal;
- increasing the maximum height of coal seam extraction from 4.5 to 6.5 metres;
- constructing and operating additional surface infrastructure including a new ventilation fan, downcast shaft, electricity substation, tube bundle shed, and diesel storage facility; and
- upgrading items of existing surface infrastructure, including the nitrogen injection plant, water treatment plant, and the mine water transfer and pumping system.

The modification is part of a \$250 million refurbishment of the mine that would allow the mine to efficiently move to full coal production, and would employ an additional 80 people (taking the total number of employees at the mine to 270).

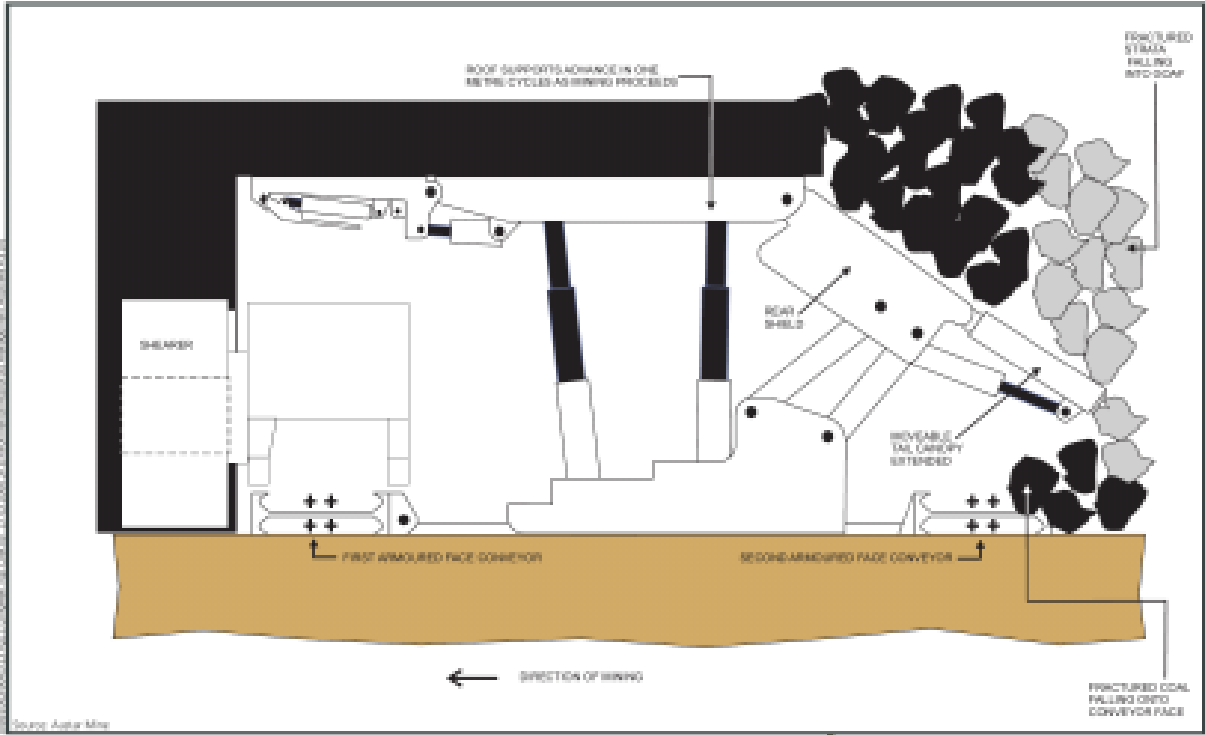


Figure 3: Longwall Top Coal Caving



Figure 4: Components of Proposed Modification

3. STATUTORY CONTEXT

Consent Authority

The Minister was the consent authority for the original development application (DA 29/95), and is consequently the consent authority for this application.

Section 96

Under section 96(2) of the EP&A Act, a consent authority may modify a development consent if it is satisfied that the “*development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified (if at all)*”.

The Department is satisfied that the development to which the consent as modified relates would be substantially the same as the development for which consent was originally granted, as the proposed modification essentially represents a refinement in mining method within the approved mining footprint, and the construction and use of ancillary infrastructure, serving similar purposes to that approved in the Minister’s consent in 1996.

The applicability of section 96(2) for the proposed modification was raised in 65 public submissions (including 61 form letters), and is further discussed in Section 5 below.

Environmental Planning Instruments

The following planning instruments are relevant to the proposal:

- *State Environmental Planning Policy No. 11 – Traffic Generating Developments;*
- *State Environmental Planning Policy No. 44 – Koala Habitat Protection;*
- *State Environmental Planning Policy No. 55 – Remediation of Land;*
- *Hunter Regional Environmental Plan 1989;*
- *Draft Lower Hunter Regional Strategy 2005; and*
- *Cessnock Local Environmental Plan 1989.*

The Department has assessed the proposal against the relevant provisions in these instruments, and is satisfied that the proposal is consistent with their aims, objectives and requirements (see Appendix A).

4. ISSUES RAISED IN SUBMISSIONS

The Department exhibited the application and SEE between 1 and 15 May 2006 in accordance with the requirements for public participation in the *Environmental Planning and Assessment Regulation 2000*.

During the exhibition period, the Department received 78 submissions on the proposal:

- 11 from Government agencies (Department of Environment and Conservation (DEC), Department of Primary Industries – Minerals, Agriculture, Forestry (DPI), Department of Natural Resources (DNR), Cessnock City Council (Council), Hunter Regional Development Committee – Roads Transport Authority (RTA), the Heritage Council (HC), Department of Lands (DoL), TransGrid, and Hunter – Central Rivers Catchment Management Authority (CMA); and
- 67 from the general public, with 61 of the public submissions being a form letter signed by individuals and groups, and 6 individual submissions.

None of the agencies or Council objected to the proposed modification. However, DEC requested conditions of consent setting noise impact criteria and requiring Austar to undertake a noise impact validation assessment; the RTA requested Austar prepare a Construction Traffic Management Plan; and Council expressed concerns about the potential impacts of subsidence on the natural environment and requested appropriate conditions to minimise the environmental impacts of the mine on adjoining land.

All 67 submissions from the general public objected to the proposal. The main grounds for objection were:

- *not substantially the same development* – 65 of the public submissions claimed that the proposed modification should properly be dealt with as a new development/project application, and not as a modification of the Austar development consent;
- *subsidence impacts* - including concerns about increasing the height coal extraction from 4.5 to 6.5 metres and potential impacts on surface drainage and flora and fauna; and
- *amenity impacts* - including noise and vibration.

The Department has assessed all relevant issues in accordance with the requirements of the EP&A Act in Section 5 below.¹

5. ASSESSMENT

5.1 *Substantially the Same Development*

In considering whether the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted, the Department has compared the key features and environmental impacts of the original development with those of the development as proposed (see Appendix B).

From this comparison, it can be seen that there are a number of proposed changes to the development for which consent was originally granted, including an increase in mining height from 4.5 to 6.5 metres in 2 of the 26 longwall panels approved in 1996, and various changes in the location and nature of the surface facilities at the mine.

The Department believes that these changes do not radically transform the development and the important features of the development as proposed remain essentially the same. For example, the development as proposed would not change the:

- purpose of the development as an underground coal mine;
- rate of coal production;
- areas subject to underground mining;
- method of underground mining (as LTCC is just a more efficient form of longwall mining);
- method or location of coal processing;
- method or location of coal rejects disposal;
- method of transporting coal to markets; or
- destination of product coal transported from the mine.

Similarly, the changes to the development associated with the current modification are not expected to result in any significant increase in environmental impacts.

Having regard to the matters set out above, the Department is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted, and believes the Minister may determine the application under section 96(2) of the EP&A Act.

¹ It is important to note that the underground occupational health and safety aspects of the proposed LTCC operations at the Austar mine will be assessed by the Chief Inspector of Mines at the Department of Primary Industries under the Coal Mine Regulation Act 1982.

5.2 Subsidence

Austar has undertaken a detailed subsidence assessment for the proposed modification. The results of this assessment indicate that vertical subsidence could increase by as much as 2.6 metres (from 1.6 to 4.2 metres) when compared to the predictions made in the 1995 EIS. However, the 4.2 metres of predicted subsidence has been selected as an absolute worst case scenario, and based on previous subsidence monitoring data at the site, it is considered more likely that the maximum vertical subsidence would be between 1.1 and 1.6 metres (i.e. similar levels to the approved development).²

Notwithstanding, Austar has assessed the potential subsidence impacts of the proposed modification on the basis of 4.2 metres of subsidence, and concludes that while the proposed modification would increase subsidence, it is unlikely that the impacts of this increase would be significantly greater or any less manageable than the subsidence impacts associated with the approved mining in panels A1 and A2.

To support this conclusion, Austar notes that the area to be undermined by longwalls A1 and A2 consists of land owned by Austar, Crown land, the Aberdare State Forest, and there are no residential areas, privately owned land or public infrastructure (with the exception of a trig station on Mt Howard and fire trails in Aberdare State Forest) likely to be affected by subsidence, whether maximum subsidence is 1.6 metres (as predicted in 1995) or as great as the “worst-case” of 4.2 metres.

Austar also argues that the subsidence associated with the worst case scenario is unlikely to result in significant environmental impacts. This conclusion is based on the fact that the proposed mining is relatively deep (400 metres) and the assessment indicates that maximum tilts, strains and changes in slope associated with the increase in subsidence are unlikely to result in any significant damage to vegetation communities, and points to other mines where similar levels of tilts and strains have occurred in vegetated areas without any noticeable impact on the stability of treed vegetation.

The assessment also indicates that there would be no significant impacts on surface water drainage or groundwater resources. This is because there are no significant watercourses in the areas potentially affected by the increase in subsidence, and the nature of the terrain means that any significant ponding of surface water is unlikely. In regard to groundwater, Austar points out that the groundwater in this area is of poor quality, and that there are no groundwater users or groundwater dependent ecosystems within the subsidence impact zone. It is likely that some surface cracking may appear in exposed areas, but the nature and extent of this cracking is not likely to result in loss of surface water from streams, significant reductions in soil moisture levels or connection with the underground workings.

To manage and monitor potential subsidence impacts, Austar proposes to install a detailed subsidence monitoring program. This program will provide a basis for future subsidence predictions at the mine, and ensure that any subsidence-related impacts are identified and remedial action taken to mitigate or repair any cracks that may be detected. Austar is also proposing to prepare and implement a Public Safety Management Plan for publicly accessible lands likely to be affected by subsidence within the Aberdare State Forest.

The Department notes that Austar already has planning approval to longwall mine in this area, and has obtained relevant subsidence approvals under section 138 of the *Coal Mines Regulation Act 1982*. Because the proposed LTCC mining within panels A1 and A2 would increase subsidence, Austar will be required to apply for a variation to its section 138

² Subsidence monitoring data from previous longwall mining at the site shows that an extraction height of around 3.5 metres resulted in maximum vertical subsidence of 900 mm. Extrapolating this empirical approach to the proposed coal extraction height of 6.5 metres gives a maximum predicted subsidence of around 1.6 metres.

approval. This variation will be considered by the DPI, who will be responsible for regulating the ongoing management and monitoring of subsidence and subsidence-related impacts at the mine.

The Department is generally satisfied with Austar's subsidence assessment and agrees that, even if the worst case impacts are realised, the proposed modification is unlikely to result in any significant environmental impacts. The Department is also satisfied that any unforeseen subsidence impacts associated with the proposed modification will be adequately addressed through the subsidence management processes administered by the DPI under section 138 of the *Coal Mines Regulation Act 1982*.

5.3 Amenity Impacts

Noise

The installation of the proposed additional surface infrastructure associated with the proposed modification is not expected to significantly alter the noise generated by the development. However, to ensure that these changes would comply with relevant DEC noise criteria at nearby residences, Austar has undertaken a noise assessment of the proposed modification in accordance with the DEC's *Industrial Noise Policy* (INP).

This assessment indicates that the noise levels generated by the additional infrastructure would comply with relevant DEC noise criteria at all privately owned residences, with the nearest residence (around 630 metres from the additional surface infrastructure) expected to experience noise levels of around 29 dB(A) - well below the relevant DEC criteria of 35 dB(A).

However, to validate its noise impact predictions, and ensure that the amenity of local residents is protected, the Department believes that Austar should be required to comply with the DEC noise criteria of 35 dB(A) at all privately owned residences in the vicinity of the surface infrastructure area, and implement a noise monitoring program for the development to demonstrate compliance.

Vibration

Some submissions raised concerns about vibration associated with the previous underground mining at the site. The Department understands that these impacts occurred as a result of rock collapses behind the advancing longwalls near the village of Ellalong.

However, panels A1 and A2 are well removed from residential areas, and the Department believes that it is highly unlikely that there would be any significant vibration impacts associated with the proposed LTCC mining in these panels. Notwithstanding, the Department believes Austar should be required to implement a vibration monitoring program to ensure any unforeseen vibration impacts can be detected.

Air Quality

The air quality data collected for existing operations at the Austar mine shows that it is comfortably complying with relevant DEC air quality criteria. Given that the operations proposed in the modification are unlikely to generate any significant additional dust emissions, the Department is satisfied that the proposed modification would not materially alter dust emissions from the development, and is confident that it can comply with the DEC criteria. Notwithstanding, to ensure the amenity of local residents is protected, the Department believes Austar should be required to implement a comprehensive air quality monitoring program to demonstrate compliance.

Visual

The additional surface infrastructure associated with the proposed modification would be located adjacent to existing infrastructure at the mine in an area that is well removed from local residents. Consequently, the Department believes that the proposed modification would

not materially alter the visual impacts of the approved development and would not result in any significant visual impacts on surrounding residents.

5.4 Other Impacts

Flora and Fauna

The proposed LTCC mining is located beneath areas of native woodland within the Aberdare State Forest, Crown land, and land owned by the Austar. The majority of this land is vegetated with native woodland, including areas of Lower Hunter Spotted Gum-Ironbark Forest, which is listed as an Endangered Ecological Communities (EEC) under the *Threatened Species Conservation Act 1995*.

However, Austar's flora and fauna assessment indicates that the subsidence associated with the proposed LTCC mining is unlikely to result in any significant impacts on the flora and fauna, including the Spotted Gum EEC. As discussed above, this is because the proposed mining is relatively deep and subsidence is not expected to result in surface cracking or significant changes in slope that might directly impact vegetation, soil moisture levels or surface drainage in the areas above the panels.

The installation of the additional infrastructure associated with the proposed modification would involve the removal of a small area of vegetation (10 x 10 metres) which has been classified of the Hunter Lowland Redgum Forest EEC. However, the Department understands that the vegetation to be cleared consists of immature regrowth, and is satisfied that the proposal would not result in a significant impact on the EEC. The Department also notes that Austar has altered the location of its surface infrastructure to keep vegetation clearing to an absolute minimum.

Overall, the Department is satisfied with Austar's flora and fauna assessment, and believes that the impacts of the proposed modification on native vegetation would be very minor with no significant impact on either of the EECs identified on the site.

Aboriginal and European Heritage

No Aboriginal heritage sites were identified during the surveys undertaken as part of the Aboriginal heritage impact assessment, and the proposed modification would not impact any listed sites of non-Aboriginal heritage, such as the Cessnock No.1 Colliery, the Kalingo Junction rail embankment or a historic ring-barked tree.

The Department is satisfied with Austar's assessment, and believes that the proposed modification is unlikely to result in any significant impacts on Aboriginal or non-Aboriginal heritage.

The Department is also satisfied that the existing development consent conditions adequately provide for the ongoing management and protection of heritage sites at the mine, and consequently no additional measures are required for the proposed modification.

Traffic & Transport

The proposed modification would generate around 500 additional heavy vehicle movements over a 6 to 8 month period associated with the construction and installation of the surface infrastructure and longwall equipment.

The Department is satisfied that this increase in traffic movements is relatively minor, and is unlikely to result in any significant impacts on the performance of the road network or the amenity of other road users. Nonetheless, the RTA has recommended that Austar prepare a Construction Traffic Management Plan to ensure that heavy vehicles operate safely in delivering equipment and supplies to the mine, and the Department has incorporated this recommendation into the conditions of consent.

The RTA also raised concerns about the safety of road level crossings of the South Maitland Railway that would be used by Austar to transport product coal from the mine. However, Austar has advised the Department that prior to the re-opening of the rail line earlier this year, it conducted an operational and safety audit for the rail line which recommended that a public education campaign be undertaken to notify residents about the re-opening of the line and that additional warning signs be erected adjacent to level crossings. Austar advises that it has already implemented these recommendations in consultation with the rail operators.

The Department notes that the proposed modification would not increase production at the mine, and would consequently not increase the off-site rail movements. However, to protect the safety of road users, the Department has included a condition of consent that requires Austar to conduct a safety audit of 4 road crossings along the South Maitland Railway to the satisfaction of the RTA.

Other Issues

Other issues raised in the EA, by government agencies or in public submissions are considered to be minor issues, components of key issues or of minor environmental impact.

6. RECOMMENDED CONDITIONS

The Department has prepared recommended conditions of consent for the proposed modification (see Tag A).

The recommended conditions are required to:

- prevent and/or minimise any adverse impacts of the proposal;
- update the existing conditions to reflect current regulatory standards for acceptable environmental performance; and
- require regular monitoring and reporting in accordance with current best practice.

The Department believes these conditions strengthen the existing conditions of consent and appropriately reflect current best practice for the regulation of coal mines in NSW.

Austar has accepted the recommended conditions of consent.

7. CONCLUSION

The Department has assessed the modification application, SEE and submissions on the proposal in accordance with section 79C of the EP&A Act, and is satisfied that:

- Austar has adequately assessed the environmental impacts of the proposed modification;
- the increase in subsidence associated with the introduction of the LTCC longwall mining method in panels A1 and A2 is unlikely to result in any significant environmental impacts;
- the other aspects of the proposed modification are unlikely to appreciably alter the environmental impacts of the approved development; and
- the potential impacts of the development as modified can be effectively minimised and managed to ensure an acceptable level of environmental performance.

The proposed modification would also generate social and economic benefits by creating additional employment for up to 80 people and allow the recovery of an additional 1.18 million tonnes of ROM coal that would otherwise be sterilised. The proposed modification would also allow the \$250 million capital refurbishment of the mine to proceed in an efficient manner and improve the safety of the mine, and facilitate continued employment for up to 270 people.

The Department is satisfied that the site is suitable for the development, and on balance, the benefits of the proposal outweigh the potential costs. Consequently, the Department considers that the proposed modification is in the public interest, and should be approved, subject to strict conditions of consent.

8. RECOMMENDATION

It is RECOMMENDED that the Minister:

- consider the findings and recommendations of this assessment report;
- consider the submissions received on the proposed modification and Austar's response to submissions (Tags B and C);
- determine that the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted;
- approve the proposed modification under section 96(2) of the *Environmental Planning and Assessment Act 1979*; and
- sign the attached notice of modification (Tag A).

David Kitto
A/Director
Major Development Assessments

Chris Wilson
Executive Director
Major Project Assessments

Frank Sartor
Minister for Planning

APPENDIX A - ENVIRONMENTAL PLANNING INSTRUMENTS

A.1 SEPP No.11–Traffic Generating Development

The proposal is affected by the provisions of SEPP 11, as an ‘extractive industry or mining’ (Schedule 1(m)). The application was referred to the RTA, who subsequently confirmed that it had no objection to the proposal, subject to the imposition of certain conditions. These conditions have been incorporated into the recommended conditions of consent.

A.2 SEPP No.44 – Koala Habitat Protection

The SEE states that the development area does not provide core or potential Koala habitat and does not have a resident population of Koalas. The Department is satisfied that the proposal is generally consistent with the aims, objectives and requirements of SEPP 44.

A.3 SEPP No.55 – Remediation of Land

The Department is satisfied that the land subject to the development application does not have a significant risk of contamination given its historical land use, and that the proposal is generally consistent with the aims, objectives and requirements of SEPP 55.

A.4 Hunter Regional Environmental Plan 1989

Part 6, Division 1 of the *Hunter Regional Environmental Plan (HREP) 1989* states the objectives of the plan in relation to planning strategies for mineral resources and extractive industries.

The Department is satisfied that the proposed modification would manage coal in a manner that minimises adverse impacts on the environment and population, ensure that the most efficient extraction of the coal resource would be undertaken, and that the transport of coal from the mine by rail would have minimal adverse impact on the community.

A.5 Draft Lower Hunter Regional Strategy 2005

The *Draft Lower Hunter Regional Strategy*, released by the Department in November 2005, has the primary purpose of ensuring that adequate land is available to sustainably accommodate the projected housing, employment and environmental needs of the region over the next 25 years.

The Draft Strategy shows the mining area as a Native Vegetation/Mine Subsidence Area, and does not identify the site as a new release area, future investigation area or being within an existing urban area. Consequently, the Department is satisfied that the proposed modification will not inhibit the achievement of the objectives of the Strategy.

A.6 Cessnock Local Environment Plan 1989

The land subject to the development application is zoned 1(a) Rural “A” and 1(f) Forestry under the *Cessnock Local Environment Plan (LEP) 1989*.

Mining is permissible, with development consent, in both these zones. It is also consistent with the objectives of these zones.

APPENDIX B – COMPARISON OF KEY FEATURES

Key Features	Development for which consent was originally granted (1996)	Proposed Development as modified (2006)	Comparison of Impacts
Annual rate of coal extraction	3 million tonnes	No change	No change
Location of underground mining	Within the Greta seam, beneath Aberdare State Forest, Crown land and Austar land	No change	No change
Method of coal extraction	Longwall mining	Longwall Top Coal Caving (LTCC)	- Allows greater coal seam height extraction - Improves coal resource recovery from 37% to 63% - Potentially increases ground subsidence impacts (see Section 5 for consideration of potential impacts)
Total amount of coal to be extracted	About 1.7 million tonnes from longwalls A1 and A2 - Extraction of up to 4.5 m seam height	About 2.9 million tonnes from longwalls A1 and A2 - Extraction of up to 6.5 m seam height	- Additional 1.18 million tonnes of coal would be recovered from longwalls A1 and A2 - Subsidence may increase (see Section 5 for consideration of potential impacts)
Coal stockpiles	All coal conveyed to former Pelton colliery for processing and stockpiling	No change to location or size of stockpiles	No change in impacts (including dust, noise and surface water impacts)
Coal processing	CHPP at former Pelton colliery site	No change	No change
Rail loading facility	Stockpiles and train loading infrastructure at former Pelton colliery site	No change	No change
Transport of coal to markets	Transport of coal via rail to the Port of Newcastle for export	No change	No change
Coal rejects and tailings management	Reject emplacement area (REA) on the former Pelton open cut site with tailings disposed to old underground mine workings	Volume of rejects generated will be halved as clean coal recovery rates are expected to increase from 80% to 90%.	Reduction in impacts because the volume of rejects generated each year would be halved
Ventilation infrastructure	Ventilation shaft would be required near Sandy Creek Road, or the old Kalingo colliery shafts would be refurbished	New upcast ventilation fan required. New downcast shaft proposed to be located about 300m south of the upcast shaft (see Fig 4)	- The noise impacts from the additional fan would comply with relevant DEC noise criteria at the nearest residence - Minimal impacts to vegetation as the facilities would be constructed in cleared areas adjacent to existing infrastructure
Water	Continued use of	Seeks to regularise	No change to volume of

Key Features	Development for which consent was originally granted (1996)	Proposed Development as modified (2006)	Comparison of Impacts
treatment plant	existing water treatment plant for 6-7 years, followed by construction of an upgraded plant	reverse osmosis water treatment plant and double its capacity to produce 2 ML/day of potable water	treated water permitted to be discharged by the mine's EPL • Use of the plant would replace about 2 ML/day of fresh water imported to the site, and accordingly reduce demand on the town potable water supply
Electricity Substation	10 MVA electricity substation	Additional 10 MVA substation required to provide sufficient power for the LTCC mining equipment	• Less than 100 m² of understorey vegetation to be cleared
Nitrogen inertisation plant	Not a component of 1996 consent	Regularise existing plant of 70 m ³ /hr and upgrade to 2000 m ³ /hr capacity	• No change as the upgraded plant would be located in an existing cleared compound
Storage tanks	Not a component of 1996 consent	2 soluble oil tanks and 1 diesel tank of 45,000 litre capacity would be constructed	• Minimal impact • No native vegetation to be cleared • Tanks will be bunded to prevent inadvertent spillage • Diesel and soluble oil have low flammable liquid classifications and a Preliminary Hazard Analysis is not required
Tube bundle shed	Not a component of 1996 consent	Includes a tube bundle shed to monitor gas composition of mine atmosphere	• No change • Shed would be located in a cleared area and is a small structure
Water transfer system	Installed system has a capacity to transfer 2.9 ML/day of water	Capacity of the system would increase to 8 ML/day	• Minimal change • No change is sought for the volume of water to be discharged from the site • All infrastructure would be located in cleared areas