

ASSESSMENT REPORT



Department of
Urban Affairs and Planning

PROPOSED MOUNT ARTHUR NORTH OPEN CUT COAL MINE PROJECT

REPORT ON THE ASSESSMENT OF A DEVELOPMENT APPLICATION (DA 144-05-2000)
PURSUANT TO SECTION 79C OF THE ENVIRONMENTAL PLANNING AND
ASSESSMENT ACT, 1979

FILE: S98/01228

INTRODUCTION AND BACKGROUND

The Applicant

Coal Operations Australia Limited

Overview of the proposal and its location

Coal Operations Australia Limited (COAL) is seeking development consent for the construction and operation of a new open cut coal mine near Muswellbrook. The mine is proposed on land generally bounded by Denman Road to the north-west and Thomas Mitchell Drive to the north-east, approximately 3km south-west of the township of Muswellbrook within the Muswellbrook Local Government Area in the Hunter Valley of NSW as illustrated by Figure 1. The proposal is expected to provide up to a maximum of 290 construction positions and up to a maximum of 521 positions when operational and has a capital investment value of \$539 Million.

The development application for the Mount Arthur North Project is seeking approval to:

- undertake open cut coal mining with the extraction of up to 15 million tonnes per annum (Mtpa) of raw coal over a 21 year period for the supply of domestic thermal coal and export coal markets;
- some highwall mining in the Macleans Hill area;
- mining by truck and shovel operations;
- construction of a coal preparation plant, coal stockpiles and coal handling equipment; storage dams; and a workshop, vehicle servicing facility, warehouse, administration office, and employee facilities;
- construction of a mine access road off Thomas Mitchell Drive, and internal mine roads; and
- road upgrades of the mine access road intersection with Thomas Mitchell Drive.

The DA area for the Mount Arthur North project applies to a total area of 4,543 ha, and includes the proposed Mine Lease Application No 166 (MLA) area of 3,565 ha and additional areas containing

off-site infrastructure and operational interactions with the adjacent Bayswater mining operations (of which COAL is the majority share owner 88.3%) The area to where the DA and MLA area applies is illustrated by Figure 2.

It is estimated that the Mount Arthur North site contains a resource of some 815 million tonnes of coal *in situ*. However based on mine planning, the resource will yield in the order of 290 million tonnes of Run of Mine (ROM) coal in the Development Application (DA) area during the 21 year life of the mine. The coal resources within the MAN site are contained within the Wittingham and Greta Coal Measures with a minimum seam thickness of 0.3 metres.

There is proposed to also be some minor highwall or auger mining in the Macleans Hill area using the northern pit as the access point. Highwall mining will be utilised in this area to maximise resource recovery from the coal seams which would be uneconomic to mine by open cut methods due to the size of the overburden stripping ratios.

It is proposed to undertake mining operations over 5 stages, as illustrated by Figures 4.4 to 4.8 of the EIS. Up until year 2 of the project, proposed mining operations will involve the preparation of the site, prestrip and coal removal using a truck and shovel operation from the northern and southern sections of the central pit. MAN will be producing up to 7 Mtpa of ROM coal by year 2, and by year 5, MAN will be producing up to 13 Mtpa of ROM coal. By year 10, mining will commence in the Northern Pit, located on the southern side of Macleans Hill, while production of ROM coal will have increased to 15 Mtpa. At year 15 an upper pit within the northern pit will be developed. By year 21, both the upper and lower north pit development will have merged to form a single northern pit.

Overburden material will be removed at the site by electric shovels and through a combination of backhoes or front end loaders depending on the thickness of the overburden horizons and transported by a fleet of rear dump trucks. The coal material will then be mined by front end loaders and hydraulic shovels and then loaded onto dump trucks to haul the ROM mined material. Crushed coal will be conveyed to two stackers and then transferred to either the raw coal pile or to the domestic coal stockpiles and transported along an existing Macquarie Generation conveyor and supplied to the local power stations.

The MAN export coal stockpile is proposed to be an extension of the proposed Bayswater export coal stockpile which formed part of a separate DA as part of the proposed Bayswater Rail Loop and Loading Facility which was approved by the Minister on 2 November 2000. The Bayswater Rail Loop proposal will have sufficient capacity to cater for the rail loading of both coal produced from the MAN project and Bayswater coal mine having the capacity to handle between 13 Mtpa to 20 Mtpa. The proposed infrastructure which will be used by the MAN project is illustrated by Figures 4.11 and 4.12 of the EIS.

The proposed infrastructure will also include the construction of a mine access road from Thomas Mitchell Drive providing access to the MAN industrial area for employees and will also be used for the adjacent Bayswater Mines. An internal heavy vehicle access to the industrial area will also be constructed to provide access to the heavy vehicle workshop, heavy washdown area and fuel station.

State Significant, Integrated, Designated Development

The proposal is defined as State Significant Development and integrated development under the *Environmental Planning and Assessment Act 1979* (the Act). As such, the Minister for Urban Affairs and Planning is the consent authority for this DA.

The proposal is also designated development under the *Environmental Planning and Assessment Regulation 1994* (the Regulation) and an EIS has been prepared. Under Section 91 of the Act, the development proposal is also an ‘integrated development’, as in addition to requiring development consent, the application requires other approvals or licences from other government agencies. These agencies (referred to as integrated approval bodies under the Regulation) include:

- the Environment Protection Authority under the *Protection of the Environment Operations Act, 1999*;
- the Department of Land and Water Conservation under the *Rivers and Foreshores Improvement Act 1948* and the *Water Act 1912*;
- the Mine Subsidence Board under the *Mine Subsidence Compensation Act 1961*;
- Muswellbrook Shire Council, Department of Land and Water Conservation and Roads and Traffic Authority under the *Roads Act 1993*; and
- the National Parks and Wildlife Service under the *National Parks and Wildlife Act 1974*.

The approval bodies have submitted their general terms of approval, which have generally been adopted as conditions in the recommended instrument of consent. All the approval bodies have been consulted in relation to the consent conditions and are satisfied that their general terms of approval are adequately included in the conditions.

Lodgement of DA and exhibition

On 8 May 2000, Coal Operations Australia Limited lodged the DA and EIS with the Department of Urban Affairs and Planning. The DA and EIS were publicly exhibited from 19 May 2000 to 30 June 2000 in accordance with the *Environmental Planning and Assessment Act 1979*. Submissions were received until close of the exhibition period. A detailed summary of submissions resulting from the public exhibition of the proposal is given at Appendix 2.

The EIS was exhibited at the following locations:

- Department of Urban Affairs and Planning – Head Office, Sydney
- Department of Urban Affairs and Planning - Central Coast / Newcastle Office
- Muswellbrook Shire Council Offices
- Nature Conservation Council in Sydney

The public notification of the MAN proposal was comprehensive, with notices of the proposal placed in the local Muswellbrook Chronicle Newspaper, in the Sydney Morning Herald and on the Department’s Website. A number of site signs were also placed on various parts surrounding the proposed DA area, particularly at places near public roads.

The Department also advised all adjoining and surrounding landowners of the proposal in accordance with legislative requirements.

Submissions received

In accordance with section 79 of the EP&A Act, the Department received a total of 142 submissions during the exhibition period. This included: 8 submissions from government agencies; 5 from business groups; 2 from special interest groups; 21 from private residents; and 106 letters on a Pro-Forma style letter. An overview of submissions received is also outlined in the Table 1 below.

Table 1: Overview of Submissions Received

SUBMISSION TYPE	NUMBER OF SUBS RECV'D	SUBS REQUESTING COI	SUBS OBJECTING TO PROPOSAL
Private Individual	21	10	20
Pro-Forma Letter	106	106	106
Government Authorities	8	0	0
Businesses	5	1	2
Special Interest Groups	2	1	2
Total	142	118	130

Subsequently, with the exclusion of the Pro-Forma letters, there were 28 other submissions from private residents, businesses and interest groups. Those submissions which did not clearly object to the proposal (12 in total) generally raised issues that needed to be considered in the assessment of the proposal, such as air, noise, and water issues.

A detailed summary of submissions resulting from the public exhibition of the proposal is given at Appendix 1.

Local Councils' position

Muswellbrook Shire Council supports the development proposal, subject to its general terms of approval and appropriate recommended conditions.

Government agencies

A total of eight submissions were received from government agencies. No State agency objected to the proposal.

However, a number of issues were raised including: ecological values and habitat connectivity issues, replication of current mining impacts on Muswellbrook, and cumulative noise and dust impacts (a summary of the agency submissions is also included at Appendix 1). It is considered that the issues raised by agencies can be addressed by attaching appropriate conditions of consent to the proposal and requiring certain management practices to be carried out by the mining company. These matters are addressed in the Department's consideration of the key issues later in this report.

Public submissions to proposal

A total of 134 submissions from private residents, businesses and special interest groups were received during the exhibition period. Of these, 118 requested a COI and 130 objected outright to the proposal. However of the 134 submissions, there were 106 letters on a Pro-Forma style letter which all requested a COI. Subsequently, with the exclusion of the Pro-Forma letters, there were 28 submissions with 12 requests for a COI. These submissions raised a number of issues including:

- Noise and blasting
- Dust

- Property Devaluation
- Visual amenity
- Surface and Groundwater
- Cumulative Impacts of Mining in the Area.

The Minister subsequently directed that a COI be held in accordance with section 119 of the *Environmental Planning and Assessment Act (1979)* with respect to the noise, dust, blast and visual aspects of the MAN proposal (refer to ‘Commission of Inquiry’ section below).

The Department is satisfied that the statutory process for public consultation for the proposal was undertaken in accordance with the *Environmental Planning and Assessment Act 1979*. In addition, the Applicant undertook a comprehensive community consultation process of its own. In that regard, the Department is satisfied that the community was extensively and appropriately consulted throughout the assessment process including in particular by the applicant at the pre-development application submission stage.

Commission of Inquiry

On 25 October 2000, the Minister directed that a COI be held into the environmental aspects concerning the noise, dust, blast and visual impacts of the proposal. The Primary Submission session of the COI was held from 11-14 December 2000. The Submission in Reply session was held on 22 and January 2001. The Department’s Primary Submission and Submission in reply to the COI are provided in Appendix 2 and 3.

In March 2001, the Office of the Commissioners of Inquiry reported their findings and recommendations into the COI for the project to the Minister for Urban Affairs and Planning. The Commissioner’s concluded that they were satisfied the environmental impacts emerging from the emission of noise, dust, blast and visual impacts could be resolved in a satisfactory manner. The key findings and recommendations on noise, dust, blast and visual is outlined in the Department’s assessment of the key issues (refer to “Department’s Consideration” section below).

The Commission also directed attention to the previous recommendations from the Mount Pleasant COI concerning the need for legislative amendment to address cumulative impacts arising from existing and proposed mining activities in the Muswellbrook area, and the lack of power under current legislation to impose requirements relating to shared liability for ameliorative measures, compensation or acquisition between existing / or future mines where environmental criteria may be compromised.

THE PROPOSAL

Site details and Infrastructure

The Mount Arthur North (MAN) mine site is illustrated by Figure 1.

The MAN site is located in the Upper Hunter Valley of NSW and is bounded by Denman Road to the north-west and Thomas Mitchell Drive to the north-east and is located approximately 3 km south-west of the Muswellbrook township. The MAN site covers an area of approximately 36km² which has been largely cleared for agricultural activities and is currently used for low intensive grazing activities. A number of ephemeral creeks also occur on the site. Some 88% of the current MAN site also consists of pastoral grasslands, while 4.8% of the site consists of Eucalyptus Woodland-Open

Forest, 1.9% Open Forest, 1.2% mixed Open Forest and 1.2% Arboreal Screens, 0.8% Mixed Eucalypt Open Forest-Woodland, and 0.6% Aquatic Vegetation.

The MAN Project would require the construction of new infrastructure and where possible include the efficient use of existing infrastructure. The new infrastructure required by the MAN proposal includes a Coal Preparation Plant, coal stockpile areas, water storage dams, and mine industrial area which will comprise administration offices, bath house, heavy vehicle workshop, warehouse and parking areas. The location of the proposed new infrastructure is outlined by Figures 4.10, 4.11 and 4.12 of the EIS.

The existing mine infrastructure which will be utilised by MAN include the facilities associated with the nearby Bayswater mine which is partly owned by COAL, the Applicant for MAN. This will include the use of the existing Macquarie Generation coal conveyor for transporting coal to the local power stations, Bayswater raw water dam, use of Thomas Mitchell Drive and existing public road for access to the site, and use of the proposed Bayswater Rail Loading Facility for loading of trains for the export market.

The coal resources within the MAN site are contained within the Wittingham and Greta Coal Measures with a minimum seam thickness of 0.3 metres.

Land Ownership and Land Use

COAL own the majority of the MAN site with a small proportion along the south-western boundary owned by the Bayswater Joint Venture [where COAL is a majority owner (88.3%)]. There are also a number of crown roads within the MAN site which are proposed to be closed and relocated where necessary. The mine access road is currently located on crown land owned by the Hunter Rural Lands Protection Board (HRLPB), however there has been an agreement between COAL and the HRLPB for a land swap and transfer of ownership. The site for a raw water pipeline, pump station, and controlled discharge channel to the north of the Mining Lease Application area are located on freehold land also owned by COAL. Landownership of the current MAN site is illustrated by Figure 5.2 in the EIS.

Landownership surrounding the mine is dominated by other mining companies, including Bayswater No 3 Mine to the south and south-west, Bayswater No 2 and Drayton Mine to the south-east, and Bengalla Mine across Denman Road to the north which occur within an approximate 2km area of the MAN site. Apart from the Bengalla Mine, all the other mines occur on the boundary of the MAN site.

Due to the level of extensive coal mining activities in this area, landuse on surrounding land is dominated by mining related activities. This includes extractive related operations, surface mining facilities, haul roads, rail loading facilities, and overburden emplacements. However, landuse in the area also includes some livestock grazing and pastoral activities and some wine related activities with the Roxburgh Vineyard located approximately 2km from the western boundary of the mine site.

The majority of the MAN site currently consists of pastoral grasses and is presently used for low intensive livestock grazing.

There are also a number of non-mine owned residences which occur near the proposed mine. This includes the Muswellbrook Racecourse which is located approximately 1.5km north of the site boundary, the Muswellbrook industrial estate opposite the north-eastern boundary a number of

residences adjacent to the north-east and north western corners of the site on Denman Road and Thomas Mitchell Drive, and the Muswellbrook township which is located approximately 3km to the north-east of the site. The proposed South Muswellbrook rural/residential development area is also located some 1.5km to the north-east of the site. These areas are located by Figures 5.2 and 11.1 in the EIS.

Production process

The initial first two years of mining operations at the MAN site will commence with the establishment of the surface infrastructure such as the Coal Preparation Plant and areas to contain the coal stockpile and ROM Pad, site preparation for mining such as prestrip removal of overburden and some extraction of coal material through truck and shovel operations. The location of the surface infrastructure and initial mining operations is illustrated by Figure 4.4 of the EIS.

Mining activities will commence with the establishment of a central open cut pit and a smaller pit, which forms part of the central pit, to the south. The mine will proceed from the central pit in a south-westerly direction from the surface infrastructure area with overburden placed behind the progressive mining area which will be progressively rehabilitated as mining operations occur.

Overburden material will be removed at the site by electric shovels and through a combination of backhoes or front end loaders depending on the thickness of the overburden horizons. All the overburden material will then be transported by a fleet of rear dump trucks to the overburden emplacement area behind the extraction area as part of the reshaping and rehabilitation of the site. However during the initial period, the overburden material will be used to form up the ROM coal receival pad and product stockpile base, and some of the weathered overburden to form part of the noise and visual barrier.

Overburden with a thickness of greater than 2 metres will require drilling and blasting. The coal material will then be mined by front end loaders and hydraulic shovels and then loaded onto dump trucks to haul the ROM mined material. However for the initial period of mining operations, some coal from MAN may be hauled to the Bayswater No 2 CPP for processing. ROM coal material will then be transported to a receival pad and will be tipped into two 500 tonne hoppers. Crushed coal will be conveyed to two stackers and then transferred to either the raw coal pile or to the domestic coal stockpiles.

The domestic coal will be stockpiled adjacent to the raw coal stockpile along existing Macquarie Generation conveyor and supplied to the local power stations. While coal for the export market is proposed to be transferred from the raw coal stock pile to the Coal Preparation Plant where it will be washed and then conveyed to two 2,000 tonne surge bins which will be conveyed to an export coal stockpile. The MAN export stockpile will be an extension of the proposed Bayswater export coal stockpile which forms part of a separate DA as part of the approved Bayswater Rail Loop and Loading Facility (approved by the Minister on 2 November 2000).

The Bayswater Rail Loop project will have sufficient capacity to cater for the rail loading of both coal produced from the MAN project and Bayswater coal mine having the capacity to handle between 13 Mtpa to 20 Mtpa. It is expected the Bayswater Rail Loop will be constructed and operational prior to the commencement of operations of the MAN project, should it be approved. The proposed infrastructure which will be used by the MAN project is illustrated by Figure 3 (Figure 4.12 of the EIS).

By Year 5 of operations, the central and small pit will have joined to form one pit and a northern pit will be developed at the southern side of Macleans Hill. In Year 10, the main central pit will continue to mine in a south-westerly direction while the northern pit will operate to the west. By Year 15, an upper and lower pit within the Northern Pit will be developed. While in Year 21, both the upper and lower north pit developed will have merged to form a single northern pit.

Coal may be removed from the Macleans Hill area through highwall mining techniques using the northern pit as access. Highwall mining involves the installation of underground mining equipment or augers which tunnel into the coal seam exposed at the face of an open cut pit. Coal from the highwall miner is transported from the drive face to a stacker conveyor and then to a stockpile on the floor of the open cut pit for transportation to the CPP. Highwall mining is used in areas where the extraction of coal by open cut methods is uneconomic due to the amount of overburden to be removed and due to geological constraints. It is expected that highwall mining will take place towards the latter part of the 21 year mine life.

Annual production, hours of operation and employment

The Mount Arthur North Mine will produce approximately 290 Million tonnes of ROM coal over a 21 year period. It is expected that by year 2 of the mine, up to 7 Mtpa of ROM coal will be removed from the site. The mine will then increase to extract up to 13 Mtpa of ROM coal by year 5, while in years 10, 15, and 21 the mine is expected to produce up to 15Mtpa of ROM coal.

It is expected that the construction period for the mine infrastructure will take place from 7am to 10pm Monday to Friday and 7am to 1pm on Saturdays. The mine is expected to operate up to 7 days per week, 24 hours a day depending on production requirements. The CPP and associated surface facilities will also operate 24 hours per day, 7 days per week.

The construction stage of the mine will provide employment for up to 290 workers. The operational stage will provide employment for up to 521 people.

Stages of development

The proposed mine layout sequence plan are illustrated by Figures 4.4 to 4.8 of the EIS with schematic sequence of mining operations outlined by Figure 4.9 of the EIS. The final contouring is illustrated by Figure 5.4 of the EIS.

Transport arrangements

The MAN mine will provide coal to both domestic and export coal markets. Domestic coal will be loaded by conveyor into a transfer station, comprising a 600 tonne bin, which will supply coal onto an existing Macquarie Generation conveyor to supply the Liddell and Bayswater Power Stations. Export coal will be transported by rail from the mine site through the previously approved Bayswater Rail Loop and associated train loading facilities project. The rail loop will be strategically positioned to the MAN project and will provide sufficient capacity to load and transport coal from both the MAN site and Bayswater coal mines. The Rail Loop will have the capacity to transport a minimum of 13 Mtpa and up to a maximum of 20 Mtpa. The Rail Loop is expected to be constructed and operational prior to the commencement of operations at MAN.

A new mine access road will be constructed from Thomas Mitchell Drive to the MAN mine industrial area. This will provide sufficient access for both the MAN and Bayswater mines. Internal haul roads and access roads will also be developed by the proposal. The internal roads will provide

for the transportation of coal material from the open cut pit areas to the coal handling areas, and for the movement of overburden from the mining area to the emplacement area. A light vehicle access road to the mine office and workshop site areas will also be developed.

Justification

The EIS states that the MAN project site contains one of the largest remaining undeveloped, open cut coal resources in NSW to supply both domestic and export coal markets and has the potential to produce an estimated 290 Mtpa of ROM coal over the life of the mine.

The EIS states that the MAN mine has the potential to generate significant social and economic benefit to the local Hunter Region, the State and Nationally through the provision of employment, income and output. The benefits are expected to particularly by experienced in the Muswellbrook, Scone and Singleton Shires. The mine is expected to provide direct employment for up to 290 people during the construction stage and up to 521 operational positions, with a further 860 indirect jobs throughout the region.

The mine will provide approximately \$60 million in wages and salaries at peak production, have an estimated output of \$400 million per year and \$344 million in associated output from flow-on effects. The mine will also provide revenue to the Federal, State and Local Government levels. The creation of these operational and construction jobs, and the economic contributions to the various levels of government, would not be generated if the proposal does not proceed.

The site of the MAN project is also in close proximity to other COAL owned or jointly owned operations with Bayswater No 2 and No 3 mines located adjacent to the site. The MAN project will interact with the Bayswater mining operations to optimise the joint use of infrastructure and utilise operations synergise to maximise the efficiency of the two operations. There will also be further significant infrastructure investment with the proposed Bayswater Rail loading facility which will be located near the MAN site and will provide rail transportation of coal for the MAN mine and Bayswater operations.

The Department considers that there will be both economic gains and a level of environmental and social impacts as a result of the proposed development. There is no doubt that the coal resource is of regional and State significance and that its extraction in an environmentally and socially appropriate manner is justified. If the development is approved it will be essential for the environmental and social impacts of the project to be sufficiently managed and mitigated by the applicant in accordance with the recommended consent conditions to ensure that the project is fully justified at all levels.

STATUTORY PLANNING MATTERS

The Department has reviewed the MAN proposal with regard to the various State, regional and local statutory planning provisions that apply to the proposed mine as required by section 79C of the Act. The proposal is a “designated development” under Schedule 3 of the *Environmental Planning and Assessment Regulation 1994* and an EIS has been prepared and publicly exhibited.

Local Planning Considerations

The proposed development is located wholly within Muswellbrook Shire. The planning provisions of the Shire are contained within the Muswellbrook Local Environmental Plan (LEP) 1985.

Under the Muswellbrook LEP (1985), the proposed DA area is zoned Rural 1(a) and Environment Protection General (Alluvial Areas) 7(L1). The proposed development is permissible with development consent in both these zones and is not inconsistent with the objectives of the LEP, though the permissibility in the 7(L1) zone is subject to certain provisions of the LEP being satisfied (clause 17(2) Special Requirements of the LEP). However, State Environmental Planning Policy No 45 (SEPP 45) – Permissibility of mining also applies to the development which makes mining permissible without those special provisions in the LEP having to be satisfied (refer State Environmental Planning Policies - SEPP 45 below).

Regional Environmental Plans

Hunter Regional Environmental Plan

The Hunter Regional Environmental Plan (REP) 1989 applies to the proposal. The REP provides a framework to guide and control growth and development in the region. Part 6 of this plan, Natural Resources, relates to mineral resources and extractive materials. The objectives of the plan are to encourage mining that manages resources in a coordinated manner, minimise adverse environmental impacts and ensure that the transportation of coal and other mineral resources has minimal adverse impact on the community. The Department considers that the proposal is consistent with the objectives of the REP.

State Environmental Planning Policies

State Environmental Planning Policy No. 11 – Traffic Generating Developments

SEPP 11 applies to the subject development as the proposal involves mining as specified in paragraph (m) Schedule 1 of the Policy. The policy requires the DA to be referred to the Roads and Traffic Authority (RTA) to be granted the opportunity to make any representations on the proposal.

The RTA has been consulted and has raised no objections to the development subject to a number of requirements.

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development

SEPP 33 was gazetted on 13 March 1992. The Policy has the primary aim of ensuring that a consent authority has sufficient information to assess whether a proposal represents hazardous and/ or offensive development and consequently impose conditions to appropriately mitigate hazardous and/ or offensive environmental impacts.

A proposed development is considered *potentially hazardous*, if, in the absence of all mitigating measures, the development would pose a significant risk to surrounding land uses. In order to establish whether the proposed development is *potentially hazardous*, the Applicant undertook a risk screening assessment in accordance with the Department's guidelines. The assessment concluded that although some quantities of dangerous goods are to be stored and used on the site, the location of these materials (in excess of one kilometre from the site boundary) is sufficient to ensure a negligible risk impact on surrounding land uses. Dangerous goods will be stored and handled on the site in accordance with relevant Australian Standards and accepted industry best practice. The Department concurs with the Applicant's assessment of the potential risk impacts of the development as being low, and as such considers that the proposal does not represent a *potentially hazardous* development, as defined by SEPP 33.

In a similar manner to risk impacts, a proposed development is considered *potentially offensive*, if, in the absence of all mitigating measures, the development would pose a significant risk to surrounding land uses. As the development will require an Environment Protection Licence (EPL) from the EPA under the *Protection of the Environment Operations Act 1997*, the proposal is considered *potentially offensive*. The EPA has indicated that it is satisfied that a licence can be issued for the development and that the offensive impacts of the development can be adequately mitigated through that licence. As such, the proposal is not considered *offensive*.

The Department is satisfied that all relevant requirements of SEPP 33 have been fully met.

State Environmental Planning Policy No 44 – Koala Habitat Protection

The Muswellbrook Local Government area falls within Schedule 1 of the SEPP 44 policy. However the EIS indicates that there was no evidence of the presence of a 'residential population' as defined under the policy and was therefore considered as not constituting a potential 'core koala habitat' under SEPP 44. The Department's assessment concurs with this view.

State Environmental Planning Policy No 45 – Permissibility of Mining

The objective of SEPP 45 is to facilitate mining development within NSW. Where mining is permissible with development consent, and provisions of an environmental planning instrument require that certain conditions be met prior to granting of consent, the Policy provides that consent may be granted without those conditions having to be satisfied. The EIS indicates that SEPP 45 applies to the Project, as part of the development is proposed in the 7(L1) zone (Environmental Protection General – Alluvial Areas) of the Muswellbrook LEP, which only permits mining with development consent if other special provisions of the LEP are also satisfied (refer local planning considerations above).

The Department considers that SEPP 45 does apply to the proposal which consequently obviates the need for the special provisions of the 7(L1) zone to be satisfied for the development. It is noted in this regard that the application of SEPP 45 does not affect the other relevant merit assessment considerations of the provisions of the LEP.

State Environmental Planning Policy No 55 – Remediation of Land

SEPP 55 aims to promote the remediation of contaminated lands for the purpose of reducing the risk of harm to human health or any other aspect of the environment. The policy is to be considered by a consent authority prior to determining a Development Application.

There has been no record of any known contamination of the site and previous landuse on the site has been limited to agriculture and grazing purposes and therefore the potential for contamination is considered to be limited. The Department considers that it unlikely the proposal would increase any risk from contamination or that the site would require remediation work to be undertaken.

Commonwealth Legislation

Environment Protection and Biodiversity Conservation Act (EPBC Act)

The EPBC Act commenced on 16 July 2000. One of the key functions of the EPBC Act includes the introduction of a new assessment and approvals system for actions that have a significant impact on matters of national environmental significance (NES). Should an action be determined that it is likely to significantly impact on NES matters (referred to as 'Controlled Actions'), an approval from Environment Australia is required.

In order to determine whether a project requires an approval from the Commonwealth, an applicant should prepare and submit a 'Referral' application to Environment Australia for consideration. The Department advised the Applicant that it should consider making a 'Referral' application to Environment Australia. The Applicant advised the Department that it considered a 'Referral' application for the MAN project was not necessary, as the development would not have a significant effect on a matter of national environmental significance. Subsequently, any further consideration as to whether an approval would be required from the Commonwealth would be considered by Environment Australia.

Schedule 3 of EP&A Regulation

Under Schedule 3 of the *Environmental Planning and Assessment Regulation* (the Regulation), the proposed development is defined as 'designated development' by way of being a 'Coal Mine'. The proposal is an open cut mine which will produce or process more than 500 tonnes of coal per day and will disturb a total surface area of more than 4 hectares of land. Subsequently, this required the preparation of an EIS in support of the DA.

Director-General's requirements for the EIS were issued to the Applicant on 12 August 1999. The EIS was prepared by URS Dames and Moore, Hardcastle and Richards, Woodward Clyde, dated April 2000 and submitted with the DA. The Department was satisfied that the Director-General's requirements had generally been addressed and the EIS was adequate to be placed on exhibition. Procedures relating to the preparation and public notification of the EIS have been followed.

Threatened Species Conservation Act, 1995

The EIS addresses each of the matters set out in section 5A of the EP&A Act, and concludes that there was unlikely to be a significant impact on threatened species and therefore a species impact statement was not required (SIS). The Departments assessment of flora and fauna is in the "Department's Consideration" section below and concludes that the proposal is unlikely to significantly impact threatened species assessed in the EIS.

Conclusion

The proposal is in accordance with the provisions of all the relevant environmental planning instruments. The Department is satisfied that statutory obligations as to EIS preparation, notification and public participation have all been met. The Department notes in particular that the applicant undertook a comprehensive community consultation program throughout all stages of development assessment.

DEPARTMENT OF URBAN AFFAIRS AND PLANNING'S CONSIDERATION

Key issues

In the Department's opinion the key issues for assessment, taking into consideration the submissions received on the proposal and the contents of the EIS, are:-

- noise
- dust
- blasting
- visual and lighting
- surface and groundwater issues
- flora and fauna
- aboriginal and non-aboriginal heritage issues
- traffic and transport
- social and economic

both as applicable to the construction and operation of the mine alone as well as the relevant cumulative impacts.

Noise Impact Assessment

The Applicant assessed the potential noise impacts resulting from the MAN mine proposal and presented its findings in Section 11 of the EIS. The assessment of the potential noise impacts was undertaken in accordance with the NSW EPA's Industrial Noise Source Policy. The EIS indicates that the most significant continuous noise source that will be generated by the operation of the MAN proposal will result from the activities associated with the extraction of coal and movements of overburden material.

The noise assessment established noise limits and determined that up to 98 existing residences will receive noise levels above the intrusive or amenity noise criteria by 1dBA or more. The EIS proposed a number of mitigation measures to address the potential noise impacts, such as through the direct measures at specific properties (eg air conditioning), consultation with the landowners and government agencies and land acquisition in certain cases.

The Department engaged the services of Richard Heggie and Associates (RHA) to undertake an independent review of the noise assessment and predictions made in the EIS. In reviewing the EIS, RHA and the Department defined noise management and acquisition zones based on various noise criteria and identified properties which would be subject to acquisition. The results of the assessment undertaken by RHA and adopted by the Department is provided at Appendix 2.

COI Findings

The Commission of Inquiry was satisfied that the assessment undertaken in the EIS was in accordance with the requirements of the EPA's Industrial Noise Source Policy. The Commission identified that three residences are predicted to fall in the acquisition zone, with one already has been acquired by the Applicant. The Commission also recommended intrusive (MAN noise alone) and amenity (cumulative noise) levels, and a number of other management measures, strategies to reduce noise and contingency measures to address noise related issues. In considering the Department's advice to the COI, the Commissioners generally adopted the recommendations of the Department

which includes dispute resolution, land acquisition, and auditing of compliance. However, the Commissioners have removed the Department's recommendation for the Applicant to negotiate with the Bengalla mine and the landowners whose properties fall within the cumulative noise management zone. The negotiations would provide for the implementation of appropriate mitigation measures, prior to the commencement of operations. The Department is however satisfied that this matter can be addressed by a Memorandum of Understanding between Bengalla and MAN outside of the consent conditions.

Department Position

The Department generally concurs with the conditions recommended by the COI, which are generally consistent with those recommended by the Department and consistent with EPA advice.

The key elements of the recommended consent conditions with respect to noise are as follows:

- definition of criteria for noise management and acquisition to be undertaken. This includes noise criteria for both noise from the mine alone and cumulative mine noise (refer Tables 3 and 4 and recommended condition 6.4.1);
- identification of properties in the acquisition zone for noise impacts from the mine alone (refer Table 5 of recommended condition 6.4.1);
- a process for the management of noise complaints, including the use of a dispute resolution process (refer particularly recommended condition 6.4.1 (g), and condition 11.1 (c)). These processes are illustrated by the flow charts titled "Process for Management of Complaints for Noise/Dust Impacts", "Independent Noise/Dust Monitoring Process", "Independent Dispute Resolution Process", and "Acquisition Process" attached to the recommended conditions tagged "A";
- provision for independent noise investigations to be undertaken at the applicant's expense;
- a requirement for the preparation of a detailed Noise Management Plan in consultation with adjoining mines, including noise monitoring requirements (draft condition 6.4.3 (a)). The Noise Management Plan will particularly detail: the methods to be used for monitoring; management measures to be undertaken in the management zone; definition and annual redefinition of management and acquisition zones based upon past monitoring results; specify procedures for a noise monitoring program for the purposes of independent noise investigations; and establishment of a protocol for handling noise complaints.

Dust Impacts

The Applicant assessed the potential dust related impacts resulting from the MAN mine proposal and presented its findings in Section 10 of the EIS. The EIS indicates that the principle dust sources that may be generated from the mine proposal will result from activities associated with the overburden material such as drilling, blasting, and its subsequent movement around the site.

The EIS made a number of predictions on the estimated dust emissions that may occur as a result of the proposal, particularly PM₁₀ and TSP concentrations, and annual average deposition levels. One property was identified in the EIS to be subject to a predicted exceedence above the dust criteria as a result of the operations of the MAN proposal. It is understood that the Company has already purchased this property. The EIS also notes that MAN dust emissions impact on two other properties cumulatively with the Bengalla mine in combination with the proposed Mount Pleasant project, but with MAN being a minor contributor.

The Department engaged the services of Pacific Air and Environment (PAE) to undertake an independent review of the dust assessment and predictions made in the EIS. In reviewing the EIS, PAE considered that the average concentrations of TSP, PM₁₀ and dust deposition were a reasonable indication of future conditions should the mine proceed. However, the short-term predictions are much more uncertain. A number of recommendations were made by PAE which were adopted in DUAP's recommended conditions to the COI, particularly in relation to measures to manage and mitigate short term episodic dust events. The results of the assessment undertaken by PAE is provided in Appendix 2.

COI Findings

The Commission found that the dust levels resulting from the proposal will be within the EPA amenity criteria and NH&MRC health criterion. One property will be significantly impacted which has already been acquired by the Applicant. Two properties will be cumulatively affected, with the main source of dust predicted to result from the existing Bengalla and Mt Pleasant mines. The Commission therefore recommended that the Applicant contribute, in proportion to the dust contribution, to the acquisition of these properties, should an impact be demonstrated.

The Commission has also recommended that DUAP, EPA and the local Hunter Valley coal mine industry review coal mine air quality goals, complaints and strategies to reducing impacts on residents. A number of measures are also recommended to address potential dust related impacts including requirements for pro-active management measures, including a Dust management plan to identify potential impacts and to implement appropriate management measures.

Department's Position

The Department generally concurs that the Commission's findings and recommended consent conditions and these are included in the conditions recommended to the Minister.

The key elements of the recommended consent conditions with respect to dust are as follows:

- preparation of a Dust Management Plan (recommended condition 6.1 (a)), in consultation with adjoining mines, outlining management and mitigation measures to be implemented, including: measures to manage and mitigate short term episodic dust events; identification of dust affected properties in accordance with relevant dust criteria; measures to reduce the potential for wind erosion from exposed surfaces; techniques for improving short term modelling techniques; procedures for undertaking investigations with other neighbouring mines; the establishment of a protocol for handling dust complaints; methods for modifying mine operations to minimise potential dust emissions and specifications of procedures for a dust monitoring program; and response or management measures to be undertaken in the event of complaints where dust levels are below the relevant dust criteria. The Plan is required to be prepared prior to the commencement of construction and operation and to the satisfaction of the Director-General;
- establishment of dust deposition and total suspended particulate monitoring locations;
- provision for independent dust investigations to be undertaken at the applicant's expense.

Blasting Impact Assessment

The Applicant assessed the potential impacts resulting from blast related activities from the MAN mine proposal and presented its findings in Section 11 of the EIS. The EIS indicates that the

overpressure and vibration levels from blasts at the MAN mine will be within the EPA criteria at all surrounding residences over the life of the mine.

RHA also provided the Department with its independent review of the blast assessment and predictions made in the EIS. In its assessment, RHA indicated that the larger blasts required for the removal of overburden material may result in vibration levels up to 3mm/s and airblast levels up to 118dB. The 118dB level represents an exceedance of the target level for airblast overpressure (which is allowable for 5% of blasts). RHA therefore suggested that in order to reduce potential airblast emissions from large overburden blasts, blast designs should be further refined to reduce maximum instantaneous charge weights. A number of other recommendations were also made by RHA which were generally adopted by the Department in its recommendations to the COI. The results of the assessment undertaken by RHA is provided in Appendix 2.

COI Findings

The Commissioners were satisfied that the proposed blast vibration and overpressure levels would be within the relevant criteria at surrounding residential areas. A number of consent conditions are recommended to address potential impacts. This included the preparation of a Blast Management Plan to detail mitigation and monitoring measures, demonstration that MAN is achieving best practice in minimising blast emissions, and measures to consider other blasting activities from neighbouring mine operations. The COI also recommended a requirement for the Applicant to undertake property surveys as to the structural condition of residences within a 3 km radius of the active mining area, including the whole of the Racecourse Road area and residences south-west of Skellator stock Route. A number of other general recommendations are also outlined to provide appropriate management measures to mitigate potential blast related impacts

Department Position

The Department concurs with the conditions recommended by the COI in relation to blasting impacts and these are included in the recommended conditions to the Minister.

A further issue to arise from the COI and an issue associated with the existing operation of the Bengalla coal mine, relates to low frequency vibration. A number of residents along the Roxburgh Road area have complained about a slight vibration occurring within their houses which they suggest is a result of nearby mining operations. The Commission therefore recommended a condition requiring that the Applicant, in consultation with the EPA, investigate the cause of low frequency vibration and report to DUAP the results of these investigations and practical mitigation measures that can be adopted to eliminate such problem.

The Department considers that the requirement for MAN to investigate the existing low intensity vibration issue as inappropriate. The condition has been reworded to state that any vibration problems which occur as a result of MAN operations would be investigated by the mine, rather than MAN investigating vibration issues on behalf of the existing Bengalla mine.

Visual and Lighting Impact Assessment

The Applicant assessed the potential visual related impacts resulting from the MAN mine proposal and presented its findings in Section 12 of the EIS. The MAN proposal is expected to have a visual impact on certain areas around the Muswellbrook area. MAN is a large scale of the mine located on a greenfield site not previously subject to mining activities, will include the operation of up to three

open cut pits resulting in the disturbance of the ground surface, removal of vegetation, alterations to the landform topography during and following mining activities, a number of internal haul roads, overburden emplacement areas, night-time lighting, and significant infrastructure development as part of the mine. The EIS acknowledges that residents located on Roxburgh Road, the Roxburgh Vineyard, and a resident along the Hunter River, will experience high visual impacts.

In order to address the high level of visual impact that is expected at certain residences on Roxburgh Road, the Roxburgh Vineyard and a resident along the Hunter River, the EIS proposes to implement specific property landscape enhancement measures to compensate a property directly affected by the visual impacts of MAN.

The Department acknowledges that the EIS presented a thorough assessment of the potential visual impacts that could result from the MAN proposal. The Department agreed that the proposal is likely to result in a high visual impact to some residents located on Roxburgh Road, the Roxburgh Vineyard, and a resident along the Hunter River, however also considered that the proposal may also result in a level of impact to certain other areas over the life of the mine.

COI Findings

The Commission was satisfied that the proposed on-site and off-site mitigation measures will reduce the visual impact of the mine to an acceptable level, with the exception of 1 residence. The Commissioners considered that the dwelling would experience a view dominated by the mine which would not be able to be mitigated without a significant and adverse impact on the visual environment enjoyed by the property. The property has therefore been recommended to be purchased by the Applicant. A number of stringent landscape and lighting management requirements were also recommended. This includes requirements for the preparation of a landscape and light management plan which is required to detail the measures to mitigate the visual impact of the mine and to provide measures to suitably address any potential future visual related impacts. However, the Commissioners did not adopt the Department's recommendation that the off-site mitigation of specific properties be available to other residents identified to be significantly impacted.

Department Position

The Department considers that the use of off site landscaping of specific properties to be an important measure to compensate a property directly affected by the visual impacts of MAN. The landscaping undertaken can be beneficial through providing improvement of the assets of a property, as well as screening the view of the mine site, or for compensating for a view impacted by MAN. The Department concurs with the recommended COI conditions in this regard. However, the Department also considers that other residents in the area should also be granted the opportunity for specific landscape enhancement measures should it be determined that the visual impacts on their property are adversely greater than that predicted in the EIS.

The Department has reinserted a condition enabling such properties to receive offsite mitigation measures in the recommended conditions to the Minister. The conditions state that should a resident consider the visual impact at their property to be adversely greater than that predicted in the EIS, the Applicant is required to consult the landowner and discuss their concerns and possible mitigation measures. Should a dispute between the Applicant and landowner occur, either party may refer the matter to the Director-General for resolution (in consultation with Muswellbrook Council). Should the dispute be unable to be resolved within 21 days, the matter will be referred to the independent dispute resolution process.

Additionally, it is noted that the COI recommends one property to be acquired due to visual impacts. The Department has adopted this condition as recommended, but the Department currently has no acquisition policy for visual impacts as it is considered that the impacts are very difficult, if not impossible to measure. Further work on this issue is necessary before the Department would consider recommending conditions requiring acquisition as a result of visual impacts on a policy basis.

Surface and Groundwater Management and Quality

Surface Water

The Mount Arthur North site covers an area of approximately 36km² and is located in the Hunter River Valley and adjacent to the Hunter River Floodplain. The MAN site is characterised by areas of high elevations due to the ridgelines and localised hills which include Mount Arthur to the south and Macleans Hill to the north. The areas of lower elevations include a number of ephemeral creeks and small watercourses which traverse the site, and include Whites Creek, Fairford Creek, Saddlers Creek and some smaller un-named creeks which form the major sub-catchments within the MAN site and is illustrated by Figure 7.2 of the EIS. The MAN site is also located above the 1955 flood level, which is considered by DLWC to be estimated to be the 1 in 100 year flood level.

With the exception of the levels of salinity and sulphate, the existing surface water quality of the site has been determined to be within the ANZECC guidelines (1992) for irrigation and stock watering. The EIS indicates that the elevated saline levels are the result of natural seepage of saline groundwater to the surface. Again, with the exception of the salinity levels, surface water quality of the Hunter River in the vicinity of the MAN site has also been identified to be within the ANZECC guidelines (1992) for stock watering, freshwater aquatic ecosystem protection, raw water for drinking, and for irrigation.

The MAN proposal has the potential to impact on surface water quality during both the construction and operational phases of the mine. Since the construction stage will result in significant earth works for the construction of the mines infrastructure, surface water runoff from the exposed bare earth has the potential to result in sedimentation related impacts on nearby surface water.

The EIS indicates that the operational phase of the mine also has the potential to impact on surface water through impacts on the water quality and availability. Due to the level of activities proposed on the site, there is the potential for the proposed mine activities to change the physical nature of the catchment area through disturbance, affecting the ability of the catchment to yield water and contribute to the overall catchment drainage of the area compared to the existing site. The mine may also have potential drainage impacts downstream of the site due to the increase in catchment area through increased flows such as from flood events and increased runoff flow velocities. Other potential impacts resulting from the operation of the mine include impacts associated with the supply of 15 Mega Litres (ML) per annum potable water and up to 1,819 ML external water supply, and impacts on water quality and scouring at the discharge point resulting from controlled discharges from the site into the Hunter River

The EIS indicates that the potential impacts of the mine on downstream agricultural properties due to the reductions in catchment yield is expected to be minimal due to the low level of catchment area that may potentially be lost over the 21 year mine period, which for the Saddlers Creek catchment is expected to be around 2% of the original Saddlers Creek Catchment area. While the impact on the

Whites Creek catchment is expected to only result in an impact to the Edinglassie property which is owned by COAL.

The maximum amount of water that may need to be discharged from the site is predicted to be 1,800 ML per annum. The discharges from the site will only occur under suitable conditions such as during flood flows, and according to the requirements of the Hunter Salinity Trading Scheme. A number of measures are also proposed to minimise the impact at the discharge point. In the event that excess water cannot be discharged due to unfavourable conditions, options will be available to temporarily store water in either the MAN pit or the pits in the neighbouring Bayswater mining lease area until the opportunity for discharge occurred.

EIS Surface Water Mitigation Measures

In order to manage the potential impacts resulting from the construction activities, the EIS indicates that a number of methods would be adopted to minimise any potential impacts. This includes the diversion of runoff from upstream areas around the construction site, minimisation of the size of the area of exposed bare earth at any one time, collection and direction of runoff from exposed earthworks areas through sediment traps to remove suspended sediment prior to its discharge from the site, construction of excavation and fill batters to stable slopes, and the landscaping of disturbed areas immediately after the completion of construction. The sedimentation dams are also proposed to be strategically positioned around the mines various activities to ensure the capture of dirty water.

The mine also proposes to use on-site mine water to maximise the reuse of contaminated water, and potential transfers between neighbouring mines to minimise the need to discharge any water off the site.

The EIS also proposes a number of water management and drainage strategies to manage the potential impact on surface water. This includes the implementation of a water management strategy to manage the potential impact of water that may be generated by the mine. This includes water collected in the pit, runoff from areas disturbed and undisturbed by mining activities, and sewage effluent. The strategy aims to maximise the reuse of mine waters for mine water supply and to minimise the discharge of pit water from the site. While a proposed site drainage management plan will aim to manage all site runoff of suitable quality for passive discharge from the site following the removal of suspended sediments. This includes the diversion of runoff from undisturbed areas around areas disturbed by mining activities to drain from the site, collection of runoff from mining areas and the provision of adequate flood protection.

Issues Raised in Submissions

There were a number of submissions from private residences that raised concerns about the potential impact of the MAN proposal on the surface and groundwater system, particularly on the quality and quantity of the water of the Hunter River.

In providing their General Terms of Approval for the proposal, neither the DLWC nor the EPA has raised any concerns about the potential impact of the proposal on surface water. Both submissions have suggested a number of recommended mitigation measures to ensure that impacts on surface water are managed. These have been incorporated into the recommended consent conditions, as well as the Water Licence Application conditions recommended by the COI from the water licence hearing.

Department's Position on Surface Water

The Department believes that the EIS has provided a detailed assessment of the potential impacts from the construction and operation of the proposal on the surrounding surface water. The proposed measures outlined in the EIS are supported by the Department and are considered to be suitable for mitigating potential impacts on the surface water. This position has been concurred with by DLWC which has provided its General Terms of Approval for the proposal and has raised no concerns about the proposals potential impact on surface water. The EPA has also provided its General Terms of Approval and raised no concerns in relation to any potential water impacts. Both the DLWC and EPA General Terms of Approval have been incorporated into the recommended consent conditions, which includes requirements for discharges from the site being undertaken in accordance with the Hunter River Salinity Trading Scheme.

The Department has also recommended a number of consent conditions relating to surface water to strengthen the management of the potential sources of impacts from the mine and to modify those measures should potential impacts be identified. As part of the consent conditions, the Applicant will be required to prepare a Site Water Management Plan to the satisfaction of DLWC and the Director-General prior to the commencement of mining operations. In preparing the Plan, the Applicant is required to specify procedures that will be adopted to manage water quality, ensure surface waters are not degraded below specific ANZECC guidelines, details of contingency measures for managing potential adverse impacts and the development of a program for reporting on the effectiveness of the water management system.

The proposed conditions also impose a requirement on the Applicant to monitor surface water areas to the satisfaction of the Director-General and DLWC. The monitoring requirements are to be detailed in a monitoring program which outlines the frequency of sampling, parameters to be sampled, details of contingency measures, and to assess the potential impact of water extraction on neighbouring properties. The consent conditions also adopt the General Terms of Approval of DLWC and EPA which specify limits for water to be discharged and monitoring requirements to ensure the mine does not adversely impact on water quality.

The Department is satisfied that the requirements of the Plan will adequately manage any potential surface water quality impacts.

Groundwater

The EIS indicates that the groundwater around the area of the MAN site occurs mainly within two principal aquifers. This includes a hardrock coal measure and the shallow alluvial deposits associated with the Hunter River. Surveys undertaken over the site have determined that the hardrock coal measures occur through the study area and were determined to contain mainly a low to negligible water transmission capacity, which declined permissibility with increasing depth. The shallow alluvial deposits had a moderate to high porosity and permeability and groundwater inflow.

Water quality within the coal measures has been identified as being saline and would only be suitable for limited irrigation purposes with salinity levels up to 5,000 micro siemens / cm. Water quality in the alluvium was determined to be brackish and only suitable for livestock watering and some limited irrigation.

The EIS indicates that there are a number of bores around the MAN site that have been identified. Of these bores, only the one (1) has been identified within the alluvial lands at the Edinglassie property

which is owned by the Applicant, however there are a number of bores located north-east and west of the site. There is no current usage of groundwater bores from the coal measures aquifer.

The mine has the potential to impact on groundwater through the seepage of groundwater into the open pit, impact on groundwater levels in the coal measures, on alluvium groundwater flows and levels, the cumulative impact of other mining operations on dewatering, groundwater quality and on the quantity of groundwater resources.

The EIS indicates that groundwater seepage from the coal measures is predicted to rise about 2.1 ML/day by year 10, after which time the rate is predicted to stabilise through the cumulative effects of adjacent mining and leakage from the Hunter River alluvial lands. The EIS indicates that the impact of the mine on nearby bores in the coal measures would be restricted to those owned by the Applicant and other mining companies, while it is not expected to impact on the alluvial aquifer due to the balance expected between the dewatering effect of the mine and the increased recharge from rainfall and the Hunter River.

EIS Groundwater Mitigation Measures

The EIS outlines a number of mitigation strategies in order to manage the potential impacts of the proposal on groundwater. In relation to groundwater quality, the Applicant proposes to minimise the contamination of groundwater from accidental spillage of fuels and chemicals through sealing and bunding chemical storage areas, refuelling and washdown areas. A waste emplacement strategy will also be implemented by the Applicant to effectively manage the potential impact of dewatered tailings and coarse rejects. This will manage the potential impact of any acid leachate that may occur and subsequently impact on the quality of the groundwater.

Issues Raised in Submissions

There were a number of private submissions received by the Department concerning the impact of the proposal on groundwater quality and quantity during the exhibition of the DA and EIS.

In providing its General Terms of Approval for the proposal, the DLWC raised some issues about the potential impact of the proposed mine operations on groundwater, particularly with the proposed mining operations in the vicinity of the alluvial floodplain of the Hunter River. This includes issues about the quality of the final void water, potential cumulative impact on regional groundwater flows, and the potential impacts on the surrounding groundwater systems. The matters raised by DLWC were also outlined to the water licence hearing at the COI.

Department's Position on Groundwater

The Department believes that the EIS has made a detailed assessment of the potential impacts of the proposal on groundwater, however due to the potential impacts on groundwater, has recommended a number of detailed monitoring, contingency planning and reporting requirements to manage any potential impacts.

The requirements of the consent conditions which incorporates the requirements of DLWC and EPA, will seek to mitigate any potential groundwater impacts from the mine proposal. The conditions include the requirements for a Site Water Management Plan which will detail management, mitigation measures and contingencies to ensure the mine does not impact groundwater. The Plan is required to include methods for managing the quality and quantity of groundwater, contingency

methods for managing adverse impacts, projection of potential changes to groundwater quality during and after mining activities and a program for reporting on the effectiveness of the water management system.

The consent conditions also specify that should the mine adversely impact on other groundwater users (such as private landowners), the Applicant is required to provide a replacement water supply to the satisfaction of DLWC. The consent conditions also require the preparation of a detailed monitoring program which requires an assessment of the impacts of any groundwater extraction, to establish a register for receiving complaints and to consider any issues raised by local landholders. This will form part of the Site Water Management Plan.

In response to the issues raised by DLWC, a number of other consent conditions are recommended. These include requirements for undertaking regular assessments of the accuracy of the groundwater predictions made by the Applicant, requirements for the revision of the groundwater assessment if requested by DLWC and the implementation of further mitigation measures should the assessment or monitoring undertaken identify further impacts to the satisfaction of DLWC. The DLWC has advised that the proposed conditions satisfies their concerns regarding the potential impact of the proposal on the groundwater.

Post Mining Management of Water in Final Void

The EIS suggests that after the 21 year period of approval for the MAN proposal, mining activities in the area will either be continued following the expiring of the consent (under a separate DA process), or be completed. Should the activities on the site cease after the 21 period, the final landform would consist of two final voids, being the remnants of the Central Pit and North Pit following the backfilling of overburden material. The assessment in the EIS has been undertaken on the basis that mining activities will cease on the site at year 21.

At the cessation of mining activities and the rehabilitation of the site, all areas of the site will be free draining with the exception of the Northern and Southern final voids. However after mining completes on the site, the groundwater table recovery is expected to result in the formation of saline water storages in the final voids. The EIS indicates that in order to reduce the area of water storage in the final voids and to manage any potential overflows, the catchment areas around the voids will be minimised through the installation of diversion drains.

The EIS suggests that the final void storage areas would take around 100 years after the closure of the mine to recover and reach an equilibrium level determined by the balance between the water inputs (groundwater inflow, rainfall and runoff) and outputs (evaporation). However, the salinity levels in the final void water would concentrate to levels above the natural groundwater salinity as a result of the net evaporation of the void storage over time.

Issues Raised in Submissions

The DLWC also raised concerns about the proposed salinity levels in the final void and its potential impacts on surrounding groundwater and land resources. The DLWC has recommended that as part of the consent conditions, the Applicant be required to undertake a detailed assessment of the potential salinity impacts of the final void regarding the water resources and report these findings to DLWC. Should the assessment determine the potential for degradation, the Applicant be required to develop and implement strategies to the satisfaction of DLWC to mitigate any adverse impacts. This recommendation has been included as a consent condition.

Department's Position on Water in Final Void

The Department acknowledges that the final voids have the potential to result in the concentration of water with a high salinity level which may have the potential to impact on the quality of the existing groundwater system and of the nearby land resources. However, the Department considers that the potential impact of the void water quality can be properly mitigated through the condition recommended by DLWC which will aim to implement ameliorative strategies should further assessment prior to the mine closing identify the potential for adverse impacts.

In addition to the condition from DLWC, the Department has also recommended that the Applicant prepare a Final Void Management Plan to the satisfaction of the Director-General, in consultation with the DMR, DLWC, and MSC. The Plan would be reviewed and updated every 5 years, or as otherwise agreed by the Director-General. The Plan will include, but not be limited to, the following:

- (i) An investigation of options for future use of the final voids;
- (ii) A re-examination and validation of groundwater modelling of the potential effects on the local and regional groundwater;
- (iii) Details of a strategy for the long term management of the final voids;
- (iv) Implement strategies to minimise any adverse impacts where the assessment indicates the potential for degradation to surrounding water resources; and
- (v) Programs for catchment management, including the types of fertilisers used in the rehabilitation programs to ensure that there is little residual risk of nutrient enrichment of final void water.

The Department considers that the requirements of the Final Void Management Plan would also assist in the management of the final voids through mitigating potential impacts on groundwater, the implementation of appropriate strategies to address any other potential impacts, and the longterm management of the void areas.

Conclusion

The Department believes that the potential impacts of the mine proposal on surface and groundwater quantity and quality as described in the EIS can be adequately managed through the recommended consent conditions which incorporate the licence requirements of DLWC and the EPA as approval bodies for the proposal.

Flora and Fauna Assessment

The MAN site has been cleared in the past for agricultural purposes, and is currently used for low intensity grazing, like much of the Hunter Valley. The proposal is to disturb 2,411 hectares of land, of which 2,282 hectares is currently made up of grassland and disturbed land. The other 129 hectares is a combination of vegetation communities of low to moderate conservation value. The major impact of the open cut mining proposal will be the incremental loss of native vegetation and habitats, which will contribute to the fragmented nature of the region.

Flora

Through field surveys, various discussions government agencies and the review of databases held by the NPWS, no threatened flora species, populations or ecological communities listed in the *Threatened Species Conservation Act 1995* were identified on the MAN site. Only one threatened plant species *Bothriochloa biloba* was thought to potentially occur in the MAN study area, however it is considered unlikely, given the highly modified nature of the site. This species is listed as a

vulnerable species on both the NSW *Threatened Species Conservation Act 1995* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC). The Applicant has been advised to consult with the Commonwealth to determine whether an approval is required under the EPBC Act.

Of the vegetation species and communities identified on the site, pastoral grasslands is the most dominate representing approximately 88% of the mine's DA area. In total, there were nine (9) vegetation communities identified in the MAN study area. The size of these areas and the level of disturbance that is predicted to occur as a result of the mine's activities is outlined in Table 2 below.

Table 2: Area of Vegetation Communities and Expected Level of Disturbance

Vegetation communities identified in MAN study area	Existing Area (ha)	Area to be Disturbed (ha)
Pastoral Grassland	3524	2249
Disturbed Land	46	33
Open Forest Arboreal Screens	48	16
Woodland Open Forest – <i>Eucalyptus crebra</i> (Narrow-leaved Ironbark), <i>E. albens</i> (White Box), <i>E. moluccana</i> (Grey Box)	194	38
Riparian Vegetation - <i>E. camaldulensis</i> (River Red Gum), <i>Casuarina cunninghamiana</i> (River Oak)	12	10
Open Forest - <i>Corymbia maculata</i> (Spotted Gum)	77	49
Mixed Open Forest	48	0
Mixed Eucalypt Open Forest	30	0
Aquatic Vegetation	22	18

Of these vegetation communities, the most significant impact of the proposal will be the loss of 63.6% of the existing Open Forest *Corymbia maculata* in the south east portion of the study area. This area of native bushland is relatively intact, and contains locally important habitat for a range of fauna, including fallen timber, dense shrub understorey, rocky outcrops, hollow logs and tree hollows. It also forms part of a regionally significant vegetation corridor, creating discontinuous habitat links between Mount Arthur and Saddlers Creek to the south east, and the Hunter River in the north.

Other forest/woodland communities proposed to be cleared include ten (10) hectares of *Eucalyptus camaldulensis* / *Casuarina cunninghamiana* Riparian Vegetation, and 38 hectares of *E. crebra* / *E. albens* / *E. moluccana* Woodland Open Forest. The Riparian Vegetation is highly fragmented, degraded and thinned, and of relatively little conservation value, and disturbance to the Woodland Open Forest is considered to be minimal, as 80% of the community will be retained on the northern slopes of Macleans Hill.

Fauna

Based on distributional data and habitat requirements, threatened species thought to potentially occur in the MAN study area include the following:

- Green and Golden Bell Frog, *Litoria aurea*
- Bush Stone-curlew, *Burhinus grallarius*
- Glossy Black Cockatoo, *Calyptorhynchus lathami*
- Turquoise Parrot, *Neophema pulchella*
- Powerful Owl, *Ninox strenua*

- Masked Owl, *Tyto novaehollandiae*
- Regent Honeyeater, *Xanthomyza phrygia*
- Painted Honeyeater, *Grantiella picta*
- Koala, *Phascolarctos cinereus*
- Squirrel Glider, *Petaurus norfolcensis*
- Parma Wallaby, *Macropus parma*
- Brush-tailed Wallaby, *Petrogale penicillata*
- Yellow-bellied Sheath-tailed Bat, *Saccolaimus flaviventris*
- Common Bent-winged Bat, *Miniopterus schreibersii*

Of these threatened species, the Common Bent-winged and Yellow-bellied Sheath-tailed Bats were recorded foraging in the MAN study area, and scat analysis revealed the likely presence of the Parma Wallaby. The threatened bats were recorded in a variety of habitat types including eastern and northern *E. crebra* / *E. albens* / *E. moluccana* remnant woodlands, *Corymbia maculata* Open Forest adjacent to Mount Arthur, and along the planted arboreal screens fringing Thomas Mitchell Drive and Muswellbrook-Denman Road. The Parma Wallaby scat was collected in the *Corymbia maculata* Open Forest.

The EIS indicates that none of the other threatened species are considered likely to occur in the study area, due to agricultural land use, and lack of suitable habitat.

Other species of significance recorded in the study area included the:

- Southern Forest Bat, *Vespadelus regulis*, not previously recorded in the central Hunter Valley;
- Eastern Broadnosed Bat, *Scotorepens orion*, not previously recorded in the central Hunter Valley;
- Southern Freetail Bat, *Mormopterus planiceps*, not previously recorded south east of Gunnedah;
- and
- Freycinet's Frog, *Litoria freycineti*, which is considered nationally to be an insufficiently known species that may be threatened.

The bats recorded during the field investigation represent approximately 56% of the species known or expected to occur in the Hunter Valley region. Thus the remnant vegetation on site is considered of local and regional significance, particularly Mount Arthur Reserve, which is one of the few sites in the Hunter Valley able to support cave dwelling species such as the threatened Common Bent-winged Bat.

EIS Proposed Mitigation Measures

As part of the conceptual mine plan that has been prepared for the MAN proposal, the Applicant has advised that the potential impact of the proposal on the ecology of the area was considered. The Applicant indicates that the adoption of further alternative mine layouts to preserve this area would however result in the sterilisation of a significant proportion of coal resources. The intention therefore, is to initially strengthen the remaining 36% of the *Corymbia maculata* Open Forest vegetation community by supplement planting, and ultimately re-establish *Corymbia maculata* Open Forest patches on the post mine landform on both Bayswater No. 3 Mine and the MAN Mine.

The EIS also indicates that other mitigation strategies will include progressive rehabilitation and rehabilitation of the mine site, the development of compensatory riparian habitat along the Hunter River, the establishment of habitat corridors on the post mining landform and the examination of

vegetation proposed to be cleared for the presence of fauna species, particularly any threatened species.

Issues Raised in Submissions

Submissions from two community special interest groups were received by the Department following the exhibition of the EIS for the MAN proposal. The submissions raised concerns with the accuracy of the fauna of the Hunter Valley region which was reported in the EIS, the lack of detail provided on the surveys that were undertaken as part of the fauna assessment and the potential impact of the proposal on flora and fauna species and general biodiversity.

The submission by the NPWS also raised a number of issues concerning flora and fauna. This included issues relating to concerns about the extent to which ecological values have been considered as a constraint in the development of a mine layout plan for the site. The NPWS also raised issues with the ameliorative measures proposed, as it considers that the ecological values of the community within the MAN study area to be of regional significance, and whether the reinstated vegetation will adequately compensate for the disturbance in the short to medium term.

Department's Position

The site has been identified as potential feeding and roosting habitat for threatened fauna species, and the significance of the potential impact of the proposal on these species has been considered as potentially significant. However, the Department considers that the imposition of appropriate mitigation measures by way of consent conditions will manage the potential impacts from the proposal on the threatened fauna species. In considering its impacts, the Department's assessment concludes that with mitigation measures as proposed by the recommended consent conditions, the proposal is unlikely to have a significant impact on threatened species and a Species Impact Statement (SIS) was not required.

In order to mitigate impacts on the flora and fauna, the Applicant is required to prepare a detailed Flora and Fauna Management Plan in consultation with the NPWS, and to the satisfaction of the Director-General prior to commencing activities on the site. The Plan is specifically required to outline procedures for clearing or disturbing vegetation and other habitat types, along with measures for habitat reinstatement and revegetation of compensatory areas.

An important aspect of the Flora and Fauna Management Plan will be commitment to the timing of habitat reinstatement, as species will be most vulnerable in the short and medium term, and planting as soon as practicable will maximise the opportunity for species to become re-established. Stringent monitoring requirements will ensure adaptive management techniques are employed to minimise impacts of the proposal. The Plan also requires the utilisation of important habitat that will be cleared (eg limbs and trunks) as part of the reconstruction of fauna habitat, strategies for the reconstruction of a minimum 30% of the site as native bushland, including the removal of all cattle from the lease area to encourage natural regeneration and germination. The removal of cattle grazing is required to promote understorey growth and provide small ground mammals with food source and habitat.

The Plan also requires details of the proposed habitat reinstatement on rehabilitated overburden emplacement areas, placement or creation of micro-habitat features such as dead trees, stags, hollow branches and stumps, to compensate for resources lost and encourage habitation of revegetated areas. The Plan will also provide details of the provision of roost and denning boxes in appropriate areas

depauperate of hollows, and will consider the results from the current monitoring program at Mt Owen Mine to ensure the roost/nest boxes are the appropriate height, aspect, design and location. These requirements were suggested by the NPWS and have been adopted in full in the recommended conditions.

The Green and Golden Bell Frog (GGBF) is a vulnerable species, listed on both the NSW and National legislation. GGBF populations in the Hunter Valley have been drastically reduced, and, as they are at the western extent of their distribution, are at great risk of extinction. Although not recorded on the MAN site, NPWS suggests that the GGBF has the propensity to travel large distances in search of suitable sites and conditions. The Plan is therefore also required to outline the proposed creation and management of GGBF habitat on site where practical.

The conditions also require stringent monitoring of the success of the reconstruction of bushland habitat by appropriately qualified and experienced ecologists and a detailed monitoring program to report on the success of the revegetated areas. The monitoring program includes requirements for the establishment of an ongoing monitoring program of the existing and proposed revegetated areas to assess their floristic structure, and fauna species diversity and abundance and the effectiveness of the habitat rehabilitation.

The requirements of the Flora and Fauna Management Plan and the monitoring requirements within the consent, will manage the impacts from the proposed mining activities and provide an appropriate means for the rehabilitation of the mine site particularly to create and provide feeding and roosting habitat for threatened species during mining operations and following the cessation of mining.

In response to the issues raised in the submission by the NPWS, the Applicant has advised that the loss of ecological value, particularly the *Corymbia maculata* Open Forest, would be addressed through the revegetation of current open grassland patches and post-mining landforms in the southern area of the site with species from the current Open Forest community. The Company also advise that the success of similar revegetation works at the adjacent Bayswater Mine indicate the possibility of undertaking such projects to mitigate the potential impacts through the loss of flora habitat. The Department considers that the recommended consent conditions cover these issues and the NPWS has reviewed the Department's recommended conditions and raised no concerns with the proposed conditions.

Conclusion

The Department is satisfied that with the mitigation measures described in the EIS and conditions of consent, the proposal will not significantly impact on any threatened flora or fauna species and an SIS is not required to be prepared. Additionally, the Department is satisfied that the proposed conditions will mitigate the potential impact of the proposal on the ecological value and habitat of the MAN site.

Aboriginal and Non-Aboriginal Heritage Assessment

Aboriginal Heritage

To determine the potential archaeological significance of the project area and its surrounds, field surveys were undertaken by the Applicant. The EIS indicates that these investigations were undertaken in consultation with the Wonnarua Tribal Council (WTC) and representatives of the WTC also participated in the field surveys. The field surveys were undertaken within the entire 36km² DA area and an additional 1.6km² area of adjacent land and is illustrated by Figure 9.1 of the EIS.

A total of 305 Aboriginal heritage sites were identified on the MAN survey area. This includes the identification of 193 new sites and 112 previously recorded sites. This includes the identification of around 17,342 stone artefacts. The location of the sites is illustrated by Figure 9.1 of the EIS.

The proposed mine will result in the disturbance of approximately 72% of the DA area, with open cut mining operations disturbing 95% of this area. It is expected that the proposed mining operations will subsequently result in the direct disturbance of 295 recorded Aboriginal heritage sites.

In relation to the cultural significance of the MAN area, the WTC considered that the land and all Aboriginal heritage within the study area of interest and contemporary value to the Wonnarua people.

EIS Proposed Mitigation Measures

Since the majority of identified Aboriginal sites will be disturbed as a result of the proposal, the EIS indicates that the conservation of sites is not considered to be feasible due to the potential sterilisation of a significant proportion of coal reserves. However in order to preserve Aboriginal heritage of the area, the Applicant proposes to establish a 122ha conservation zone west of Edderton Road to protect a sample of 8 representative environmental / cultural contexts as outlined by Figure 9.1 of the EIS. There were 74 distinct environmental / cultural contexts identified in the survey area.

In addition to the conservation area proposed for the MAN area, two conservation areas will also be established in the adjoining Bayswater No 3 Mine Lease which will measure 344 ha in total. This will provide the protection of 24 representative environmental / cultural contexts which are present within the MAN study area. The remaining 42 representative environmental / cultural contexts identified in the MAN study area will be salvaged.

The establishment of the conservation zones and program for salvaging representative samples will involve consultation with the Wonnarua Tribal Council and NPWS.

Issues raised in submissions

The NPWS has provided its General Terms of Approval for the project. The original General Terms provided by NPWS were however slightly modified following discussions between the Applicant and NPWS. It has been agreed between the Applicant and NPWS that a voluntary conservation area at Mount Arthur and three Heritage Management Areas around the site would be established to ensure the longterm protection of Aboriginal sites in the area. These recommendations have been incorporated into the consent conditions.

There were no submissions received during the exhibition period from the Wonnarua Tribal Council, nor from the public on Aboriginal issues.

Department's Position on Aboriginal Heritage

The Department supports the proposed mitigation strategies proposed by the EIS and the recommendations which have been provided by the NPWS in their General Terms of Approval.

In addition to these proposed measures required by the NPWS as part of their General Terms of Approval, the Department also requires the Applicant to undertake a number of management and monitoring measures as part of the consent conditions.

The Applicant is required to prepare a detailed Archaeological and Cultural Management Plan to address Aboriginal cultural heritage issues in consultation with the WTC and NPWS, and to the satisfaction of the Director-General. The Plan includes requirements for the identification of conservation areas within the DA area, identification and monitoring of future salvage and excavation of sites, provide the WTC with the opportunity to collect artefacts prior to their disturbance, measures to manage and protect unaffected sites, and detail of measures to assist the Aboriginal community to maintain and manage cultural heritage in the DA area. The consent conditions also require appropriate measures be undertaken should any future sites be identified, and monitoring of the effectiveness of the Archaeology and Cultural Management Plan.

The Department believes that the conditions of consent and protective measures in the EIS are adequate to either preserve the sites *in situ* or provide opportunity to collect any artefacts at risk.

The Applicant is also required to contribute \$50,000 towards the establishment of a trust fund set up by the Department through the Public Trustee. Other future coal mining proposals will also contribute to this trust which will be used for a regional study of Aboriginal sites and other cultural heritage projects agreed to by the WTC.

Non-Aboriginal Heritage

The EIS indicates that site surveys of the MAN area identified 7 relics and/or places on the site which include 3 stockyards, a platform / windmill / well, a cattle trough / windmill / well, a platform / well and a boiler / shed. These 7 items are not listed in the Hunter Regional Environmental Plan (REP), 1989. Their location on the MAN site is illustrated by Figure 9.2 of the EIS.

There are 3 homesteads Edinglassie, Balmoral and Rous-lench which all occur within 500m of the MAN site and are considered to be of regional significance. All 3 homesteads are listed in Schedule 2 of the Hunter REP 1989 and are listed on or presently being assessed for inclusion within the Australian Heritage Commission's Register of the National Estate. Edinglassie and Rous-lench are owned by COAL, while Balmoral is privately owned.

EIS Proposed Mitigation Measures for non-Aboriginal heritage

The EIS indicates that the 7 heritage items identified on site will need to be removed to avoid potential damage due to the proposed mining activities. The NSW Heritage Council has raised no objection to the removal of the heritage items, and has indicated that a permit will be required under the Heritage Act prior to the commencement of work on the site.

Issues Raised in Submissions

The NSW Heritage Council has advised the Department that the EIS adequately addressed the non-indigenous heritage issues and the potential heritage impact of the proposal. No private submissions raised as issues in relation to non-Aboriginal heritage.

Department's Position on Non-Aboriginal Heritage

The Department considers that the MAN project has the potential to impact on the homesteads through blasting vibration and reduced residential amenity as a result of noise and dust. The Edinglassie and Rous-lench Homesteads are located within 500 m from the closest blast proposed by the mine, while Balmoral Homestead will be approximately 3km from the closest proposed blasting

area on the site. The potential impacts of blast, noise and dust related impacts on these homesteads and the proposed mitigation measures to manage these impacts is outlined in the Department's Primary Submission to the COI.

The Archaeology and Cultural Management Plan required by the consent conditions will also address non-Aboriginal heritage issues. The Plan will require details of the procedures the Applicant is required to follow should any future non-Aboriginal heritage items be identified during the construction or operation of the mine. This includes the requirement to consult NPWS and the NSW Heritage Office should any artifacts or items be located. The Department considers that this management plan will provide appropriate mitigation measures should further heritage items be identified over the life of the mine.

Conclusion

The Department is satisfied that the measures outlined in the EIS and recommended conditions of consent, which include the General Terms of Approval of NPWS, will adequately address any potential impacts on Aboriginal and non-Aboriginal archaeological and heritage items, and provide suitable protection measures.

Transport and Traffic

The MAN mine will supply coal to both domestic and export coal markets. Domestic coal will be transported to the Liddell and Bayswater Power Stations by a series of conveyors. Export coal will be transported by rail from the mine site through the Bayswater Rail Loop and associated train loading facilities which was approved by the Minister on 2 November 2000. The proposed rail loop will be strategically positioned to the MAN project and will provide sufficient capacity to load and transport coal from both the MAN site and Bayswater coal mines. The Rail Loop will have the capacity to transport up to a maximum of 20 Mtpa. The Rail Loop is expected to be constructed and operational prior to the commencement of operations at MAN.

A new mine access road will be constructed from Thomas Mitchell Drive to the MAN mine industrial area. This will provide sufficient access for both the MAN and Bayswater mines. Internal haul roads and access roads will also be developed by the proposal. The internal roads will provide for the transportation of coal material from the open cut pit areas to the coal handling areas, and for the movement of overburden from the mining area to the emplacement area. A light vehicle access road to the mine office and workshop site areas will also be developed.

Construction Traffic

The EIS indicates that the mine facilities and infrastructure will be constructed over a period of approximately 30 months, with the associated traffic generation expected to result from labour, employees, and the transportation of materials and plant to and from the site. The assessment of the impacts resulting from the construction period has been based on the peak construction workforce of 290 employees.

The peak construction workforce is expected to result in the movement of approximately 247 cars to and from the site, 193 mine related workers, around 15 courier vehicles, 31 heavy vehicles, and 45 daily truck movements per day.

The construction traffic from the MAN mine is expected to have a varied impact on the Denman Road, Thomas Mitchell Drive and the New England Highway, which represent the roads that will be

subject to the most use by the mine. On Denman Road, the mine is expected to result in an increase of daily traffic flows of 0.7% on that part of Denman Road west of Thomas Mitchell Drive and 12.1% east of Thomas Mitchell Drive. The mine will result in an increase of around 29.5% on the part of Thomas Mitchell Drive south of Denman Road, around 62.5% on Thomas Mitchell Drive north of Bayswater Mine, and around 33.75% on Thomas Mitchell Drive south of the Bayswater Mine. On the New England Highway, construction traffic will result in an increase of daily traffic flows of around 0.2% north of Thomas Mitchell Drive and 4% on the New England Highway south of Thomas Mitchell Drive.

Operational Traffic

Employment at the mine will peak at 521 employees by the 7th year of operations. Based on a maximum workforce of 521 employees, it is estimated that there will be 443 cars to and from the site each day however the peak shift period will result in 174 vehicles at the one time, 4 B-double fuel tankers per day, and 33 truck movements per day consisting of courier deliveries and trucks bringing plant and other miscellaneous items.

The EIS indicates that the operational traffic from the MAN mine is expected to have a varied impact on the Denman Road, Thomas Mitchell Drive and the New England Highway, which represent the roads that will be subject to the most use by the mine. On Denman Road, the mine is expected to result in an increase of daily traffic flows of 0.6% on that part of Denman Road west of Thomas Mitchell Drive and 10.9% east of Thomas Mitchell Drive. The mine will result in an increase of around 31.4% on the part of Thomas Mitchell Drive south of Denman Road, around 53.5% on Thomas Mitchell Drive north of Bayswater Mine, and around 28.5% on Thomas Mitchell Drive south of the Bayswater Mine. On the New England Highway, operational traffic will result in an increase of daily traffic flows of around 0.2% north of Thomas Mitchell Drive and 3.4% on the New England Highway south of Thomas Mitchell Drive.

EIS Proposed Road Infrastructure Mitigation Measures

The EIS indicates that the existing Thomas Mitchell Drive and Denman Road intersection will require upgrading to accommodate the proposed increase in traffic as a result of the MAN mine. The upgrading of the intersection had also been recommended as part of the Mount Pleasant EIS which was approved by the Minister on 22 December 1999. Muswellbrook Shire Council is an approval body for the project as an approval by the Applicant is required under section 138 of the *Roads Act 1993*. The proposed works at the intersection of Thomas Mitchell Drive and Denman Road are required by the Council.

The EIS also outlines that a number of road related infrastructure improvements will be required by the proposal. The works that will be undertaken to Thomas Mitchell Drive, Denman Road and the mine access road require an approval under the Integrated Development Assessment process from Muswellbrook Council in accordance with s138 of the *Roads Act, 1993* and the concurrence approval of the Roads and Traffic Authority (RTA) for the works in the Denman Road reserve in accordance with s138 of the *Roads Act, 1993*.

Issues Raised in Submissions

Muswellbrook Council is satisfied with the assessment of the road works and has provided its General Terms of Approval for the works that require an approval under the *Roads Act, 1993*. The requirements of the Council for these works have been generally incorporated into the consent

conditions. The RTA as a concurrence authority under the *Roads Act, 1993* has also provided their General Terms of Approval which have also been incorporated into the development consent. The works required by the Council and RTA include:

- contribution to the improvements to the existing intersection of Thomas Mitchell Drive and Denman Road;
- undertake the construction of a C type intersection on Thomas Mitchell Drive at the junction of the mine access road; and
- construction of the mine access road to Austroad standards and maintained to the satisfaction of Council.

There were also a number of private submissions received by the Department during the exhibition period from residents concerned about the potential impact of increased traffic on local roads, and the current state of these local roads which may be further degraded by the mine traffic.

Department's Position

The Department considers that the proposed traffic increase as a result of the proposal will be moderate, due to the level of traffic proposed and since no coal material produced by the mine will be transported on roads, except in emergency situations. It is considered that the road network is also adequate to cater for the predicted increase in traffic, and the upgrades to the Thomas Mitchell Drive and Denman Road intersection will appropriately handle the traffic resulting from the mine.

Muswellbrook Council has also reviewed the recommended conditions and provided some comments and further suggestions, which have been incorporated by the Department. This includes a requirement for the Applicant to contribute to the maintenance of certain roads under Council's s94 Contributions Plan. Council has indicated that they are satisfied with the road related consent conditions.

The Department considers that the measures proposed in the EIS, the requirements of the RTA as a concurrence authority and the Council's General Terms of Approval will adequately manage the roads that will be utilised and upgraded by the Applicant in the operation of the MAN proposal.

Conclusion

The Department is satisfied that the potential impacts associated with traffic and transportation will be adequately managed. The issues and requirements that were raised by the RTA, Muswellbrook Council, including their General Terms of Approval for the road works have been incorporated into the consent conditions.

Economic and Social Impacts

The EIS indicates that the Mount Arthur North mine will provide social and economic benefits to the local area and to the Hunter Valley Region through the provision of direct and indirect employment and income. The proposal is expected to provide employment for up to 290 workers during the construction stage and then up to 521 employees over the operational life of the mine. The majority of employees for the mine are expected to occur from the Hunter Region, particularly Muswellbrook, Scone, and Singleton. It is estimated that the mine will also provide an additional indirect employment of 860 persons in the local area through the economic multiplier effect.

The EIS indicates that the mine will have a direct output of approximately \$400 million per year and an annual flow-on benefit of a further \$344 million to the local economy. The mine will also generate national, and State economic benefit through employment, income and output. The mine will have a direct output of approximately \$144 million per annum of royalties to the NSW Government. The creation of these operational and construction jobs, and the economic contributions to the State, would not be generated if the proposal does not proceed.

Other potential social impacts that may occur as a result of the proposal include potential noise, dust, blasting and visual related impacts. These issues formed the focus of the COI and a number of recommendations by the Commissioners and the Department are proposed to address the potential impacts. In response to the other issues that were not part of the COI which may also result in a level of social impact such as issues relating to water and transport, a number of other recommended consent conditions are also proposed by the Department to address their potential impacts. In addition a condition for section 94 contributions for community enhancement measures over the life of the mine is also recommended.

The Department considers that the requirements of the consent conditions will adequately manage potential social impacts and will ensure that those properties that will be significantly impacted and therefore suffer the greatest potential impact such as decreases in value, are suitably mitigated or purchased at the market price.

Conclusion

The proposal will have a socio-economic benefit at a local, regional and state level through the provision of direct and indirect employment and economic output. The Department is satisfied that the potential adverse social impacts from the mine will be adequately mitigated through the requirements of the recommended consent conditions.

On-going Community Consultation, Complaint Management and Dispute Resolution

A number of submissions raised the issue of the level of on-going community consultation by the mine company, and how the company will deal with complaints, should the project go ahead. The Department considers these issues are very important and there is a need to ensure appropriate measures are in place for adequate on-going community consultation and management of complaints. To this end the Department is recommending a number of consent conditions in this regard.

Community Consultation

The consent conditions require the establishment of a Community Consultative Committee for the proposal. The Committee is to comprise two representatives of the Applicant, one from Council and four community representatives. The Committee will be chaired by Council. The Committee may make comments and recommendations about the preparation and implementation of the environmental management plans, monitor compliance with the consent conditions and other matters relevant to the operation of the mine. The Applicant is to consider the recommendations and comment of the committee and provide a response to the Committee and Director-General of DUAP.

Community consultation is also required in the handling of complaints, as outlined below.

Management of complaints (including for cumulative impacts)

The consent conditions provide mechanisms which require the applicant to adequately manage complaints received from the community. The applicant is required to undertake various actions if complaints are received. In relation to complaints regarding noise and/or dust in particular, the applicant has to undertake investigations to ascertain whether the impacts are from the mine alone or cumulative impacts (this process is outlined by a flow chart attached to the consent conditions at Schedule D).

Where impacts from the mine alone are identified the applicant has to undertake mitigation measures to reduce noise/dust to a level agreed to by the landowner. If these mitigation measures cannot be agreed to the matter is to be referred to the independent dispute resolution process as outlined above.

If cumulative impacts are identified, the consent conditions require the applicant to negotiate with other mine companies in the area on reasonable contributions for management or acquisition measures, and also to consult with the landowner in relation to proposed measures in liaison with other mine companies. If there is either dispute between the mine companies on the mitigation measures proposed, or between the mine companies and landowner, the matter is referred to the Independent Dispute Resolution Process, as outlined below.

The conditions also require the applicant to put in place complaint handling procedures requiring the establishment and maintenance of a system for recording complaints on a dedicated publicly advertised telephone line, 24 hours per day, 7 days a week, and ensuring that an initial response is provided to the complainant within 24 hours. The applicant is further required to consult with other mines to co-ordinate responses to complaints that may be the result of other mines' activities in the area.

Independent Dispute Resolution Process

The Independent Resolution Process contained in the consent conditions is to be used where mitigation measures for noise, dust and visual impacts cannot be agreed between the landowner and applicant. The process is outlined by a flow chart attached to the consent conditions at Schedule D. Essentially, where a dispute arises the matter is referred to DUAP/Council for consideration and if the matter cannot be resolved within 21 days of referral, the matter is referred to an Independent Dispute Facilitator appointed by DUAP in consultation with Council. The Facilitator would meet with the parties concerned and where necessary consult relevant independent experts for advice on technical issues with a view to resolving the matter. Where the Facilitator cannot resolve the dispute the matter would be referred back to DUAP for a final decision.

Reporting and Independent Auditing

The Department considers that reporting of the performance of the mine operations and a level of independent auditing are also important issues that need to be incorporated into the consent conditions as outlined below.

The recommended conditions require the Applicant to provide an Annual Environmental Management Report to the Department which is to review performance of the mine against the consent conditions, and other licences and approvals relating to the mine. In addition, an Independent Environmental Audit is to be undertaken at the expense of the applicant to essentially assess compliance with the consent conditions and other approvals, and assess the development

against predictions made in the EIS. The Audit is to be undertaken by a duly qualified independent person approved by the Director-General.

Section 94 contributions and community enhancement provisions

Muswellbrook Shire Council recently put forward a section 94 contributions plan to provide for (in addition to infrastructure provision), community enhancement provisions. Council argues in the plan that mining will bring broader social impacts on the community, and that Council wishes to increase community facilities as a result. In that regard the section 94 plan contains this community facility requirement.

It is noted that the Plan does not provide for a nexus formula between mining projects and such requirements, however the Plan for a case by case merit approach in this regard. The consent condition provided by Council reflects the above by requiring the Applicant to enter into a legally binding agreement with Council for financial and/or in kind contribution to Council for the purpose of community enhancement to instigate the social, amenity and associated community infrastructure requirements emanating from the operation of the development.

In this regard discussions between the company and Council has identified expectations for the company to provide for a heated swimming pool and its maintenance over the life of the mine, as well as additional facilities, to a total sum of \$5.5 million. The company however has indicated that it is prepared to provide up to \$2.5 million and has provided documentation to this effect.

The Department is satisfied that agreement can be reached prior to commencement of construction, and for the purpose of this approval, that enough certainty exists for the broad social impacts of the proposal to be addressed by the proposed community enhancement measures.

Building Assessment

The Department considers that the mine will require a Construction Certificate for the erection of the following buildings / structures:

- Administration Buildings - Class 5
- Warehouse Building/workshop - Class 7
- Bath House - Class 9(b)
- Coal Preparation Plant Building - Class 8
- Truck Wash, Fuel Farm, Sewage Treatment Plant, Tyre Bay - Class 10(a)
- Coal Conveyor and Coal Crushing Facility – Class 10(b)

Conditions pertaining to building matters are included in the recommended instrument of consent. Condition 12 (c and d) deal with structural adequacy and verification of construction. In addition, section 80A(11) of the Act refers to clause 133 of the Environmental Planning and Assessment Regulation (2000) which contains prescribed building conditions that are part of development consent.

Ecologically Sustainable Development

Ecological Sustainable Development (ESD) is specifically addressed in section 16.2 of the EIS with reference to the National Strategy for ESD, and Schedule 2 of the EP&A Act Regulation 2000. The

EIS states that the principles of ESD have been applied to all aspects of the project and have been incorporated in the overall development description.

Schedule 2 of the EP&A Act Regulation 2000 states that an EIS must include reasons justifying the carrying out of development in the manner proposed having regard to amongst other things, the principles of ESD. For the purposes of Schedule 2 the 'principles of ESD are:

- (a) The precautionary principle - namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
- (b) Inter-generational equity - namely, that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.
- (c) Conservation of biological diversity and ecological integrity.
- (d) Improved valuation and pricing of environmental resources.

The Department is satisfied that the EIS and subsequent information have addressed the four ESD principles, and that the principles can be reinforced through appropriate conditions of consent.

The Department considers that overall appropriate information is available to justify consistency with the ESD principles. However, in recognition of the environmental sensitivity of the project, and to ensure the environmental impacts of the proposal are properly managed consistent with the ESD principles, the Department recommends the establishment of a special high level and comprehensive environmental management regime which includes special provisions for independent auditing and monitoring of the project.

Greenhouse

Coal mining activities contribute to the emission of greenhouse gases through the release of carbon dioxide through the combustion of diesel fuel in certain equipment, blasting activities, use of electricity to power mining equipment, and the addition of carbon dioxide via the burning of coal material purchased by customers of the mine. The release of methane gas from the exposed coal seams will also contribute to greenhouse gases, however the EIS indicates that the measurement of methane emissions from open cut mines is difficult and considered to be minor compared to other sources of greenhouse gases such as coal combustion from coal mines.

The EIS indicates that over the life of the mine, total carbon emissions due to energy consumption by the mine will approximately be 1.4 million tonnes. The carbon which is expected to be released as a result of the combustion of product coal represents an additional 10 Million tonnes per annum. This represents a contribution of 0.000037% to the estimated atmospheric reservoir of carbon.

The Department considers the emissions from combustion can only be resolved by a reduction in the use of coal as an energy source. Until a viable alternative energy source is used, emissions from combustion will be difficult to reduce. Coal sold overseas and resulting combustion will be for those individual countries to consider in meeting their energy and environmental goals. In relation to the energy used for mining and release of methane, the Department considers that the revegetation and rehabilitation proposed for the mine site will reasonably compensate for greenhouse emissions.

World Heritage Area

A special interest group raised concerns about the potential impact of the proposal on the Wollemi World Heritage Area (WHA) in its submission to the COI. The Department considers that due to the distance of the MAN proposal from the Wollemi WHA (approximately 12km), the proposal is unlikely to result in an impact on the World Heritage qualities of this area through either the construction or operation of the mine.

Additionally, the Applicant has determined that there is unlikely to be an impact on the WHA in terms of the Commonwealth Environment Protection and Biodiversity Conservation Act. Consequently if the issue whether the proposal is likely to impact on the WHA was requested to be further clarified by any party, it would be a matter for the Commonwealth agency Environment Australia to determine.

SCOPE OF CONDITIONS OF CONSENT

The recommended conditions of consent tagged “A” have been prepared taking into consideration the General Terms of Approval and other issues raised by Government agencies, Council, and all other submitters including land owners, community groups and independent organisations.

The recommended conditions of consent provide for appropriate management and monitoring of noise and blasting, dust, surface and groundwater management, flora and fauna, visual impacts and archaeological issues. The conditions of consent also include specific provisions for land acquisition, sets appropriate noise criteria, procedures for independent dispute resolution for both, compliance management, requirements for the preparation of Annual Environmental Management Plan Reports and compliance reports, a number of environmental management plans, and the establishment of a Community Consultative Committee. A summary outlining key consent conditions is attached at Appendix 5.

The Department has undertaken extensive consultations with the Applicant concerning the content and intent of the conditions of consent, and the Applicant accepts the conditions.

CONCLUSION

The Department acknowledges that certain privately owned residences are likely to experience noise impacts above acquisition criteria. However, the consent conditions provide these residences, or any other residence which is demonstrated to receive noise and/or dust levels above the recommended criteria, the option for the landowner to have their property acquired. The criteria also accounts for cumulative impacts. The process by which an acquisition of a property is undertaken is also outlined in the consent conditions.

Provisions also exist for noise mitigation measures to be undertaken by the applicant where noise management criteria is being exceeded. A dispute resolution mechanism is included if agreement on the mitigation measures cannot be reached. These conditions also account for management of cumulative impacts, and a disputes resolution mechanism if more than one mine company is contributing to the impacts and mitigation/management measures cannot be jointly agreed. The Department believes that through the application of the consent conditions, which incorporate the General Term of Approval of the EPA, DLWC, NPWS, and Muswellbrook Shire Council, the

environmental impacts can be adequately managed. The proposal is also consistent with State and regional planning objectives, and with the local planning instruments.

RECOMMENDATION

It is RECOMMENDED that the Minister approves the development application as submitted by Coal Operations Australia Limited subject to the attached conditions of consent.

Endorsed

Richard Lloyd
Senior Environmental Planning Officer

Sam Haddad
Executive Director

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

79C EVALUATION

(1) Matters for consideration - general

In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:

(a) the provisions of:

- (i) any environmental planning instrument, and
- (ii) any draft environmental planning instrument that is or has been placed on public exhibition and details of which have been notified to the consent authority, and
- (iii) any development control plan, and the regulations (to the extent that they prescribe matters for the purposes of this paragraph), that apply to the land to which the development application relates,

Refer to pages 9 to 12 of this Report

(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,

Refer to pages 13 to 36 of this Report

(c) the suitability of the site for the development,

Refer to pages 5 to 36 of this Report

(d) any submissions made in accordance with this Act or the regulations,

Refer to pages 3 to 5 of this Report

(e) the public interest.

Refer to pages 1 to 36 of this Report

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