



NSW GOVERNMENT
Department of Planning

***ENVIRONMENTAL ASSESSMENT:
Hunter Valley Operations South Coal
Project (06_0261)***



Director-General's
Environmental Assessment Report
Section 75I of the
*Environmental Planning and Assessment
Act 1979*

February 2009

Cover Photo: Portion of HVO South mining area. View to the north towards Hunter River (obscured).

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EXECUTIVE SUMMARY

Coal and Allied (Operations) Pty Ltd (CNA), a subsidiary of Rio Tinto Coal Australia, proposes to increase production from its existing coal mining operations south of the Hunter River, mid-way between the towns of Singleton and Muswellbrook in the Hunter Valley of NSW and about 18 kilometres west of Singleton (see Figure 1).

Mining operations to the south of Hunter River are known as Hunter Valley Operations – South, or HVO South. These operations are managed as one unit by CNA, but are regulated by up to 35 existing development consents and approvals that were obtained over the last 20 years or so for the Lemington, Hunter Valley, Riverview and Cheshunt mining operations and the Lemington Coal Preparation Plant (LCPP).

The proposal – known as the HVO South Coal Project – involves the recovery of up to 84 million tonnes of additional coal, primarily by the extraction of coal from deeper seams within areas already disturbed by mining or approved for mining under existing consents. CNA is also seeking approval to operate the project for 21 years, which would extend the life of approved mining operations by 8 to 11 years, depending upon the previous relevant consent. A major feature of the project is CNA's proposal to improve the integration of mining, processing, transport and environmental management of the HVO South site with adjacent mines also managed by CNA. The integration of these operations would allow coal to be mined more efficiently, underpinning and extending the employment of 670 employees at the combined HVO South and HVO North sites.

The project has a capital investment value of \$130 million; would continue to contribute up to \$350 million a year to the NSW economy, and directly employ around 670 people at the combined HVO North and South sites. It would also provide ongoing royalties and tax income to Government.

CNA has committed to the surrender of all 35 existing consents and approvals once these are replaced by a single project approval. This would streamline regulatory requirements and remove potential contradictory requirements under the mine's existing regulatory regime.

The proposal constitutes a 'major project' under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and consequently the Minister is the approval authority for the project application.

The Department exhibited the Environmental Assessment (EA) of the project from 15 February to 17 March 2008, and received 20 submissions, including 6 from government authorities, 9 from the general public and 5 from a range of special interest groups. Most submissions from the general public and special interest groups objected to the project. However, 2 submissions provided conditional support while raising specific concerns about potential impacts. The submissions raised concerns about a broad array of issues including water, noise, dust, flora and fauna, residential amenity, community consultation processes, greenhouse gas and Aboriginal heritage impacts.

The Department has assessed the project application, EA, submissions on the project and CNA's response to submissions in accordance with the objects of the EP&A Act and principles of ecological sustainable development, and is satisfied that there is sufficient information available to determine the application.

This assessment has found that the project would have a number of environmental impacts, most notably noise, dust and vegetation clearing associated with proposed open cut mining operations; and also potential cumulative impacts associated with the concurrent operation of up to 10 other mining operations in around the Warkworth and Maison Dieu localities.

The Department has carefully considered the uncertainty of impacts to the waters of the Hunter River and its connected alluvium which would arise if CNA was permitted to reduce the buffer distance between its mining operations and these waters from 150 metres to 100 metres. The Department does not believe that the EA provided sufficiently robust evidence to support the

proposed reduction of buffer distance. Accordingly, the Department has recommended that the buffer remain at 150 metres.

The Department is satisfied that the residual environmental and socio-economic impacts of the project can be adequately mitigated, managed, offset and/or compensated for; and has recommended a comprehensive range of conditions to ensure this occurs.

In addition, the Department's assessment recognises the significance and need for the project in terms of securing domestic and international energy needs, bolstering the regional and NSW economies and underpinning employment in the State.

After careful consideration, the Department believes, on balance, that the project's benefits sufficiently outweigh its costs, and that it is therefore in the public interest.

Consequently, the Department recommends that HVO South Coal Project be approved subject to strict conditions of approval.

1. BACKGROUND

Coal and Allied Operations Pty Limited (CNA) operates the Hunter Valley Operations (HVO) mining complex on the central valley floor of the Hunter Valley, about 18 kilometres west of Singleton and roughly mid-way between the towns of Singleton and Muswellbrook (see Figure 1) This mining complex has been formed by the amalgamation of several coal mines and is separated by the Hunter River into northern and southern operations, known as HVO North and HVO South (see Figure 2).

The mining operations at HVO have grown through a process of expansion and acquisition since CNA commenced mining at Hunter Valley No.1 mine (now part of HVO North) in 1979. The following is a brief history of operations within HVO:

- 1949 - mining commenced at Howick mine (now known as West Pit and part of HVO North);
- 1971 - mining commenced at Lemington mine;
- 1979 - mining commenced at Hunter Valley No.1 mine;
- 1989 - Conzinc Rio Tinto of Australia purchased Howick mine;
- 1998 - CRA and CNA merge. Howick renamed West Pit and became part of HVO;
- 2000 - Lemington mine purchased by CNA and became part of HVO. HVO operated and managed as a single entity; and
- 2004 - Rio Tinto Coal Australia (RTCA) became the management company of CNA (and HVO).

The adjacent Mount Thorley Warkworth (MTW) mining complex is also managed by CNA. Operations at HVO and MTW have the ability to interact, in particular with water management and equipment movements. One component of the current proposal is to allow movement of draglines between these two operations by transfer across Jerrys Plains Road.

In 2003, CNA obtained development consent for the continued operation and amalgamation of all of its coal mining and processing operations north of the Hunter River. This consent permitted an increase in the area of CNA's West Pit at the site of the former Howick mine. It also amalgamated 18 differing consents and approvals, ensuring that the company, regulators and the community are provided with a single, unambiguous consent that sets out CNA's obligations, limits and controls for its HVO North operations.

Mining operations to the south of Hunter River (HVO South) are also managed as one unit by CNA, but are regulated by up to 35 existing development consents and approvals that were obtained over the last 20 years or so for the Lemington, Hunter Valley, Riverview and Cheshunt mining operations and the Lemington Coal Preparation Plant (LCPP). Following on from the successful integration of the consents and approvals for HVO North, CNA is now seeking a single project approval for all of its HVO South operations. If a single project approval were to be granted, CNA has undertaken to surrender all existing consents previously granted by Singleton Council and the Minister for the HVO South area. Consequently, there would be a single approval for HVO North and another for HVO South; an ultimate reduction of planning approvals for the HVO mining complex from 53 to 2.

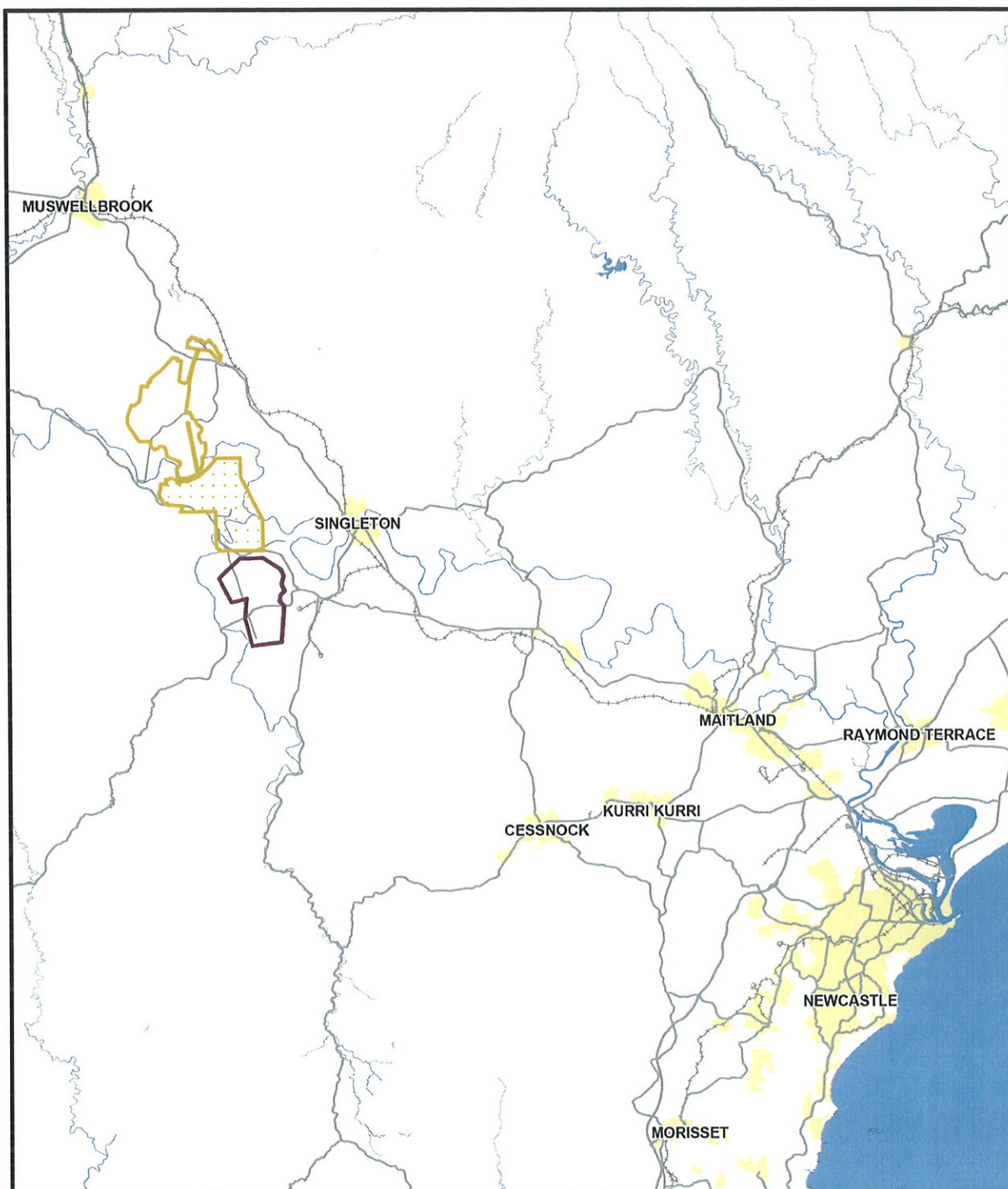


Figure 1.1

Legend

- HVO North
- HVO South
- MTW

Client: Coal & Allied Operations Pty Limited
 Project: Hunter Valley Operations South Coal Project
 Drawing No: 0047820_F_01 Suffix No: R3
 Date: 24.08.2007 Drawing Size: A4
 Drawn By: DH Reviewed By: LS
 Source: MapInfo Aus Ltd Pty
 Scale: Refer to Scale Bar



0 5 10km

Location of HVO South in its Regional Setting

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Figure 1: Regional Location of HVO South



Legend

- Project Application Area
- Current Development Consent Boundary (HVO North only)

Client: Coal & Allied Operations Pty Limited
 Project: Hunter Valley Operations South Coal Project
 Drawing No: 0047820_F.02 Suffix No: R1
 Date: 19.09.2006 Drawing Size: A3
 Drawn By: DH Reviewed By: LS
 Source: -
 Scale: Refer to Scale Bar



Figure 1.2
HVO South in its Local Setting

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Figure 2: Location of HVO North and HVO South

2. PROPOSAL

2.1 Description

The proposal, known as the HVO South Coal Project, seeks approval for almost all current and approved activities at the HVO South mining complex to continue for a period of 21 years. It also seeks to extract an additional 84 million tonnes (Mt) of run-of-mine (ROM) coal and increase the maximum rate of extraction from 12.4 to 16 million tonnes per annum (Mtpa).

One exception is that CNA is not seeking to continue its approval to transport product coal by public roads from LCPP to the Mt Thorley Coal Loader.

The proposal is summarised in Table 1 and shown schematically in Figure 3.

Table 1: Major Components of the Project

Aspect	Description
Project Summary	Extraction of an additional 84 Mt of ROM coal from 10 different coal seams using open cut and highwall/auger mining methods at up to 16 Mtpa.
Mining and Reserves	220 Mt of ROM coal is available for extraction which is estimated to yield approximately 158 Mt of product coal. 78 Mt of ROM coal would be extracted from the Deep Cheshunt Pit. 4.6 Mt is proposed to be extracted by reducing the buffer zone between open cut mining and the Hunter River and its connected alluvium from 150 to 100 metres. - The remaining coal reserves are part of approved mining operations. - Mining all coal seams in the HVO South area to unlimited depth.
Vehicular Access	Comleroi Road to be realigned. No change to its intersection with Jerrys Plains Road.
Surface Facilities and Infrastructure	Relocation of Cheshunt open cut facilities area, augmentation of sewage facilities and modifying, upgrading and/or reconstructing existing infrastructure.
Coal Transportation and Stockpiling	- Transportation of coal by truck to Lemington Coal Preparation Plant (LCPP) or any existing coal preparation plant at HVO North. - Continuation of approval to construct a coal conveyor to HVO North.
Coal Processing	- Upgrade of LCPP ROM coal processing capacity from 5.5 to 16 Mtpa. - Approval to process ROM coal at any HVO coal preparation plant.
Coarse Rejects and Tailings Management	- Coarse reject would be emplaced within HVO North and South overburden emplacements. - Tailings material would be stored in existing and additional tailings storage facilities at HVO South.
Product Coal Transportation	- Construction of either of two options for a rail line, rail loop and coal loading facilities adjacent to LCPP or South Lemington Pit. - Approval to transport product coal between HVO South and North in either direction. - Product coal would continue to be railed from coal loading points to the Port of Newcastle for export.
Overburden Management	Approval to move overburden between HVO South and North in either direction.
Water Management	Approval to transfer water between HVO South and North and Mount Thorley/Warkworth mines.
Production	Maximum ROM coal production rate of up to 16 Mtpa.
Hours of Operation	Mining operations to take place 24 hours a day, 7 days a week.
Employment	- The project would extend employment opportunities for 829 HVO employees and/or contractors by 8 to 11 years. - An increase in employment at HVO may result, but only if the mine operates at maximum capacity.
Gliding Club	Relocating and/or reconfiguring the Hunter Valley Gliding Club's

Aspect	Description
	facilities to facilitate the project.
<i>Project Life</i>	An overall project life of 21 years (from 2009 to 2030).
<i>Capital Investment Value</i>	\$130 million.
<i>Environmental Management</i>	Updating conditions of approval to ensure that they are consistent with contemporary environmental management practices and to allow CNA to surrender all existing consents and approvals for HVO South.
<i>Rehabilitation and Offsets</i>	- The total area of disturbance would increase by 250 hectares (ha) to 3230 ha. 140 ha of native vegetation (including 92 ha of re-growth) would be cleared. - The Archerfield offset area would provide 140 hectares of native vegetation enhancement. - CNA's existing River Red Gum Rehabilitation and Restoration Strategy to be extended to include River Red Gums in HVO South's lands. - The Deep Cheshunt final void would remain at the cessation of mining in place of two final voids as approved under existing consents for mining at HVO South. - Disturbed areas would be progressively rehabilitated.

Overall, CNA proposes to maximise its opportunities to operate HVO South, HVO North and the adjacent Mount Thorley Warkworth mine in an integrated and efficient manner.

For Mount Thorley Warkworth, these interactions are likely to be relatively minor and consist of the transfer of major pieces of mining equipment (such as draglines) and minewater between sites and the rationalisation of environmental monitoring responsibilities.

In contrast, CNA proposes to operate its HVO North and South operations in a fully-integrated manner, under a single management structure and with the allocation of its workforce and mining equipment to those locations within either site to best enable it to meet coal production and operational demands. This level of integration is shown in the schematic of the HVO South Coal Project (see Figure 3).

Currently, not all elements of HVO North and South are as seamlessly integrated as CNA would like. Some of the changes being sought by this project application are:

- approval for HVO South's production limit to be increased from 12.4 Mtpa to 16 Mtpa to match HVO North's approved limit;
- the ability to use draglines, trucks and large shovels at any location as suits the operation.
- the ability to transport ROM coal from each HVO South pit to each HVO coal preparation plant for processing, and to transport product coal to any of HVO coal loading points;
- the ability, additional to that provided in the HVO North consent, to transport rejects and overburden from HVO North to HVO South to assist with final landform construction and capping of tailings storage facilities (TSFs);
- the ability to move materials and associated equipment between HVO North and HVO South, including ROM and product coal, fine and coarse rejects, overburden, topsoil and water as required;
- the proposed creation of a single final void (Deep Cheshunt), in place of the two approved final voids in the Riverview and Cheshunt Pits; and
- the use of an existing TSF at HVO South (TSF 5) and the creation and use of 3 additional TSFs (South Lemington Pit 1, eastern section of Riverview Pit and southeastern section of Riverview Pit extension).

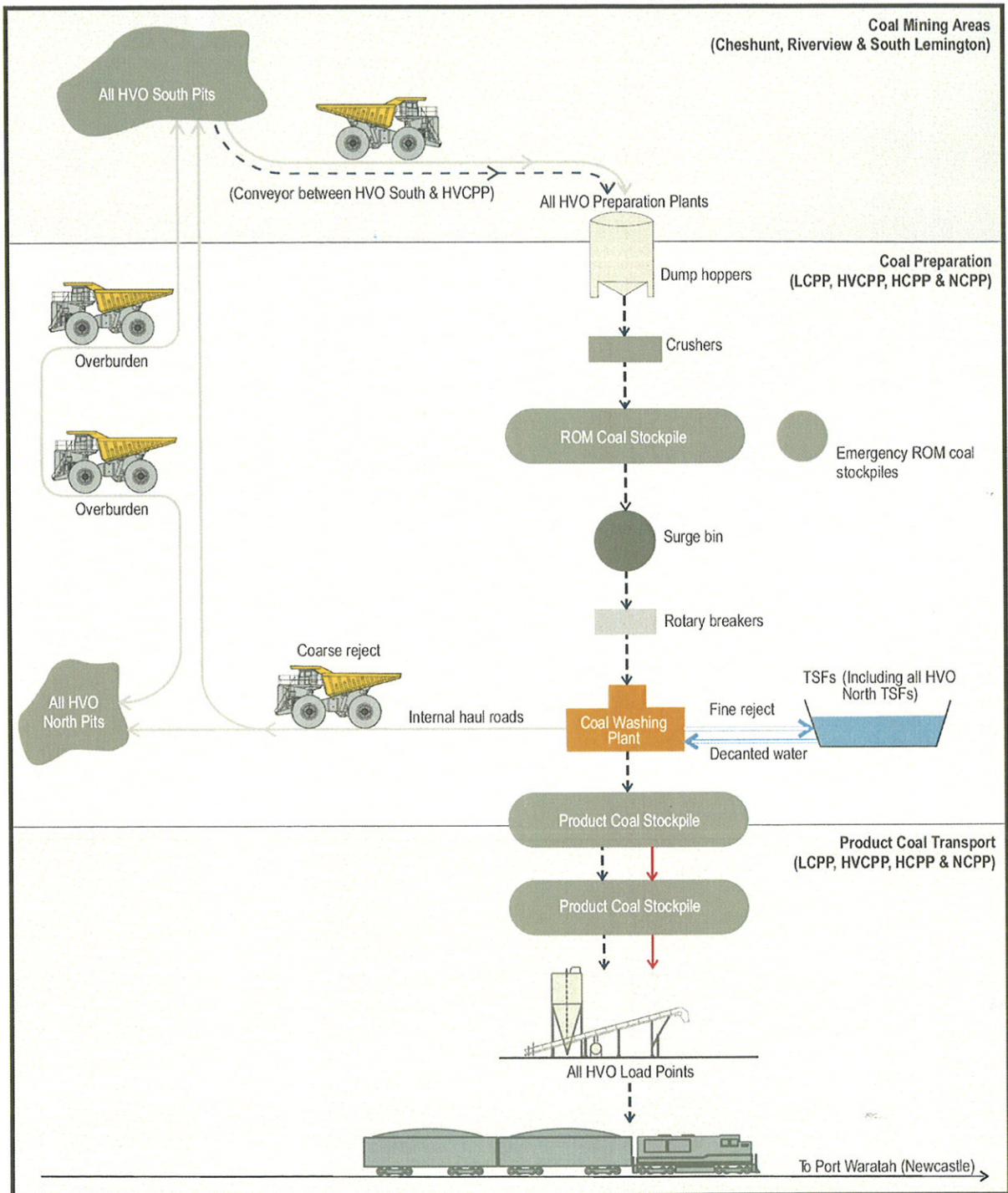


Figure E.2

Flowchart of Proposed Operations

Client:	Coal & Allied Operations Pty Limited
Project:	Hunter Valley Operations South Coal Project
Drawing No:	0047820_IC_12_R0
Date:	10/09/2007
Drawn by:	GC
Source:	-
Scale:	N/A
Reviewed by:	LS
Drawing size:	A4

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Figure 3: Simplified Schematic of the Proposed HVO South Coal Project

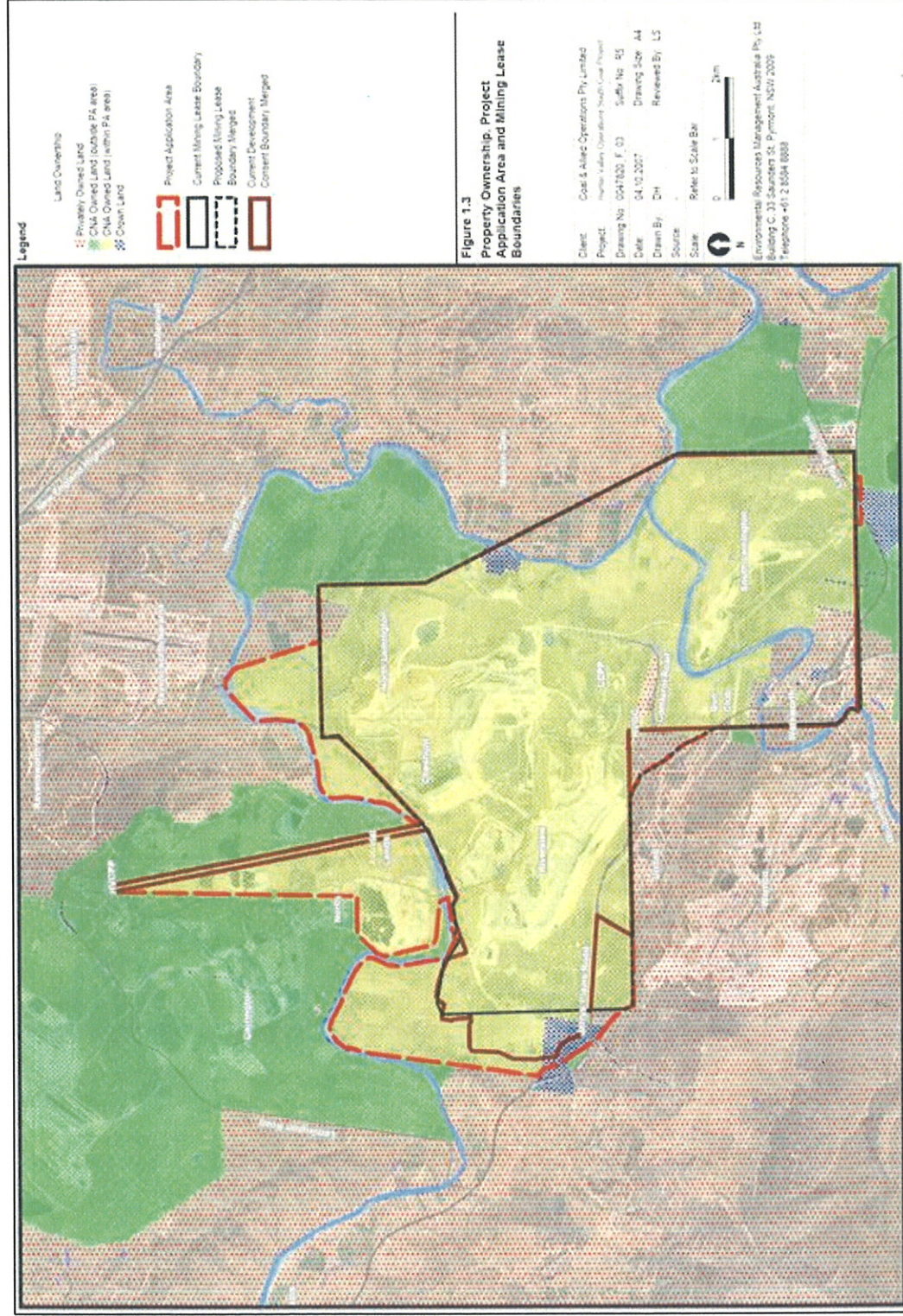


Figure 4: Property Ownership and Mining Lease

2.2 Need and Justification

The Department recognises that society is heavily reliant on coal to meet its basic energy needs (both at a domestic and international level). Coal provides around 90% of NSW's energy needs, 75% of Australia's energy needs, 24% of global energy need and is used to produce 39% of the world's electricity.

Access to energy remains a critical development need, particularly for the one-third of the world's population without electricity. As living standards and development in Third World countries increase, it is expected that the demand for coal will rise to satisfy increasing energy requirements. The HVO South Coal Project would contribute to supplying this annual coal demand. Therefore the ultimate need for the project is driven by both domestic and international energy markets.

The Department therefore considers that it is global energy demand that is driving new coal mining proposals in New South Wales; and if the project was not allowed to proceed, any resultant shortfall in coal supply would be filled by another coal resource either in NSW, Australia or overseas.

However, the Department also recognises that a balance must be found in the promotion and co-ordination of the orderly and economic use of land, the proper management and development of the State's resources, the protection of the environment and ecologically sustainable development.

CAN considers that the project is justified by a combination of coal resource availability and market opportunity over the likely mine life. CNA has put forward a case which clearly demonstrates the benefits that would accrue to the local, State and Federal economies, in addition to the continuation of a significant number of direct and indirect employment opportunities. In achieving these goals, CNA is committed to developing a safe and economically viable mine that maximises coal resource recovery, while minimising its environmental and social impacts. The project would also deliver a number of key benefits, including additional long-term employment opportunities (should the project operate at its maximum planned capacity), \$130 million in initial capital investment, flow-on regional economic benefits and significant royalty and tax income.

Consequently, the Department is satisfied that there is a demonstrable need for the project in terms of meeting society's need for adequate, reliable and affordable energy. Further, that this need could be met in a manner that has due regard to the economic, social and environmental impacts of the project.

3. STATUTORY CONTEXT

3.1 Major Project

The proposal is classified as a major project under Part 3A of the EP&A Act, as it is development for the purpose of coal mining and meets the criteria in clause 5 of schedule 1 of *State Environmental Planning Policy (Major Projects) 2005*. The Minister for Planning is therefore the approval authority for the project.

3.2 Permissibility

The proposal lies within Singleton LGA and the land proposed to be affected by mining is zoned Rural 1 (a) under the *Singleton Local Environment Plan 1996* (Singleton LEP), which permits mining with consent. One of the objectives of this zone is 'to allow mining where environmental impacts do not exceed acceptable limits and the land is satisfactorily rehabilitated after mining'. Consequently, the Department is satisfied that the proposal as presented is permissible with consent.

3.3 Exhibition

Under Section 75H(3) of the EP&A Act, the Director-General is required to make the environmental assessment of a project publicly available for at least 30 days.

After accepting the project EA, the Department:

- made the EA publicly available from 15 February until 17 March 2008:
 - on the Department's website, and
 - at the Department's Information Centre, the offices of Singleton Council and the Nature Conservation Council;
- notified relevant State and local government authorities by letter; and
- advertised the public exhibition in the *Singleton Argus* and *Newcastle Herald* on 15 February 2008.

This satisfies the requirements of Section 75H(3) of the EP&A Act.

3.4 Objects of the EP&A Act

The Minister's consideration and determination of the application must be consistent with the relevant provisions of the EP&A Act, including the objects set out in the Act. The objects of most relevance to the Minister's decision on whether or not to approve the Act's application are found in section 5(a)(i), (ii), (vi) & (vii). They are:

"The objects of this Act are:

(a) to encourage:

- (i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
- (ii) the promotion and co-ordination of the orderly and economic use and development of land,*
- (vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
- (vii) ecologically sustainable development"*

The Department has fully considered the objects of the EP&A Act, including the encouragement of ESD, in its assessment of the application. The assessment integrates all significant economic and environmental considerations and seeks to avoid any potential serious or irreversible damage to the environment, based on an assessment of risk-weighted consequences. CNA has also considered a number of alternatives to the proposed development, including the continuation of mining under existing consents and differing options for location of final mining voids, disposal of coal rejects and transportation of product coal.

3.5 Environmental Planning Instruments

The Department has considered the proposal against the relevant provisions of SEPPs 33, 44 and 55 and SEPP (Infrastructure) 2007, and is satisfied that none of these SEPPs substantially govern the carrying out of this project (see Appendix C). The Mining, Petroleum Production and Extractive Industries SEPP 2007 does not apply to the project since the project application was lodged prior to the SEPP's commencement on 16 February 2007.

3.6 Statement of Compliance

Under Section 75I of the EP&A Act, the Director-General's report is required to include a copy of or reference to the provisions of any State Environmental Planning Policy (SEPP) that substantially governs the carrying out of the project.

4. ISSUES RAISED IN SUBMISSIONS

During the exhibition period, the Department received a total of 20 submissions on the proposal, including:

- 6 from public authorities;
- 5 from special interest groups; and
- 9 from the general public.

A full copy of these submissions is attached as **Appendix E** and a summary of the issues raised is provided below.

Public Authorities

The **Department of Primary Industries** (DPI) raised no objections to the proposal and supports the replacement of multiple mining titles with a single mining lease. It also supports CNA's general approach to landscape planning and rehabilitation, proposed disposal options for coal rejects and the proposed Archerfield biodiversity offset. DPI raised concerns about:

- delays in rehabilitation of South Lemington Pit 1 and its short and long-term management; and
- auger mining under the Wollombi Brook alluvial sediments.

However, DPI supported a reduction to 100 metres in the buffer between mining operations and the Hunter River and its connected alluvium.

The **Department of Environment and Climate Change** (DECC) did not object to the project. It identified the following key areas for consideration:

- protection of River Red Gums, including potential groundwater impacts;
- the long-term management and protection of the Archerfield biodiversity offset;
- consulting the Aboriginal community, assessment of significance of impacts on Aboriginal cultural heritage and the storage of salvaged objects;
- surface water management and its integration with discharge requirements under the Hunter River Salinity Trading Scheme (HRSTS);
- noise impacts at residences;
- predicted exceedances of PM₁₀ air quality criteria at 14 residences;
- waste management, including an identified need to upgrade the LCPP waste water treatment system;
- improved environmental monitoring and reporting; and
- coal seam methane capture.

The **Department of Water and Energy** (DWE) expressed strong concerns about the proposal based on uncertainties about impacts of mining within 150 metres of the Hunter River, Wollombi Brook and their alluvial sediments. Due to these uncertainties, DWE initially opposed consideration of approval for the project.

Following CNA's presentation of its Response to Submissions, DWE refined its concerns and recommended that strict conditions be included in the mine's consent to:

- avoid significant hydraulic connection between the Hunter River and Wollombi Brook and their connected alluvium and the proposed mining operations;
- account for loss of flow from the Hunter River and Wollombi Brook under the applicable water licensing mechanisms; and
- require additional groundwater monitoring, and provision of monitoring data to DWE.

However, DWE continued to strongly advocate that the existing 150 metre buffer between mining operations and the connected alluvium of the Hunter River should be maintained and that any reduction in the buffer would create a high risk of "*unacceptable consequences should impacts exceed EA predictions*".

The **Roads and Traffic Authority** (RTA) did not object to the project but sought clarification about the interaction between the project and road intersections along Jerrys Plains Road,

potential short-term closures of Jerrys Plains Road and the circumstances that may lead to coal being transported to the Wambo rail loop.

The **Department of Lands** (DoL) did not object to the project and recommended that CNA apply to purchase paper roads, a travelling stock reserve, a camping reserve and other lands owned by the Crown within the project application area. It also recommended that CNA consult with any Native Title claimants for relevant lands.

The **Mine Subsidence Board** (MSB) indicated that the project area is within a proclaimed Mine Subsidence District.

Singleton Shire Council (Council) did not provide a submission on the project application.

Community and Interest Groups

12 submissions from the community and special interest groups objected to the proposal and a further two, from Dr Hodgkinson and United Collieries, gave it conditional support while expressing concerns about aspects of the project.

Submissions from the **community** were mostly from residents in relative close proximity to the mine (Longpoint Road (to the southeast), Maison Dieu (to the east) and Jerrys Plains (to the west)). These submissions raised very similar issues, which included:

- residential amenity;
- noise impacts;
- air quality impacts;
- scenic/visual amenity;
- blasting impacts, including blast fumes;
- decreased property values in the vicinity of the mine;
- traffic impacts;
- effectiveness of community consultation undertaken by CNA; and
- impacts on drinking water quality.

Certain individuals raised fears about whether they would need to relocate from their homes due to mining impacts and potential impacts on Hunter River water resources.

Dr Hodgkinson of Singleton supported the project and CNA's operation of existing mining operations. However, his main concern about the project was air pollution (dust and blast fumes) and its cumulative impact on the health of residents living in the Singleton area. He believes that the current air quality monitoring methodology needs to be improved by real-time measurement of constituent gases and particulates on a regional basis.

The **Hunter Environment Lobby** (HEL) objected to the proposal on the basis of:

- its perception that the project does not comply with the general and zone objectives of the Singleton LEP;
- loss of biodiversity values;
- unsustainable water use and impacts on water quality;
- greenhouse gas emissions;
- inadequate consideration of regional scale impacts such as visual, night lighting, biodiversity, environmental monitoring, threatened species and cumulative impacts generally,
- inadequate consideration of feasible alternatives to the project or ecologically sustainable development principles; and
- the proposed air quality monitoring program not proposed to be linked to independent regional monitoring.

The **Hunter Valley Gliding Club Co-operative Limited** (HVGC) objected to the proposal as it believed the project could jeopardise gliding activities at its airfield. Its concerns included;

- the proposal may create aircraft obstructions in areas surrounding its airfield;
- air quality impacts for club members and gliders;
- noise and light impacts on club members; and
- misrepresentation in the EA of the club's land use requirements.

The **Upper Hunter Wonnarua Council** (UHC) raised concerns about the manner in which Aboriginal cultural heritage matters were considered in the EA and what was considered to be inadequate consultation with, and involvement of, the UHC in the preparation of the EA. UHC also considered that CNA should be required to make a contribution to the Upper Hunter Regional Heritage Study.

United Collieries (UC), an adjoining mine owner, raised concerns about operational interactions between the two mining operations, potential impacts to its compensatory habitat area, use of the Wambo rail loop and noise assessment.

The **Hunter Valley Water Users Association** (HVWUA) strongly objected to the project. Its major objection was to *"the proposal to reduce the buffer distance between mining areas and Hunter Alluvials from the current 150 metres to just 100 metres"*. Its concerns included potential impacts to groundwater resources and leakage of water from the Hunter River to the mine. The HVWUA highlighted risks of catastrophic failure of buffers between streams and mines and its economic impact on users reliant on water supply from the Hunter River (the agriculture, dairy, equine, viticulture and tourist industries).

5. ASSESSMENT

5.1 Noise

Issue

The project has the potential to generate operational, traffic and rail-related incremental and cumulative noise impacts.

Consideration

The EA includes a noise impact assessment undertaken generally in accordance with the *NSW Industrial Noise Policy* (INP).

This assessment considered predicted noise impacts at 22 receivers, which are representative of those residences most exposed to noise impacts from the proposal (see Figure 5 and Table 2). The 22 assessed residences are generally those closest to the mine. It can therefore be assumed that noise at the nominated assessment locations will be equal to, or higher than, noise at other privately-owned properties located further away.

The assessment residences are predominantly located:

- along Jerrys Plains Road to the west of Warkworth;
- within and adjacent to Warkworth village; and
- in the Maison Dieu area (Shearers and Knodlers Lanes and Maison Dieu Road).

There are no privately-owned residences within 1.5 kilometres of proposed mining operations, other than residences that are already subject to acquisition, upon the request of the landowner, by either CNA or another mining company. This includes the remaining 3 privately-owned residences in the vicinity of Warkworth village.

Under the INP it is usual for existing noise levels to be monitored over time to establish background (or ambient) noise levels and utilise these data to establish appropriate Project Specific Noise Levels (PSNLs) for the HVO South proposal. However, for the reasons set out below this is neither possible, nor desirable, for the HVO South project.

The existing noise environment is significantly affected by operating coal mines, heavy use of Jerrys Plains Road, and to a lesser extent by the operation of the Wambo Spur rail line and Redbank power station. Mines that may contribute to the noise environment for residences surrounding HVO South include:

- HVO North open cut mining complex;
- Mount Thorley / Warkworth open cut mining complex;
- Wambo open cut mine;

- Rixs Creek open cut mine;
- Ravensworth / Narama open cut mining complex;
- Ashton open cut / underground mine; and
- United Collieries underground mine.

With so many mines operating in the general vicinity of HVO South, it is now not possible to measure background noise levels in the absence of mining activities.

However, it is possible to refer to historical noise assessments conducted prior to the establishment of each mine. As coal mining commenced in the Warkworth area in 1971, many of these assessments are not as comprehensive or rigorous (for instance, in the amount of background monitoring data collected) as those produced since 2001 in accordance with the INP. The Department considered that, while these data should be considered, they are not sufficiently in accordance with INP protocols to be relied upon.

CNA, therefore, proposed an alternative approach to establishing PSNLs and noise impact assessment criteria for the HVO South project. This involves deriving PSNLs and noise impact assessment criteria that are in accordance with noise criteria that apply to existing consents and approvals for the 'component mines' that make up the HVO South complex. This approach has also proved to be problematic.

CNA argues that, as both the Riverview and South Lemington consents are valid approvals, the company would be within its rights to continue to operate both of these 'component mines' within the respective noise limits of each. For some receivers, especially those in the Warkworth and Maison Dieu areas, this approach would result in PSNLs being established up to 3 dB(A) higher than for a single mining operation. Typically, respective noise limits for the 'component mines' of 36 dB(A) and 37 dB(A) would allow for total noise impacts of 40 dB(A).

CNA proposed to establish PSNLs by adopting a slightly more conservative approach through the addition of 3 dB(A) to the lower of the two criteria of the 'component mines'. In the example used above, this would establish the PSNL at 39 dB(A) rather than 40 dB(A). However, there are two key problems with this approach to establishing PSNLs.

The first is that it assumes that both 'component mines' would be continuously operating for the life of the project. This is not the case, as the South Lemington mine is on care and maintenance and does not plan to recommence mining operations until 2014. The Department believes it would be inequitable to apply a higher noise limit at residences on the basis of combined mining operations for those times when only one 'component mine' is operational. The second is that the noise limits in South Lemington consent were established prior to the application of the INP and are not directly comparable with those of the Riverview consent, which were established by the use of the INP.

CNA has also made certain assumptions about the South Lemington noise limits which are not supported under all meteorological conditions. In effect, under certain meteorological conditions, the South Lemington minimum noise level of 35 dB(A) L_{A10} approximates to 32 dB(A) L_{Aeq} . CNA's assumption that the South Lemington consent's minimum noise limits are 35 L_{Aeq} is not supported by the Department. Consequently the Department does not fully support CNA's proposed PSNLs.

Instead, the Department supports PSNLs established by the use of the INP for the Riverview consent as a starting point for further consideration. Under the INP, this does not mean that the PSNL for a particular residence would necessarily become the noise impact assessment criterion for that residence, having to be achieved by the company under all circumstances.

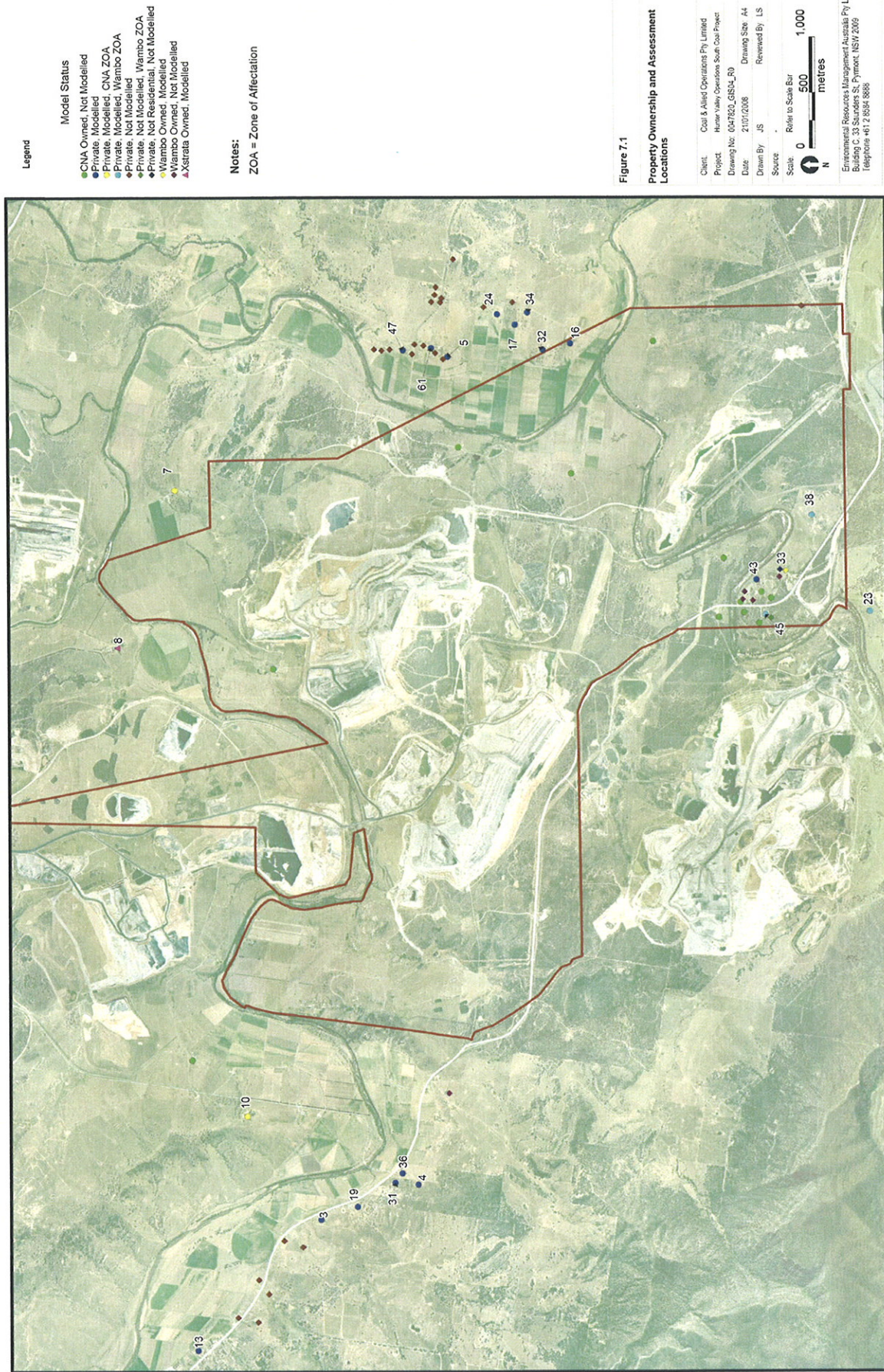


Figure 5: Land Ownership and Residences Referenced for Noise Assessment

Surrounding Assessment Locations used for Modelling Purposes

Location No.	Location and Name	MGA56 Coordinates	
		Easting	Northing
Locations at Maison Dieu (East)			
5	Bowman	317887	6399172
16	Algje	318128	6397347
17	Algje	318352	6398192
24	Clifton and Edwards	318153	6398497
32	Algje (Curlewis)	317982	6397802
34	Ernst	318530	6397994
47	Moxey	317979	6399821
61	Shearer	318014	6399408
Locations at Warkworth (South)			
23	Hawkes (Springwood)	313989	6392994
33	Edward and Haynes	314699	6394353
38	Henderson	315584	6393898
43	Kannar	314648	6394680
45	Kelly	314149	6394563
Locations west along Jerrys Plains Road (West)			
3	Elisnore	305416	6401053
4	Muller	305950	6399615
13	Jerrys Plains Centre	303535	6402851
19	Birrilee Feeds Pty Ltd	305655	6400600
31	Cooper (Kilburnie)	305953	6399990
36	Garland	306139	6399895
Isolated Locations			
7	Stapleton (Cheshunt) – North East	315919	6403004
8	Holz (Oaklands) - North	313711	6403979
10	Moses (Wandewoi) – North West	306970	6402069
- Location No. is consistent with the HVO West Pit consent (DA 450-10-2003). - Location No's 33 and 43 have been purchased by Wambo Mine. - Location No. 8 has been purchased by Xstrata.			

Table 2: Location of Noise Receivers

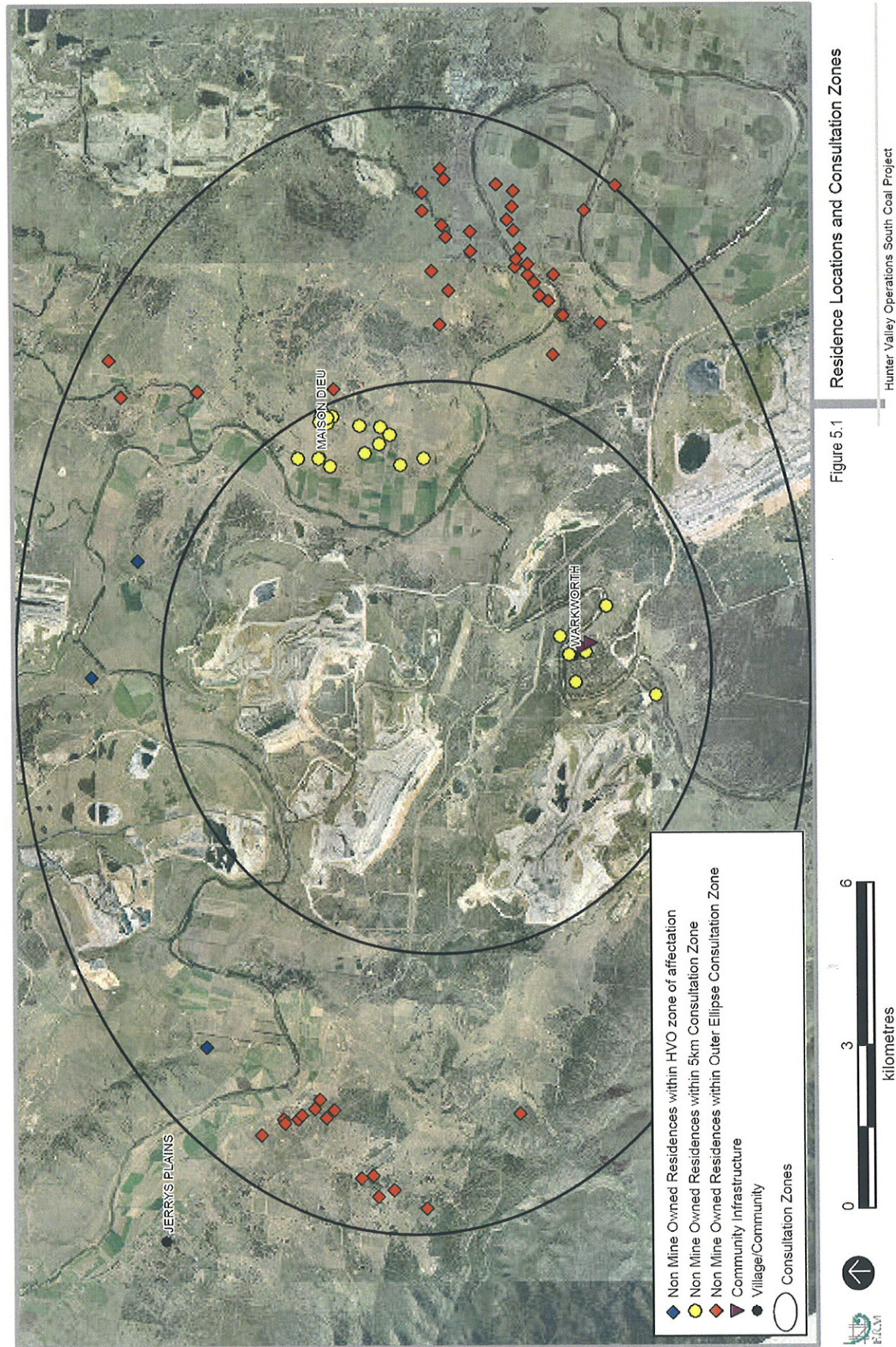


Figure 6: Location of Privately-owned Residences within 10 km of Project's Centre

Provided that the company has committed to undertake all reasonable and feasible noise mitigation measures, and if the predicted noise impacts of the HVO South project (modeled in accordance with the INP and including noise mitigation measures) are higher than the PSNLs, then the INP provides that the predicted noise level is also the noise impact assessment criterion for that residence.

In effect, the company is not expected to reduce noise impacts at residences to levels below those that are practical to achieve. On the other hand, residents are not expected to endure noise impacts greater than can be achieved by the application of all reasonable and feasible noise mitigation measures.

In summary, CNA maintains that noise impact assessment criteria should be at least 38 dB(A) L_{Aeq} for all residences, and at higher levels where predicted by noise modeling, provided that all reasonable and feasible noise mitigation measures have been employed. The Department's position, supported by DECC, is that PSNLs should be as low as 35 dB(A), if warranted.

The noise impact assessment criteria in Table 3 from the Riverview consent therefore remains one of the relevant considerations for the Department in establishing appropriate noise impact assessment criteria for the remaining privately-owned properties (see following sections on operational noise and acquisition criteria.)

Table 3: **Riverview Consent** noise impact assessment criteria dB(A)

Land Number / Receiver	Day	Evening	Night	Night
	$L_{Aeq}(15\text{ minute})$	$L_{Aeq}(15\text{ minute})$	$L_{Aeq}(15\text{ minute})$	$L_{A1}(1\text{ minute})$
Maison Dieu residences	36	36	36	46
Warkworth (closest residence)	36	36	36	45
Jerrys Plains village (closest residence)	35	35	35	45
All other privately owned land	35	35	35	45

The Department also notes that CNA currently operates and manages all 'component mines' of HVO South as a single entity and a single DECC Environmental Protection Licence (EPL) applies for all of HVO South's operations. Practically, the project is a single operation with common management of its environmental aspects. The Department therefore believes that it should be assessed as a single site, albeit with due regard to continuity of existing relevant environmental standards.

Since March 2000, when the Riverview consent was granted, 4 of the 6 properties identified as having voluntary acquisition rights for the landowner have been purchased by mining companies. The other 2 properties (Stapleton (Cheshunt East) and Moses (Wandewoi)) remain privately-owned, although predicted noise impacts from HVO South are below acquisition criteria. Certain other properties have also been purchased by mining companies, creating a substantial buffer zone around HVO South (see Figure 6).

Gliding Club

The HVGC's premises require special consideration, as they are classified by the INP as "Active Recreation Receiver" premises, and not residential premises.

The criterion for Active Recreation Receivers is 55 dB(A) $L_{Aeq(\text{period})}$ for all times of the day. Additional modeling undertaken by CNA predicts that this criterion would be easily achieved under most mining scenarios, but in and around 2019 this limit would be approached. CNA's predictions are based on 15 minute assessment periods rather than the 11, 4 and 9 hour periods of Day, Evening and Night that apply to the Active Recreation criterion. The effect of these different time bases in the calculation of noise impacts can be approximated to the 55 dB(A) $L_{Aeq(15\text{ minute})}$ prediction being about 3 dB(A) less than the 55 dB(A) $L_{Aeq(\text{period})}$ criterion.

The INP provides that, if noise impacts of up to 60 dB(A) $L_{Aeq(\text{period})}$ occur at Active Recreation premises, noise mitigation measures should be implemented or private agreements should be reached with the landowner accepting these higher noise impacts. As the predictions provided to the Department in CNA's Additional Response to Submissions are on the basis of impacts expected for a

15 minute period, the Department proposes to adopt a noise criterion for HVGC's premises of 55 dB(A) $L_{Aeq}(15 \text{ minute})$, rather than a criterion based on Day, Evening or Night periods.

Operational Noise

CNA provided a thorough investigation of the existing noise climate in the vicinity of HVO South and included a validation study of the ENM noise model used to predict noise impacts. These studies demonstrated that the highest modelled noise level for the 5 prevailing meteorological conditions correlated well with predicted noise levels for the INP weather condition. The highest modeled levels (for either the 5 prevailing winds or INP wind) were found to be above the measured levels. Hence, the ENM noise model and the modeling approach adopted by CNA is conservative under adverse winds.

CNA modeled noise impacts for 4 different mining scenarios which approximate worst case mining operations for noise impacts. These were for the years 2010 (Scenario A), 2014 (Scenario B), 2019 (Scenario C) and 2024 (Scenario D). For Scenarios C and D, 3 options for the use of LCPD and transportation of coal to the Wambo rail spur were considered. The resultant noise contours formed by the combination of all 8 scenarios described above are shown in Figure 7. It is important to note that for most of the life of the project, noise impacts at any particular location would be less than those indicated by the noise contours in Figure 7.

CNA's analysis revealed that the equipment at South Lemington Pit 1 and its associated truck haulage would be significant contributors to elevated night-time noise levels in the Maison Dieu area under prevailing south-westerly winds. CNA has committed to modify its mining operations in this Pit when south-westerly winds exceed 2.1 m/s. The resultant mitigated noise contours are shown in Figure 8.

By using the criteria in Table 3 effectively as PSNLs, and applying INP approved noise modeling techniques (following the application of reasonable and feasible noise mitigation measures to the project), the Department believes that the noise impact assessment criteria set out in Table 4 should be applied to the project.

Table 4: Noise impact assessment criteria dB(A)

Land Number / Receiver	Day	Evening	Night	Night
	$L_{Aeq}(15 \text{ minute})$	$L_{Aeq}(15 \text{ minute})$	$L_{Aeq}(15 \text{ minute})$	$L_{A1}(1 \text{ minute})$
<i>Hunter Valley Gliding Club (when in use)</i>	55	55	55	-
<i>Maison Dieu residences</i>				
16 – Algie	42	42	42	45
32 – Algie (Curlewis)				
5 – Bowman, 47 – Moxey, 61 – Shearer and all other land on Shearer's Lane	41	41	41	45
17 – Algie	40	40	40	45
34 – Ernst				
24 – Clifton and Edwards, and Knodlers Lane residences, not otherwise listed in this table	39	39	39	45
Maison Dieu residences within 1 kilometre of Shearers Lane, not otherwise listed in this table	37	37	37	45
All other Maison Dieu residences	35	35	35	45
<i>Jerrys Plains Road Residences</i>				
36 – Smith (ex Garland)	36	36	36	45
All Jerrys Plains Road residences other than Smith	35	35	35	45
Jerrys Plains village residences	35	35	35	45
<i>Warkworth residences</i>				
38 - Henderson	48	48	48	45
23 – Hawkes (Springwood)	43	43	43	45
45 – Kelly and all other privately owned land in Warkworth village	43	43	43	45
All other privately owned land	35	35	35	45



Figure 7: HVO South Maximum Noise – All Scenarios, INP Weather

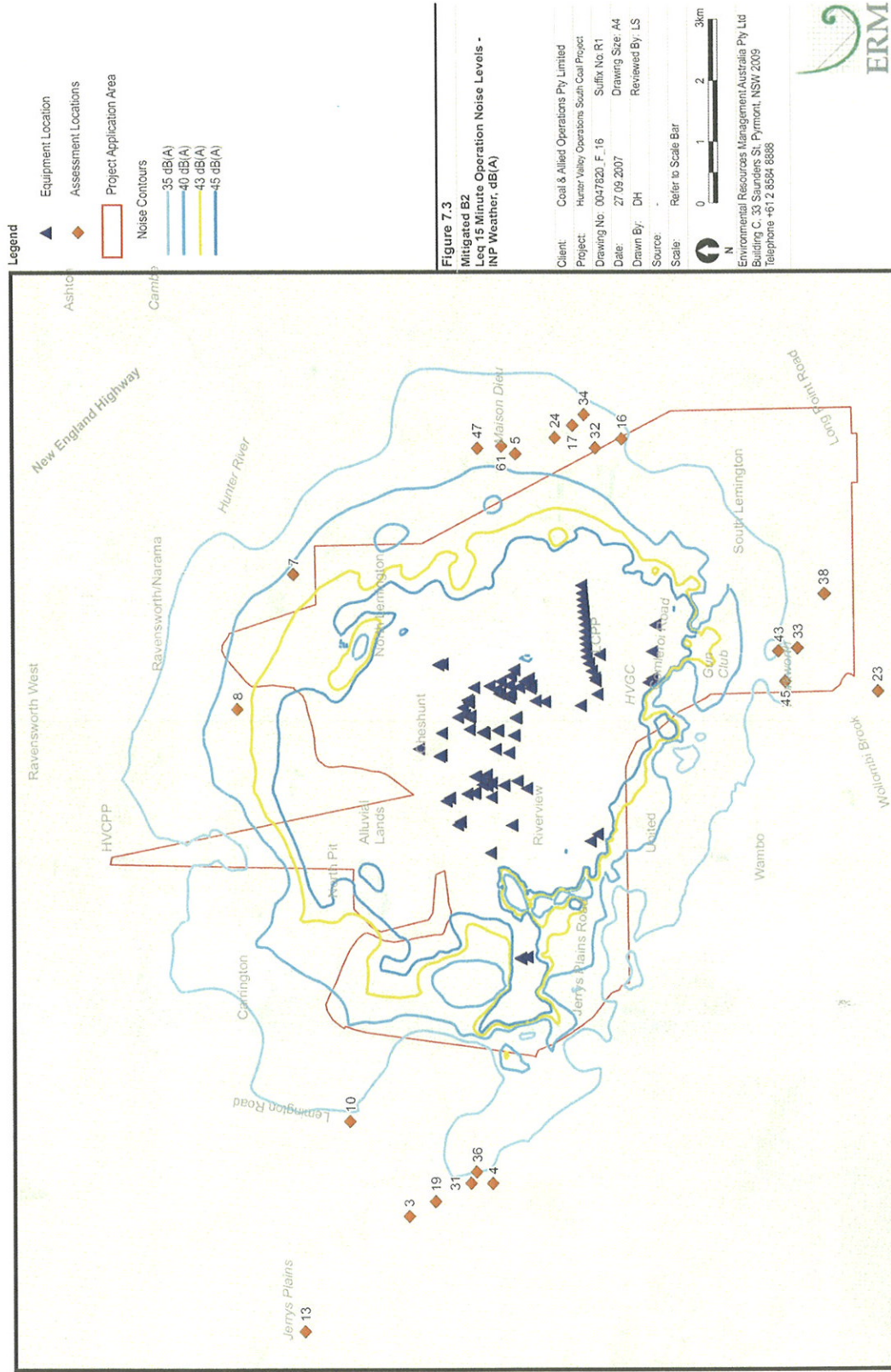


Figure 8: HVO South Maximum Noise Contours - Scenario B (Mitigated)

Sleep Disturbance Criteria

Sleep disturbance criteria are used to protect residents against loud noises of short duration that have the potential to rouse people from sleep. This criterion is based on the loudest 1% of noise impacts measured over a 1 minute period. DECC guidelines suggest that this criterion be set at 15 dB(A) greater than the PSNL, or at 45 dB(A) if predicted sleep disturbance noise levels are below 45 dB(A).

As the maximum L_{A1} (1 minute) noise impacts from all considered scenarios for the HVO South project are less than 45 dB(A), this level has been included for all residential receivers identified in Table 3.

Acquisition of Noise Impacted Properties

The existing Riverview consent requires CNA to acquire properties, at the request of the landowner, where the criteria in Table 5 are exceeded.

Table 5: Riverview property acquisition noise assessment criteria dB(A)

Land Number / Receiver	Day	Evening	Night
	$L_{Aeq}(15 \text{ minute})$	$L_{Aeq}(15 \text{ minute})$	$L_{Aeq}(15 \text{ minute})$
All privately owned residences	43	40	40

The Department considers that its usual practice of setting property acquisition noise criteria at 5 dB(A) above the PSNL should be used, where applicable, to amend the criteria in Table 5. This approach produces property acquisition criteria for the Maison Dieu area and Smith (ex Garland) residence (Jerrys Plains Road) of 41 dB(A) at night, rather than the 40 dB(A) criterion of the Riverview consent that would apply to other residences (see Table 6).

Table 6: HVO South and acquisition criteria dB(A)

Land Number / Receiver	Day	Evening	Night
	$L_{Aeq}(15 \text{ minute})$	$L_{Aeq}(15 \text{ minute})$	$L_{Aeq}(15 \text{ minute})$
36 – Smith (ex Garland)	43	41	41
All Maison Dieu residences	43	41	41
All Jerrys Plains Road residences other than Smith	43	40	40
All other privately owned land	40	40	40

The application of the criteria in Table 6 identifies 4 properties with acquisition rights:

- 2 Maison Dieu properties (16 - Algie and 32 - Algie (Curlewis); and
- 2 properties near Warkworth, north of Jerrys Plains Road (38 - Henderson and Keys (vacant land)).

Cumulative noise impacts

CNA's analysis of cumulative noise impacts on privately owned land in and south of Warkworth village demonstrates that:

- prevailing meteorological conditions are such that if HVO South's noise impacts are enhanced, impacts from Wambo mine are reduced, and vice versa;
- in most circumstances HVO South's contribution to noise impacts at this location is relatively minor (less than 20% of total noise impacts); and
- in the latter years of proposed operations (represented by Scenario D for years 2024 and beyond), when HVO South is the dominant noise source due to the planned closure of the Wambo mine, predicted noise levels at these residences are well-below the relevant noise impact assessment criteria.

The Department considers that providing cumulative noise impact assessment criteria would serve no useful purpose as the owners of all private residences in the Warkworth area have access to acquisition of their properties on request from either Wambo mine or CNA and prevailing meteorological conditions for the area do not enhance noise impacts from both mines simultaneously.

Construction Noise

As a fully operational mine, most construction activities associated with the mine have been long-completed. Exceptions are the potential upgrade of LCPP and construction of a rail line and loop to a rail loading point in the vicinity of LCPP.

CNA has not assessed the construction noise associated with these activities, rather relying on its ability to manage construction activities to meet the operational noise impact assessment criteria for the mine.

The Department considers that construction noise criteria are only appropriate for short-term construction noise impacts, usually at the commencement of a project. Consequently, a project such as HVO South, which represents a continuation of mining activities at the site over a span of 50 years, does not warrant the application of specific construction noise criteria, which are invariably higher than operational criteria.

Conclusion

The Department is satisfied that CNA has assessed the potential noise impacts of the project generally in accordance with the relevant DECC guidelines, with due consideration of existing noise impact assessment criteria for the site, and adopted all reasonable and feasible noise mitigation measures.

The assessment indicates that the noise emissions associated with the mine as modified would significantly affect 4 additional private properties, of which 1 is vacant land. Overall, the project would not substantially increase noise impacts when compared to impacts from existing mining operations. However, the project would extend these impacts by up to 11 years.

To ensure that the mine is managed in accordance with contemporary best practice noise controls, the Department has recommended conditions that would require CNA to:

- acquire (at the landowner's request) properties where operational noise levels are predicted to exceed relevant criteria by more than 5 dB(A);
- undertake (at the landowner's request) additional noise mitigation measures at all residences where operational noise levels are predicted to exceed relevant criteria by 3 dB(A) or more;
- ensure that a comprehensive noise monitoring program is implemented, which includes real-time and attended monitoring of noise impacts; and
- comply with stringent project-specific noise criteria, and strive to reduce noise impacts from the mine.

5.2 Blast Noise and Vibration

Issue

The project has the potential to result in blasting impacts on residences, buildings, infrastructure and other mines.

Consideration

The EA includes a blast assessment undertaken with reference to the nearest sensitive receiver identified (7 – Stapleton) which is about 1.8 km from current and proposed blasts (see Figure 5). United Collieries is the closest commercial development and is located directly south of the Riverview Pit.

CNA considered potential impacts to these receivers as well as to the historic St Phillip's Church in Warkworth. The assessment indicated that applicable blast (overpressure and vibration) criteria and guidelines are able to be met at all receivers, through prudent management of blast design (in particular, through adjusting charge sizes). The EA anticipates that blasting impacts are unlikely to affect the structural integrity of any other buildings (including St Phillip's Church) or infrastructure. CNA has undertaken to work co-operatively with the operators of United Collieries to ensure that HVO South blasts do not interfere with underground mine safety or the quality of ventilation air intake.

Conclusion

The Department is satisfied, particularly after considering the mine's monitored blasting performance to date, that the project is able to be managed such that it would not result in any significant blast-related impacts to private residences, other buildings, infrastructure or commercial operations.

To ensure that blasting is effectively managed, the Department has recommended conditions that would require CNA to:

- comply with applicable blast criteria;
- restrict blasting to daytime hours;
- operate in accordance with its existing road closure management plan;
- restrict blasting operations within 500 metres of land not owned by CNA unless satisfactory arrangements have been made to avoid flyrock-related risks;
- keep residents informed about blasting operations, and facilitate feedback/complaint management;
- provide for structural property inspections and investigations; and
- maintain a comprehensive blast monitoring program.

5.3 Air Quality

Issue

The project has the potential to result in air quality impacts, particularly for residential receivers in the Maison Dieu and Warkworth areas.

Consideration

The EA includes a specialist air quality assessment, undertaken by Holmes Air Sciences Pty Limited in accordance with the DECC's *Approved Methods and Guidance for the Modelling of Air Pollutants*.

This study included calibration of the model against actual air quality monitoring results for 2006. The remainder of the assessment focused on impacts for 3 operational scenarios (for Years 2010, 2014 and 2019) with 2014 generally being the year representing worst case impacts for neighbouring residential areas.

Project and cumulative air quality assessment criteria were adopted on the basis of DECC's 24-hour, monthly and annual air quality modeling goals to protect health and amenity in order to ascertain the extent to which surrounding residential properties would be impacted by the project (Table 7).

Table 7: Air Quality Assessment Criteria

Pollutant	Averaging Period / Units	Project Criterion Adopted	Cumulative Criterion Adopted
Total suspended particulate (TSP) matter	Annual / $\mu\text{g}/\text{m}^3$	90	90
Particulate matter < 10 $\mu\text{g}/\text{m}^3$ (PM_{10})	Annual / $\mu\text{g}/\text{m}^3$	30	30
Particulate matter < 10 $\mu\text{g}/\text{m}^3$ (PM_{10})	24 hour / $\mu\text{g}/\text{m}^3$	50	150
Deposited Dust (insoluble solids)	Annual / g/m^2	2	4

The assessment has been conducted using a model incorporating local meteorological data and estimates of the emissions associated with mining. Model predictions include emissions from a range of nearby mines and an allowance for background emissions of particulate matter from non-mining sources.

In recent times, there is an improved understanding of why the ISC model (used for previous assessments) has a tendency to over predict 24-hour PM_{10} concentrations. The ISC model has been modified to create a model known as ISCMOD with a much-improved ability to accurately predict 24-hour PM_{10} concentrations. The use of the ISCMOD model, local meteorological data, local topographic information and calibration of the model's predictions against 2006 monitoring data gives the Department confidence in the air quality predictions of the EA.

The modeling also takes into account existing management and mitigation measures that are employed by the company to control dust generated from exposed areas by mining activities, such as:

- minimising the area of disturbance necessary for mining operations;
- regularly watering haul roads and coal handling and stockpiling areas; and
- using real-time air quality monitoring to reduce or cease major dust-generating operations when dust levels approach air quality impact assessment criteria.

The predicted annual average PM₁₀, TSP and deposition levels in the Maison Dieu area all comply with the relevant assessment criteria. However, the air quality impact assessment predicts that DECC's 50 µg/m³ 24-hour average assessment criterion would be exceeded at all residences in the Shearers Lane and Knodlers Lane area of Maison Dieu due to emissions from HVO South alone. CNA proposes to manage these impacts by the use of real-time monitoring and its air quality management system.

Some residences in the Warkworth village area are also predicted to experience 24-hour PM₁₀ levels above DECC's 50 µg/m³ 24-hour assessment criterion. However, these exceedances are due to cumulative effects, and emissions from HVO South play a relatively minor role in the total exceedances. The same locations are also predicted to experience exceedances of the 30 µg/m³ annual average PM₁₀ assessment criterion and, again, these exceedances are largely a result of cumulative effects with HVO South's emissions playing a relatively minor role. It is important to note that the 3 privately-owned residences in the vicinity of Warkworth village are already subject to conditions of consent requiring other mining companies to acquire them at the landowner's request.

The emissions from the project, or from the project and cumulative effects of other sources, are not predicted to exceed the assessment criteria at residences west of HVO South or in the Jerrys Plains area. However, occasional exceedances of DECC's criteria may occur as a result of non-mine sources, such as bushfire smoke and remote dust storms.

Therefore the main focus of the Department's assessment is on the predicted exceedances of the 24-hour PM₁₀ concentration criteria in the Maison Dieu area. This criterion is based on an allowance of 5 exceedances of the 50 µg/m³ level within a year (otherwise known as the 98.6 percentile level). There are considerable difficulties in modeling the 98.6 percentile level and it is much easier to initially model the maximum predicted concentrations to gain an appreciation of whether more detailed investigation is warranted. The modeling shows that there would be exceedances of the 50 µg/m³ level at 8 assessment locations, over the life of the mine (see Table 8).

Table 8: Maison Dieu Maximum Predicted Exceedances (due to HVO South alone)

Property ID	24 Hour average PM ₁₀ Maximum Predicted Exceedance (µg/m ³)		
	2010	2014	2019
5 - Bowman	78	85	78
16 - Algie	81	134	75
17 - Algie	71	95	60
24 - Clifton and Edwards	73	84	67
32 - Algie (Curlewis)	81	138	72
34 - Ernst	69	102	55
47 - Moxey	74	82	49
61 - Shearer	77	84	69

However as the 24-hour PM₁₀ criterion allows the 50 µg/m³ concentration level to be exceeded up to 5 times in a year, CNA provided more detailed information about predicted air quality impacts in the Maison Dieu area, where the initial modelling indicated the project would potentially exceed this criterion.

In the northern portion of Maison Dieu, the 24-hour PM₁₀ criterion is modelled to be exceeded exactly 5 times in the "worst case" year of 2014, and accordingly, is predicted to be in compliance with the air quality criterion.

In the southern portion of Maison Dieu, the 50 µg/m³ concentration is likely to be exceeded more than 5 times in the 2014 scenario, in the absence of additional mitigation measures. CNA has committed to

undertaking improved real-time air quality monitoring in the Maison Dieu area to allow adaptive management of dust generating activities (such as ceasing to operate or relocating mining equipment) and thereby reducing the probability that the $50 \mu\text{g}/\text{m}^3$ PM_{10} concentration would be exceeded.

As it is not clear how effective CNA's proposed adaptive management mitigation measures would be, the Department is not certain whether the company would be able to achieve compliance with this air quality criterion or not. Consequently, it has recommended that residents in the southern area of Maison Dieu be entitled to air quality mitigation measures on request, rather than acquisition of properties. It has also recommended that CNA implement an improved and rigorous real-time air quality monitoring program in the Maison Dieu area to determine if CNA's adaptive management mitigation measures are effective and whether on-site air quality mitigation measures should be available to other residents.

The Department does not wish to limit the range of reasonable and feasible dust mitigation measures proposed for the Maison Dieu residents, and considers that these options should include, but not be limited to:

- air conditioning of residents;
- running costs for air conditioners; and
- first-flush rainwater collection diverters.

The Department acknowledges that existing dust emissions at some localities in the vicinity of HVO South are close to, and on some occasions have exceeded, applicable air quality criteria. Indeed, a number of public submissions raised concerns about the cumulative dust levels in the locality.

The elevated dust levels are the result of a number of sources – including mining, agricultural and transport activities – and have no doubt been exacerbated by prevailing drought conditions over recent years. Notwithstanding, mining is a major source of dust emissions in the locality.

To ensure that the cumulative impacts of the project are effectively managed, the Department has recommended appropriate cumulative dust management conditions. Similar conditions have been imposed upon other recent project approvals in this part of the Hunter Valley.

In the event that the relevant air quality criteria are exceeded, but that HVO South and at least one other mine is responsible for the non-compliance, then CNA would be required, together with the other relevant mine(s), to take all reasonable and feasible measures to ensure that the relevant criteria are complied with and conduct further monitoring to assess and demonstrate this compliance (or otherwise secure an agreement with the landowner to allow the exceedances).

If these measures do not achieve compliance with the relevant air quality land acquisition criteria and the mines are unable to secure an agreement with the landowner to accept these impacts, then the applicable landowners would be granted acquisition rights to be exercised at the request of the landowner.

Conclusion

The Department and DECC are satisfied that CNA has assessed the potential air quality impacts of the mine in accordance with relevant DECC guidelines, and appropriately considered reasonable and feasible dust mitigation measures. The assessment concludes that annual emissions from the project would meet DECC's air quality criteria.

However, under worst-case scenarios, exceedances of the 24-hour PM_{10} concentration criterion are possible in the Maison Dieu area, particularly along Shearers and Knodlers Lanes.

To ensure that cumulative and short-term dust impacts are effectively managed, the Department has recommended conditions that would require CNA to:

- comply with incremental and cumulative air quality criteria;
- offer reasonable and feasible dust mitigation measures to residents of the southern portion of Maison Dieu;
- implement a comprehensive air quality monitoring program;
- publicly report all monitoring data;
- acquire any property, at the landowner's request, where monitoring data indicates that air quality acquisition criteria are exceeded;

- in the event that cumulative (or incremental) air quality criteria are exceeded:
 - take all reasonable and feasible measures to ensure that the relevant criteria are complied with; and
 - conduct further monitoring to assess and demonstrate this compliance; or
 - otherwise secure an agreement with the landowner to allow the exceedances, or acquire the affected property.

5.4 Groundwater

Issue

The project would impact upon local and regional groundwater resources. These impacts may affect groundwater dependent ecosystems such as Hunter River Red Gum populations. Mining operations may intercept water from the Hunter River and Wollombi Brook. CNA propose to reduce the buffer distance between open cut mining and the Hunter River and connected alluvium from 150 to 100 metres and to continue mining within the connected alluvium of Wollombi Brook.

Consideration

CNA simulated the potential regional and local groundwater system impacts of the project by the use of both steady state and transient conditions. Steady state modelling involves running the model until groundwater elevations and flows through the model have reached equilibrium regardless of how many years are required to reach that equilibrium. Further sensitivity analysis indicated that steady state simulations overstated connections between pit voids and surface water bodies and model results are therefore considered conservative.

Figure 9 shows the conceptual groundwater regime in the project area. The Hunter River and its connected alluvium are located north of the project site and Wollombi Brook and its connected alluvium is to the south east. Figure 9 shows a series of coal seams dipping to the south and west with some coal seam subcrops connected to the alluvium of these watercourses. Within the hardrock geological strata, the coal seams act as aquifers. Water quality within these aquifers is usually quite poor and unsuitable for domestic or commercial use.

This figure illustrates the conceptual pathways for water to migrate from either the River or the Brook to either mining pits (voids) or to coal seams and subsequently to voids or deeper within the coal seam.

Figure 10 conceptually illustrates potential groundwater flow paths in the vicinity of a river. Potential impacts from mining include direct connection from the river to the mining void and a lowered water table resulting in reduced groundwater flow to the river (recharge) from strata adjacent to the river. Lowered groundwater levels could reduce water availability for groundwater dependent ecosystems (such as Hunter River Red Gums). The zone of reduced groundwater levels is termed the zone (or cone) of groundwater depressurisation (or drawdown).

Seepage to Pits

Seepage into the Cheshunt Pit is predicted to range from 0.7 ML/day to 7.3 ML/day and is predominantly sourced from water contained within the material disturbed by mining. Due to losses through evaporation, this is predicted to reduce from a maximum of 7.3 ML/day, to between 6.5 ML/day in winter and 5.0 ML/day in summer. CNA has committed to modify its Water Management Manual to reflect the predicted increased in-pit seepage from all pits and to allow for a potential 100% variability in the initial stages of mining at the Cheshunt Pit.

According to CNA's predictions, flows in the Hunter River are not predicted to be significantly impacted by mining. However, under worst-case conditions, the number of days that Wollombi Brook is dry is predicted to increase by up to 6%.

DWE has very strong concerns about potential mining-induced loss of flow in the Hunter River and Wollombi Brook and their connected alluvium. Safety considerations dictate that it is not prudent for workers to be in the vicinity of existing highwalls to directly measure the rate of seepage into existing mining pits. The best estimate that can be obtained is that seepage to the Cheshunt Pit is 0.5 ML/day. CNA maintain that the existing seepage rate is unlikely to increase proportionally with increased depth of mining, as most seepage is from the base of the Mt Arthur Seam (see Figure 9). Seepage from lower coal seams is predicted to be overwhelmingly from water stored within the coal and not from transfer of water through higher strata from the River or the Brook.

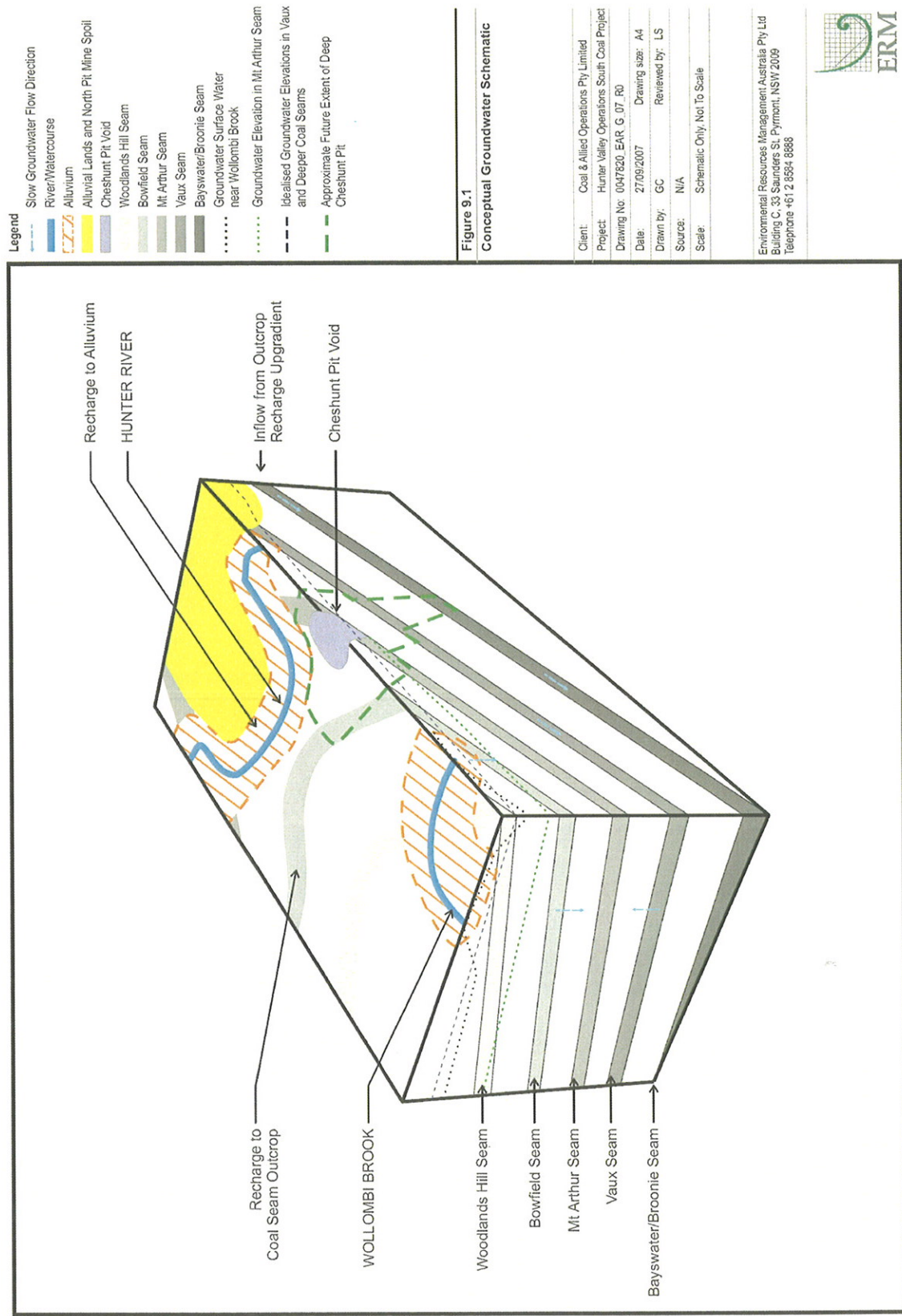


Figure 9: HVO South Conceptual Groundwater Schematic

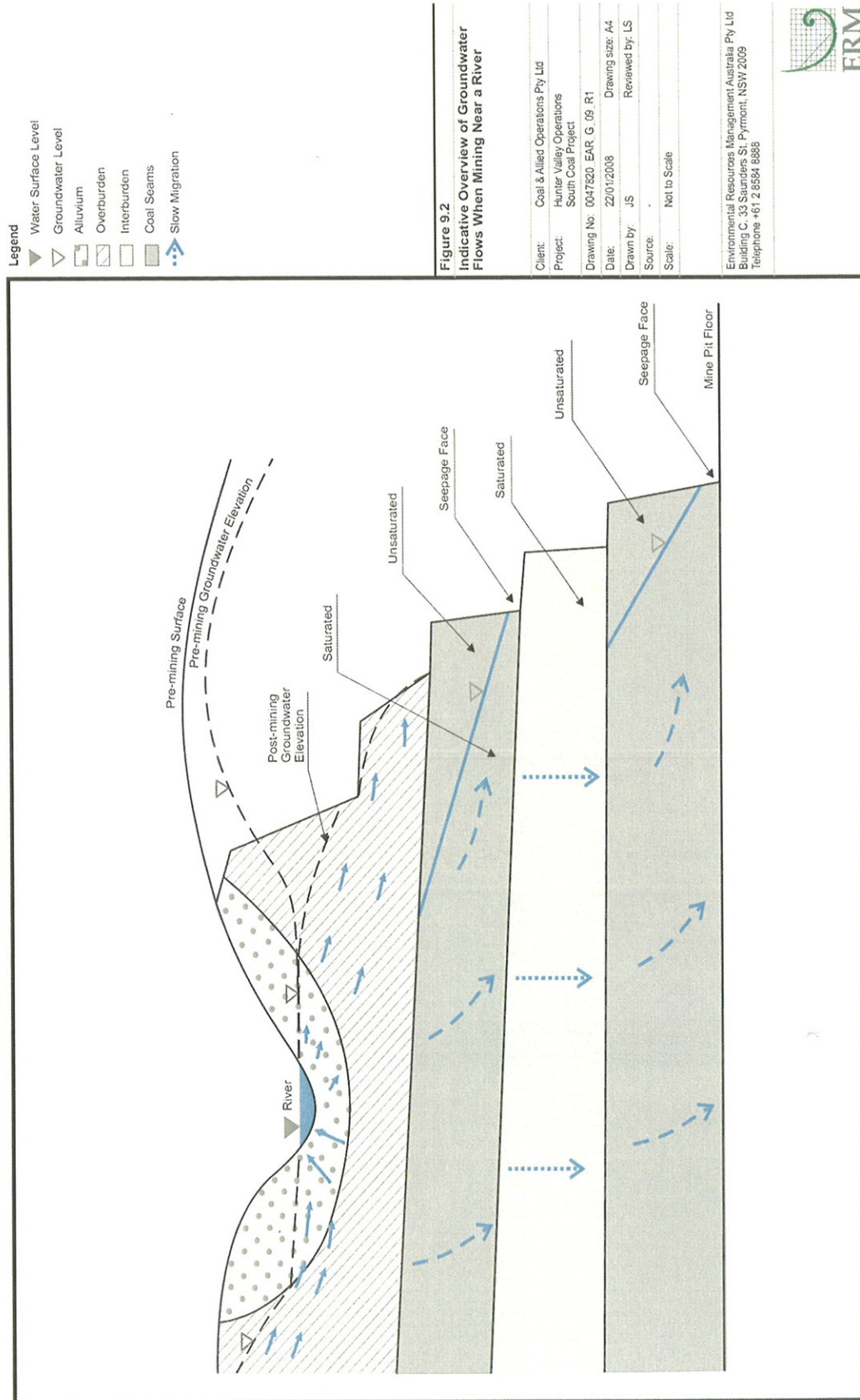


Figure 10: Indicative Groundwater Flows in Proximity to a River

To better define the nature and quantum of seepage impacts, CNA offered to provide detailed modelling of local groundwater impacts, rather than relying upon the regional groundwater model used in the EA. However, a shortage of groundwater modelling specialists has meant that the company has been unable to provide these detailed predictions for this assessment.

The Department considers that the extension of mining operations at HVO South would increase groundwater seepage rates that need to be carefully monitored. Also, that CNA should persist in its efforts to provide detailed local groundwater impact modelling to DWE.

Changes to Buffer Zones

CNA is approved to conduct mining operations at Cheshunt Pit to within 150 metres of the Hunter River and its connected alluvium, while mining operations at South Lemington Pit 1 have already intersected the alluvium connected to Wollombi Brook, in accordance with that mine's consent.

HVO South's 150 metre buffer zone has been set by DWE to protect water flows within the Hunter River and Wollombi Brook from mining impacts. Any application to change to this buffer distance would need to be carefully considered on its merits.

A component of CNA's project application is to reduce the existing buffer distance by 50 metres to 100 metres. This would enable CNA to recover an additional 4.6 Mt of ROM coal, worth in excess of \$500 million. CNA predicts that groundwater flows to the Hunter River would be reduced by 0.05 ML/Day, which represents a reduction of 1.6% of the lowest flow rate of the river (3.6 ML/Day). The company would account for, and offset, this reduction in flow in accordance with the State's regulatory requirements administered by DWE.

DWE believes that there is a "*significant risk*" (to water resources in the Hunter River and its connected alluvium) associated with any reduction in the 150 metre buffer.

The Hunter Valley Water Users Association's (HVWUA's) major objection to the project was to "*the proposal to reduce the buffer distance between mining areas and Hunter Alluvials from the current 150 metres to just 100 metres*". Its concerns include potential impacts to groundwater resources and leakage of water from the Hunter River to the mine. The HVWUA highlighted risks of catastrophic failure of buffers between streams and mines and its economic impact on users reliant on water supply from the Hunter River (agriculture, dairy, equine, viticulture and tourist industries). Several other public submissions supported HVWUA's viewpoint.

The Department considers the protection of the Hunter River and its flows to be of the highest importance and does not believe that CNA has presented a sufficiently comprehensive and robust case to remove doubt as to the degree of impact that would be caused by reducing the buffer. Nor does it believe CNA has provided sufficient information on the geotechnical stability of the highwalls and notes the assumption in its modelling that all its blasting operations would be conducted in a manner to minimise fracturing of the highwall. Whether this would be achieved in practice is not known. The Department is also aware that unplanned highwall failures, while not common, do in fact occur. The Department is not confident that this aspect of the proposal has been explored in sufficient detail.

Accordingly, the Department has recommended a condition of approval that would require the 150 metre buffer to be retained, but would allow future merit-based applications from the company to reduce this buffer. Such an application would be required to provide a much more comprehensive assessment of risks and impacts than provided with this project application.

Under the provisions of existing consents, the company is permitted to mine within the connected alluvium to Wollombi Brook at South Lemington Pit 1. The proposed extension to mining at this pit is relatively minor and would not cause open cut mining operations to occur any closer to Wollombi Brook than is currently approved. The amount of leakage from Wollombi Brook is predicted to range from 0.3 to 0.8 ML/Day and to increase by 6% the number of days that the Brook ceases to flow.

The Department believes that CNA should be permitted to operate this pit in the currently approved manner and that the proposed extension of the pit would not significantly increase impacts on Wollombi Brook or its flows.

Hunter River Red Gums

CNA's assessed the potential impacts of the project on the River Red Gums located on the Hunter River, and Hunter River Floodplain populations and the Wollombi Brook alluvium. Groundwater drawdown is predicted to be a maximum of one metre for River Red Gum stands and would only affect regeneration of these gums if it has significant impacts on the ability of the area to flood. However, current flooding regimes are unlikely to be affected as they rely on peak flood flows, which are not expected to change significantly as a result of the extensions to mining.

Under approval conditions for HVO North's operations, CNA is required to implement a *River Red Gum Rehabilitation and Restoration Strategy* for a major River Red Gum stand, upstream of HVO South, at the Carrington Billabong. The Department has recommended a condition of approval that requires CNA to extend this existing strategy to include all River Red Gums at HVO South.

Groundwater Bores

Of the 63 registered groundwater bores within 2 km of the project area, only 25 are used for water supply (from relatively shallow wells). The remaining bores are used for environmental monitoring purposes. Groundwater drawdown impacts are mostly confined to lands owned by mining companies. Consequently, impacts on water levels or yields of privately-owned wells are unlikely.

Conclusion

The Department has reviewed CNA's groundwater assessment in association with DWE and is confident that private groundwater users will not be impacted by the project.

CNA has an existing comprehensive groundwater monitoring program which should be reviewed to ensure that it would continue to be adequate for future mining operations at HVO South. As the project would not significantly extend the area of mining operations, it is possible that any changes to the existing groundwater monitoring program would be minimal.

The Department does not support the proposed reduction of the buffer between mining operations and the Hunter River or Wollombi Brook and their connected alluvium by 50 metres, on the basis that considerable uncertainty exists as to the impacts of such an action. The Department has recommended a condition of approval to maintain the buffer at 150 metres (except where a lesser distance is already approved), but to allow for the possibility of a future reduction in the buffer if sufficient evidence is provided that there would be minimal impact on water resources.

5.5 Surface Water

Issue

The project would increase the area of ground disturbance by 250 ha to 3230 ha, which could impact on surface water quality and quantity. A relatively minor portion of the project is located below the water level of the highest historical flood and flooding impacts also need to be considered.

Consideration

Overall impacts on surface water as a result of the proposal will be minor. The main changes that may influence surface water management are:

- increased water usage for the new or upgraded LCPP and support facilities;
- retention of South Lemington Pit 2 levee (SLL2);
- revision of the mine plan resulting in a final void in the Deep Cheshunt Pit; and
- modification to final landforms and changes to catchments.

These potential impacts would be addressed through improvements to the storage and drainage networks and development of a HVO Water Management Manual, including a revision of the existing surface water management plan.

The project would involve improvements to water supply storages and water quality management systems are proposed to fully mitigate the impacts of expanding the LCPP. All contaminated runoff from the new or upgraded LCPP would be retained within the mine water management system.

Mining of additional areas would have a minor impact on overall water demand at the site, and consequently, on the management of water supply storages. The currently-licensed water extraction

volume of 4165 MLpa would be adequate for operations at both HVO North and South, including increased water supply requirements, should LCPP be operated at its maximum proposed capacity of 16 Mtpa. This would require up to 4,500 MLpa, of which 2,700 MLpa would currently need to be drawn from the Hunter River. However, by the installation of direct pumping arrangements from minewater storages at HVO South, and its ability to source water from HVO North, the company is confident that it can reduce its current demands on the Hunter River source.

CNA has calculated that the total yield to the Hunter River catchment would reduce by approximately 0.03% in relation to pre-mining conditions. This is insignificant in both absolute and cumulative impact terms.

CNA operates in accordance with the conditions of its EPL and the rules of the Hunter River Salinity Trading Scheme to allow for the discharge of excess minewater from the site. The company proposes to continue to manage any excess minewater in this manner. As noted elsewhere in this report, part of this project application is to permit water to be transferred between HVO North and South and to and from the Mount Thorley Warkworth complex to increase reuse of minewater, rather than allowing it to be discharged.

The Department is supportive of the company's proposed integration of water management across these sites to:

- maximise the reuse of water,
- minimise the use of water drawn from the Hunter River; and
- minimise the discharge of minewater to the Hunter River.

DECC identified a need for the waste water treatment system for the LCPP to be augmented. The Department has recommended a condition of approval that requires the company to undertake these works.

The retention of the levees adjacent to the Cheshunt and South Lemington Pit 2 would cause an insignificant increase in flood levels of a 100 year ARI flood of less than 60 mm and 30mm respectively for the Hunter River and Wollombi Brook. The Department is satisfied that the project would not cause noticeable flooding impacts, and mitigation measures are not warranted.

The final void is predicted to act as a groundwater sink and as an internally draining catchment for surface waters. The water level in the Deep Cheshunt final void may take up to 250 years to reach its equilibrium level, at about 50 to 60 metres below current ground level. Management options for the final void would be developed in accordance with legislative requirements with consideration of community expectations. One possible option would be to allow flood flows to be diverted to the final void to create a lake at close to surface level.

Conclusion

The Department has reviewed the surface water assessment in association with DWE and is confident that the project represents a significant overall improvement in surface water management for the site. Nevertheless, the Department has recommended conditions of approval that require the company to revise its current water management plan for the HVO mining complex to ensure that its expansion of operations at HVO South is fully considered. In addition, this plan is required to include measures to maximise the reuse of minewater and reduce demands on the supply of water from the Hunter River.

5.6 Biodiversity

Issue

The project would disturb a total of 3,230 ha of land. However, only 250 ha of this would constitute additional land disturbance, including the clearing of 48 ha of remnant and 92 ha of regenerating native vegetation.

Consideration

Most of the HVO South project site is comprised of lands that have been subject to flora and fauna surveys (at least once, and for some areas, on up to 4 occasions) during the consent process for existing approved mining operations on the site. CNA conducted additional biodiversity surveys, in accordance with DECC guidelines, for areas which had not been previously surveyed or where

previous surveys needed to be updated to consider more recent listings of threatened species, populations and communities.

In combination, these past and present biodiversity studies have identified 7 threatened species of bird on, or in close proximity to, the project site, and 6 species of mammals (4 species of bat as well as the Squirrel Glider and Brush-tailed Phascogale). The only threatened fauna species recorded on the project site during the recent biodiversity surveys was the Grey-crowned Babbler (see Figure 11).

However, the site does contain examples of an Endangered Population within the Hunter Valley, the River Red Gum, along the banks of the Hunter River and Wollombi Brook (see Figure 11). Management of Hunter River Red Gums was considered under section 5.4.

The project site also contains areas of 2 Ecologically Endangered Communities (EECs):

- Hunter Lowland Redgum Forest (HLRF) (identified as Hunter Floodplain Red Gum Woodland Complex in Figure 11); and
- Warkworth Sands Woodland (WSW).

Figure 11 also shows the location of 3 parcels of Coast Banksia, which are considered important for conservation purposes as these areas have the potential, with correct management, to regenerate into WSW community. Tests conducted by CNA in accordance with the *Threatened Species Conservation Act 1995* determined that the project would not have a significant impact upon any of these species, populations or communities. It is noteworthy that the Grey-crowned Babbler, a woodland bird, was the only individual threatened species observed on the site during the 2006 biodiversity survey. This species seems to be adapted to living in proximity to mining operations and has been observed nesting in rehabilitated lands of several Hunter Valley mine sites. Two nesting sites were observed at HVO South, with one of these sites being located close to the HVGC landing ground, in an area of relatively high noise and night light impact.

Warkworth Sands Woodland

Prior to WSW being listed as an endangered ecological community, 82 hectares of WSW was approved for removal by the Lemington South mining footprint. This area has already been disturbed by mining activities. One relatively minor element of the HVO South project is to provide for an efficient route to transport major pieces of mining equipment, such as draglines, across Jerrys Plains Road to the Warkworth Mount Thorley mining complex. The proposed transport route would remove a small portion of WSW within the HMA created under the Warkworth consent, but within the HVO South project area.

The Department is supportive of the efficiencies of the proposed heavy equipment transport route, while recognising its impacts to the HMA. The Department has recommended a condition of approval that requires the company to provide an equivalent area of WSW to be included in the HMA to replace any of WSW cleared for the transport route. No additional WSW would be disturbed by the HVO South project.

Much of the WSW shown in Figure 11 is part of a Habitat Management Area (HMA) created under the existing Warkworth mine development consent to manage and protect WSW as a biodiversity offset for the impacts to WSW approved for that mine. Consequently, these areas of WSW are managed with the enhancement of biodiversity outcomes as an objective.

Archerfield Biodiversity Offset

CNA has proposed that 140 ha of its Archerfield property be provided as a "Biodiversity Enhancement Area" to offset impacts caused by the additional clearing of 140 ha of remnant and regenerating native vegetation within the project site (see Figure 12). The Archerfield offset area is located on higher ground away from the Hunter riverflats and contains similar topography and vegetation to the areas that would be impacted by the project. It has an additional benefit in that it contains 2 parcels of Coast Banksia that would be amenable for regeneration as WSW.

Both the Department and DECC are satisfied that the Archerfield biodiversity area and the management measures proposed by CNA to enhance this area, (such as monitoring, infill planting, weed control and stock exclusion), are appropriate and represent a reasonable biodiversity offset for the loss of vegetation and habitat that would be caused by the project. While satisfied with the proposed biodiversity offset, both agencies believe that added provisions for the long-term security of this land for conservation purposes is needed.

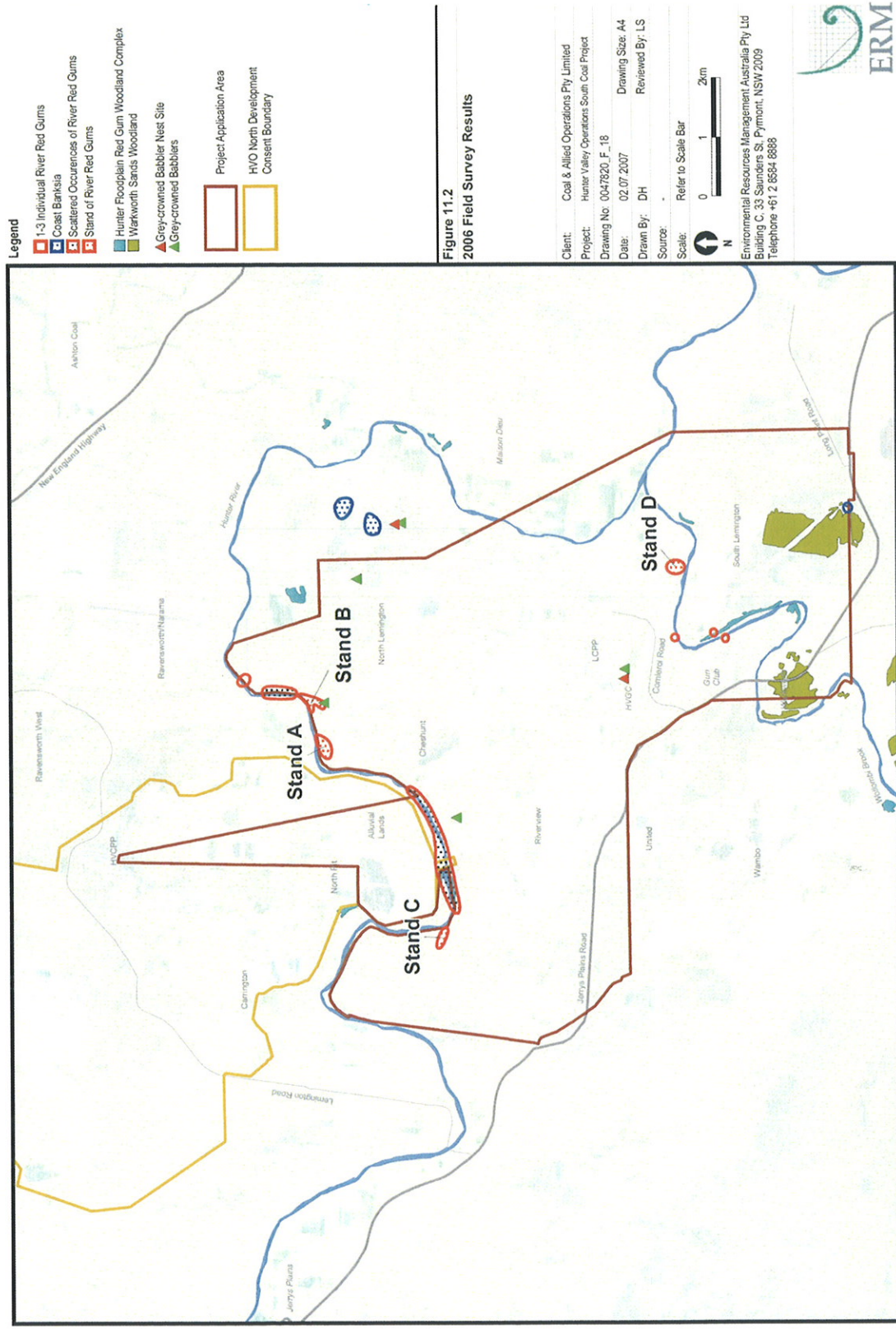


Figure 11: 2006 Biodiversity Survey Results

**Legend**

- Archerfield Property Boundary
- Area with Remnant Vegetation for Biodiversity Enhancement

Client:	Coal & Allied Operations Pty Limited
Project:	Hunter Valley Operations South Coal Project
Drawing No:	0077323_GIS03_R0
Date:	18/01/2008
Drawn by:	JS
Source:	-
Scale:	Refer to Scale Bar



0 200 400 600m

Figure 11.3**Archerfield Biodiversity Enhancement Area**

Environmental Resources Management Australia Pty Ltd
 Building C, 33 Saunders St, Pyrmont, NSW 2009
 Telephone +61 2 8584 8888

Figure 12: Archerfield Biodiversity Offset Area

The Department has recommended conditions of approval that requires CNA to:

- implement the Archerfield offset over a minimum area of 140 ha;
- demonstrate that this offset would result in a net improvement in biodiversity values over the medium and long-term;
- establish a trial program to regenerate parcels of Coast Banksia as WSW;
- avoid impacts to Aboriginal sites within the offset area;
- provide long-term security of the land for conservation purposes; and
- provide a Conservation and Biodiversity Implementation Bond to cover the costs of implementing its proposed biodiversity offset.

Hunter Lowland Redgum Forest

The project would not impact any areas of HLRF. Small areas of HLRF community have been mapped within the project area and on adjacent lands owned by CNA (see Figure 11). The Department accepts that the project would not directly impact HLRF. However, it considers that CNA should protect all stands of HLRF on its lands and has recommended a condition of approval requiring CNA to protect this vegetation community.

Conclusion

The Department accepts that no threatened or endangered species, populations or communities would be significantly affected by the project.

The Department has recommended a condition requiring CNA to extend the existing *River Red Gum Rehabilitation and Restoration Strategy* to include all River Red Gums at HVO South.

The Department also believes that the implementation of the proposed Archerfield Biodiversity Offset, when coupled with strong biodiversity management practices and long-term security of this land for conservation purposes would produce a net improvement in biodiversity outcomes in the medium to long-term.

5.7 Aboriginal Cultural Heritage

Issue

The project would impact Aboriginal cultural heritage sites within the project area, with all sites located in proposed open cut mining and infrastructure areas likely to be destroyed.

Consideration

In a similar approach to that employed for biodiversity assessment surveys, CNA undertook Aboriginal cultural heritage surveys for those areas of the project site which had not been previously surveyed or where a previous survey was not to contemporary standards. The additional areas of survey are shown in Figure 13. Also surveyed, was a large portion of the proposed Archerfield Biodiversity Offset area.

The **Upper Hunter Wonnarua Council** (UHWc) raised concerns about the manner in which Aboriginal cultural heritage matters were considered in the EA and what it considered to inadequate consultation with, and involvement of, the UHWc in the preparation of the EA. The Department has considered this matter and believes that, as the UHWc is an active member of the Working Group, the UHWc has been adequately and equitably consulted during the assessment of Aboriginal cultural heritage impacts.

The investigations of Aboriginal cultural heritage resulted in the discovery and recording of 138 separate locations. With the exception of a single possible scarred tree, all sites consisted of isolated finds or artefact scatters. Over 75% of the sites consisted of less than 5 stone artefacts.

All locations are considered to be of high cultural heritage significance by the local Aboriginal communities, as they provide links to their ancestors and their "country". In terms of archeological (or scientific) significance, 6 sites were considered to be of high significance with one site of moderate/high significance. Most sites were located on ground that had been previously disturbed either by human activities or by natural processes such as erosion. The disturbance of the original land surface has also altered the stratigraphic and chronological history of the sites. Sites with intact stratigraphy and chronology were assigned a high significance value.

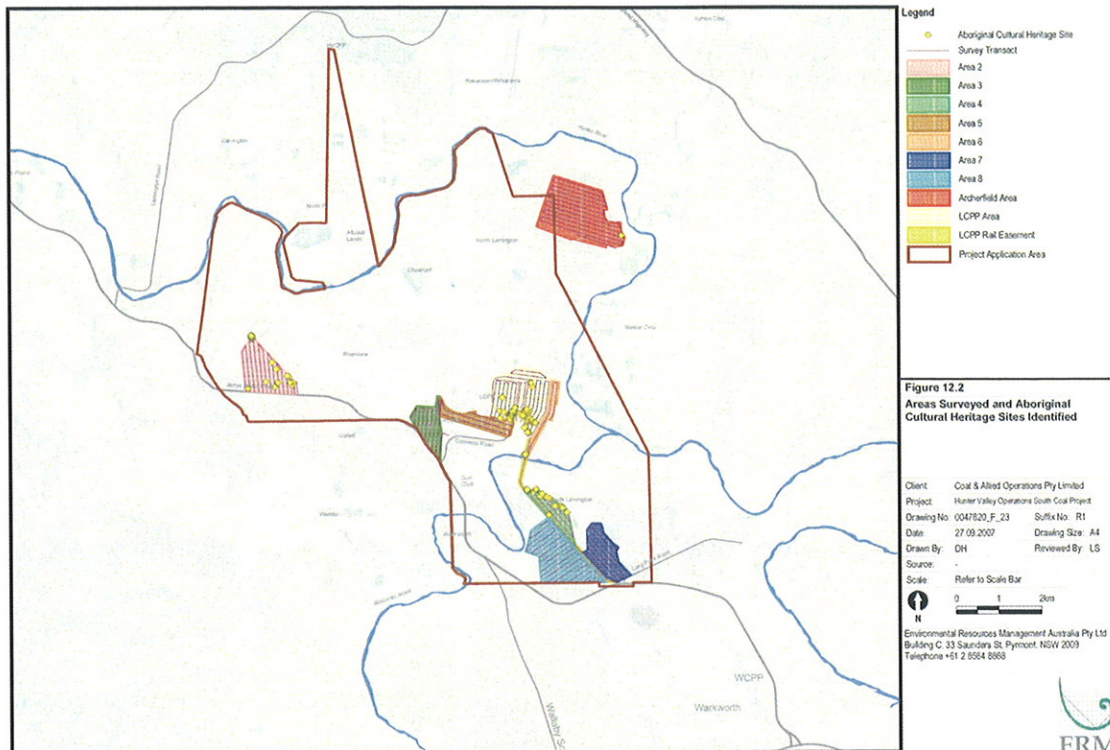


Figure 13: Aboriginal Cultural Heritage Survey Area

The Department and DECC are satisfied with the comprehensive process employed by CNA to consult with the local Aboriginal community and to provide input to the design and implementation of the archaeological survey of the areas shown in Figure 13. As part of this consultative effort, CNA helped form the Upper Hunter Cultural Heritage Working Group comprising representatives of approximately 20 Aboriginal groups. The Working Group decided that 12 different Aboriginal groups would participate in various aspects of the archaeological surveys for the HVO South project. All reports were referred back to the Working Group for consideration, which ultimately made recommendations for inclusion in an Aboriginal Cultural Heritage Management Plan for the project.

As a result of its consultation with the Working Group, CNA has decided to change the location of the rail loop at LCPP to avoid most of the Aboriginal sites located in its vicinity. In addition, the Working Group and CNA propose that 71 of these sites would be protected within restricted access zones that allow only a minimal number of activities to occur (such as weed and fire control).

Any other sites that are proposed to be destroyed by mining activities would be subject to management measures that have been, or will be, developed in consultation with the Working Group. This Group has already made recommendations as to which sites should be subject to an archaeological salvage process. A registered "keeping place" for salvaged artefacts is available at HVO's administrative offices. However, should the Working Group wish to relocate salvaged materials to a more permanent "keeping place", or to sites such as the restricted access areas near LCPP, then the wishes of the Working Group would be observed, subject to any legislative requirements.

Conclusion

Overall, the Department is satisfied with CNA's consultation with the local Aboriginal community and its inclusion in setting the parameters of, and participation in, the archaeological surveys conducted for the project. The Department is also satisfied with CNA's proposals to avoid impacts to sites near LCPP and then to protect 71 sites from further impact by the creation of restricted access zones. The company's proposals to mitigate impacts for some of the remaining sites by the salvage of artefacts and their subsequent storage in a "keeping place" is in accordance with the recommendations of the Working Group.

The Department has recommended a condition of approval based on the recommendations of the Working Group. These recommendations are to be incorporated within an Aboriginal Cultural Heritage

Management Plan. Additionally, the company is required to provide a long-term "keeping place" and Aboriginal cultural heritage training for all HVO South employees and contractors.

5.8 Greenhouse Gas Emissions

Issue

The project would generate direct and indirect greenhouse gas (GHG) emissions that would contribute to global warming and climate change.

Consideration

Direct GHG Emissions

The EA provides an assessment of the GHG emissions (Scope 1 and 2) that would result from operation of the project within the context of the HVO mine (both North and South). This is because CNA has already implemented procedures to measure and record its GHG emissions on the basis of the entire HVO operation. To separate these historical GHG emission data would involve estimates of the proportion of impact due to HVO South, with a resultant loss of accuracy compared to the measured GHG emission data available for the combined operations.

This assessment provides estimates of direct GHG emissions (as CO₂-equivalent emissions or CO₂-e) that would result from electrical energy requirements, diesel fuel consumption, explosives use, net land clearance and the liberation of methane from mining of coal.

Additional coal production due to the proposed expansion of HVO South would generate an additional 155 Mt CO₂-e over the mines life, based on estimations using standard emission factors published in the National Greenhouse Gas Inventory Workbook (NGGI, 2006) the Australian Greenhouse Office (AGO) Factors and Methods Workbook (AGO, 2006). This equates to a 21% increase in GHG emissions compared to a business as usual scenario for the mine over the same period.

The most significant contribution to direct GHG emissions for HVO operations is of fugitive methane gas released from coal seams during the mining processes. Based on 2006 data, the fugitive methane emissions accounted for 70% of HVO's GHG emissions. Both the Department and DECC believe that the company should be required to investigate whether it is able to reduce methane emissions from the project, and implement any identified feasible methane reduction measures. In 2008, CNA commenced a trial program of pre-drainage (undertaken in advance of open cut mining operations) of coal seam methane at its adjacent Warkworth open cut coal mine.

While pre-drainage of coal seams is a common practice for underground coal mines, it has not as yet been successfully employed for open cut mining operations, often due to difficulties in gaining access for the installation of pre-drainage equipment. Another factor previously mitigating against the use of pre-drainage has been the relatively low methane gas content contained in the shallower coal seams traditionally mined by open cut methods. Over geological time, methane is released from shallow coal seams and makes its way to the atmosphere, depleting the original methane levels in the coal seam. However, with the improvement in open cut mining equipment, coal is now being recovered from increased depths, exposing coal seams in which methane gas levels are relatively intact. It should be noted that gas levels and composition vary greatly from seam to seam. For any particular seam it may be that methane levels are not particularly elevated, even if that seam were to be a "deep" coal seam. However, the evidence from prior monitoring of GHG emissions at the HVO mining complex is that 70% of its direct GHG emissions are attributable to the release of methane. The Department and DECC therefore believes that CNA should be required to investigate whether it is feasible and reasonable for CNA to implement measures to reduce its emissions of coal seam methane from the project.

The Department has recommended a condition of approval that includes a requirement for CNA to implement a research program to inform the continuous improvement of greenhouse gas minimisation measures at the project, including a feasibility study to identify and assess potential options for the capture and reuse of coal seam methane.

As a designated energy user under the *Energy Savings Order 2005*, HVO is required to submit an Energy Savings Action Plan to the State government. The most recent plan lists 13 initiatives designed to improve energy efficiency across the HVO site by:

- reducing electricity consumption;
- operating equipment more efficiently,

- reducing fuel spillage;
- purchasing fuel-efficient equipment;
- planning mining operations to reduce haul truck travel distances; and monitoring of fuel and electricity use to identify further opportunities to reduce GHG emissions.

The Department believes that CNA should review its Energy Savings Action Plan to identify any further improvements in energy efficiency that may be now available.

Indirect GHG Emissions

CNA has estimated the indirect GHG emissions (Scope 3) that would result from the transport of product coal to market, and the burning of that coal for energy purposes.

Data for the combined HVO activities for 2006 show that, at a production rate of 12 Mtpa product coal, offsite transport of the coal is expected to result in some 21,900 tonnes of CO₂-e, annually. CNA has estimated that annual GHG emissions of approximately 31.2 Mt CO₂-e of would result from the mining, transport and burning of coal from the project. As expected, emissions associated with burning of the coal would be far greater than those associated with either mining or transport. A graphical representation of HVO South's additional contribution to GHG emissions is provided in Figure 14 (as a combination of Scope 1, 2 and 3 emissions).

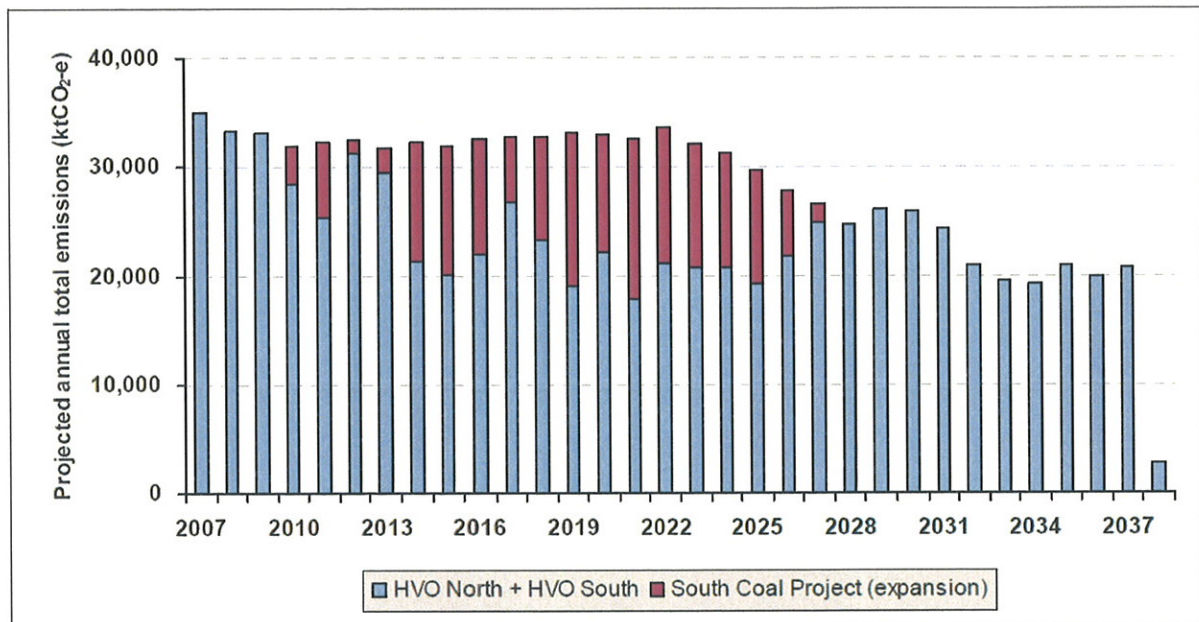


Figure 14: Predicted Greenhouse Gas Emissions

From its inception to peak-production, the impact of the expansion component of the HVO South proposal will range from 0.01% (2010), to 0.04% (2020) of global energy related emissions. The EA estimates that, over the life of the mine, emissions relating from the increased coal production from HVO South would raise global surface temperature by 0.000078°C.

Adopted convention is that these “downstream” emissions are attributed to the user of the coal rather than the producer. The convention avoids double counting. Leaving the accounting of the emissions from the use of the coal to the end user is also desirable as emissions due to the end use depend on the method by which the coal is used to produce energy and any control measures that might be in place.

However, the Department must consider the emissions in the light of the principles of ecologically sustainable development (ESD), as indeed it must in regard to all other potential impacts. It notes that, if coal is not produced at the HVO South project, this would not reduce international demand for coal, the burning of coal or greenhouse gas emissions. Indeed, it can be expected that if coal is not mined at HVO South, it would be extracted some place else (including at existing Australian and/or NSW mines, even other Hunter Valley mines).

The production of coal and the need for new coal mine proposals is a market-driven phenomenon. The Department is of the opinion that current global demand for energy supply will continue to provide market pressure for supply of coal, which would continue to remain (even increase) in the absence of production and export from the HVO South project. Consequently, there is no substantive benefit, in respect of climate change, in seeking to limit or prevent coal production at HVO South.

Conclusion

The project would generate significant GHG emissions, both directly through extraction, processing and transport of the coal resource, and indirectly through electricity use and downstream burning of the product coal. The indirect downstream burning of the coal is by far the biggest contributor, generating some 97% of the GHG emissions associated with the project.

On a comparative basis, the total GHG emissions from the project represent a very small proportion of the current national (less than 0.01%) and global (less than 0.04%) annual GHG emissions, and when considered in isolation, the project would have an insignificant contribution to global warming/climate change.

The Department is satisfied that there is a market-based drive for the development or expansion of new coal mining projects such as the HVO South project to meet basic domestic and international energy needs over at least the next 20 years.

Further, the Department believes that refusal of the project would not result in any reduction in global GHG emissions, as the gap in supply would be filled by another mine in Australia or overseas. Notwithstanding, the Department expects that CNA should be required to investigate and implement methods to mitigate, manage or offset direct and indirect GHG emissions throughout the life of the project. Such methods should include:

- revising and implementing a comprehensive Energy Savings Action Plan, which includes quantified energy efficiency targets and actions;
- identifying options for minimising greenhouse gas emissions from mining operations, with a particular focus on capturing and/or using these emissions;
- measures that would be implemented in the short to medium-term on site; and
- a research program to inform the continuous improvement of greenhouse gas minimisation measures on site.

The Department concludes that there is no significant or adequate reason relating to GHG emissions (either relating to the mining process or the burning of product coal) to withhold approval for the project.

4.9 Socio-Economic

Issue

The project would extend employment opportunities for HVO South employees by 8 to 11 years, for Riverview and South Lemington operations respectively. It would inject considerable capital investment into the Singleton local government area and broader Hunter region. However, it would also generate a range of environmental impacts that would affect the general amenity of the area.

Consideration

As with all large mining proposals, the project would have social and economic benefits, and social and economic costs.

State and Regional Benefits

The project would enable an additional coal resource of at least 80 million tonnes to be mined that is conservatively worth \$4 billion. The development of this resource would provide a broad array of social and economic benefits. These benefits include:

- continuing employment for over 670 employees at HVO;
- a possible increase in direct employment of 150 (operational and construction) under favorable market conditions and peak production. However, given the economic circumstances at the time of this assessment, the Department believes that employment levels are not currently likely to increase;
- \$130 million in capital investment;

- \$1.5 billion in purchasing of goods and services;
- \$629 million in wages;
- \$70 million in taxes payable; and
- \$211 million in total production royalties for the State government.

Since 2000, CNA has been a leader in the provision of funds for community enhancement projects in the areas around Singleton through its CNA Community Trust. It has provided \$7 million (up to 2007) for regional programs which focus on business and economic enhancement, vocational training, personal development and environmental initiatives. In 2007, the Trust funded 15 partnership initiatives totaling \$1.5 million. Late in 2008, CNA announced that it would continue funding of the Trust for a further 3 years.

CNA also enhances the social fabric of the Hunter region, and especially the Upper Hunter by its contributions to the following projects:

- the Aboriginal Development Consultative Committee – launched in 2006 with funding from CNA of \$500,000 a year to support Aboriginal education, training, business development and culture preservation in the Upper Hunter;
- Hunter Valley Research Foundation;
- Hunter Medical Research Institute;
- Hunter Westpac Rescue Helicopter Service;
- Rivercare;
- Newcastle Knights NRL Football club; and
- site-based sponsorships to provide support for local schools, events and fund-raising initiatives.

CNA has also committed to negotiate a comprehensive voluntary planning agreement for the project, which would provide a direct contribution to fund community projects in the Singleton LGA. The Department has recommended a condition of approval that formalises this commitment and allows 12 months for the company and Council to identify the specific enhancement projects to be supported by this funding.

Local and Regional Impacts

The social and economic benefits of the project need to be considered against any adverse impacts that it would have on the community.

As a 'brownfield' site, the proposed increase in coal production from HVO South would be sourced from lands already owned by CNA. Furthermore, a significant proportion of the increased production would be obtained by mining deeper coal seams on already disturbed land, rather than lateral expansion of mining operations (although lateral expansion of mining operations is a lesser component of the project). So while mining operations would occur at the HVO South site for an additional 8 to 11 years and some mining operations would be closer to residents than previously, the project does not represent a dramatic change in scale or location of mining operations. Nevertheless, the Department has examined the broader land use planning conflict issue (ie mining versus farming) carefully, and has concluded that mining is the highest and best use for this land.

Secondly, the project would have continuing, and at times increased, impacts on privately-owned properties in the Maison Dieu and Warkworth areas. This is, in part, due to a gradual shift over time of the focus of mining activities in an easterly direction. Consequently, noise and air quality impacts for residents to the west of the project are predicted to reduce and impact to the east are predicted to increase. In recognition of the change in the geographic impact of the mine, the Department has recommended that one property to the west (Wandewoi) no longer be afforded "acquisition on request" rights while 2 properties at Maison Dieu are now proposed to be given these rights.

To minimise, manage or at least compensate for the residual impacts of the project on significantly affected properties, the Department believes that CNA should be required to:

- acquire significantly affected properties on request, including payment of reasonable compensation and relocation costs, in accordance with the Department's land acquisition procedures;
- undertake architectural treatments on affected residences on request whilst they remain in private ownership;
- notify and inform affected residents about their acquisition rights, and the potential health and amenity impacts associated with the project; and

- provide for independent assessments of environmental impacts, and provide for a transparent dispute resolution process.

Thirdly, the project would have a range of minor to moderate impacts on the amenity of a number of other private properties and community facilities in the local and wider area. These impacts would be realised through changes to the area's existing noise, dust and visual amenity.

Finally, the project has the potential to affect the operation of two special interest community groups, being the HVGC and a gun club. As detailed in Section 5.1, the project has been organised to minimise impacts on the operation of the HVGC. An existing agreement between CNA and HVGC protects the interests of both parties and CNA has committed to produce and implement an amenity plan to further reduce impacts for this facility. To ensure that this is achieved in a timely manner, the Department has recommended conditions of approval that set amenity limits for HVGC and require the production of a specific amenity plan within 12 months of the project's approval. CNA has reached agreement with the gun club about the relocation of its facilities, adjacent to Comleroi Road.

Conclusion

This socio-economic assessment, together with the other environmental assessments that comprise the EA, indicates that the project would have a significant impact on 4 private properties. On a broader level, CNA's economic assessment indicates that the project would have a considerable net benefit to the region and to the State. The Department acknowledges the validity of this conclusion and agrees that coal mining is by far the highest and best use for the land.

Nevertheless, to mitigate and/or compensate for the adverse socio-economic impacts of the project on the local area, the Department believes that CNA should be required to:

- acquire significantly affected properties (upon request);
- minimise, mitigate, offset and/or compensate the range of environmental impacts associated with the project;
- enter into a planning agreement with Council, providing funding for local projects;
- maintain a community consultation committee for the project; and
- make environmental monitoring and reporting data publicly available on its website.

Finally, The Department is satisfied that CNA has adequately assessed the social and economic impacts of the project, and that the social and economic benefits that would accrue from approval of the project outweigh the social and environmental impacts that are likely to occur if the project is approved.

4.11 Cumulative Impacts

Issue

The project represents a continuation and extension of mining in an area of about 10 mining operations and would lead to cumulative impacts.

Consideration

CNA has considered the cumulative impacts of the project in conjunction with those of surrounding mines. These have been discussed in the various preceding sections of this report.

Conclusion

The Department is satisfied that CNA has satisfactorily considered and assessed the cumulative impacts of the project on surface and groundwater, noise and dust, flora and fauna, and traffic impacts. The Department has recommended a range of conditions to ensure that the amenity of the environment and community would be protected from increased mining in the area.

The Department concludes that there is no significant reason relating to cumulative impacts of mining to withhold approval for the project.

4.12 Other Impacts

The project is likely to generate a range of other environmental impacts – including visual amenity and non-indigenous heritage impacts. However, these impacts are not predicted to be significant, and the Department is satisfied that they can be controlled, mitigated or managed through appropriate conditions of approval.

Table 9: Other Impacts

Issue	Features/Impacts	Assessment / Mitigating Factors
Visual Amenity	The HVO South project represents an extension to an existing operation, with increased visibility of mining operations and infrastructure for a small number of receptors, in a landscape that has included mining operations for over 50 years. Some unscreened and partial views of mining operations would be available to travellers on Jerrys Plains Road.	CNA has committed to continue to implement existing visual mitigation measures employed at HVO South, the most important being to ensure that progressive rehabilitation of the site is undertaken in a timely manner. Nevertheless, the Department has recommended conditions of approval that require CNA to undertake a visual impact assessment to determine if significant impacts are caused for residents and road travellers. Should any be identified, the company would be required to offer visual mitigation measures to these residents or to implement screening or other measures for road travellers. Final site rehabilitation plans include establishing native vegetation on 30% of the site, which would enhance the surrounding landscape from a visual perspective.
Lighting	Inappropriately designed and directed lighting has the potential to: • impact on residential amenity; and • increase night glow.	Lighting and light spill from buildings and operational areas would be designed, while having regard to safety requirements, so as to minimise stray light affecting residents of surrounding areas.
Mine Rehabilitation	The total area of disturbance would increase by 250 ha to 3230 ha. The project would result in 140 ha of native vegetation being cleared.	Impacts on native vegetation are considered in Section 5.5. CNA has developed an integrated life-of-mine plan that includes rehabilitation of mined lands. This plan would be refined towards the end of mining operations and includes final land use of agricultural production from grazing lands and native vegetation linked to remnant vegetation. The Department has recommended a condition of approval requiring the final rehabilitation of the site to the satisfaction of both DPI and the Department.
Non-Indigenous Heritage	The EA identified 18 heritage items/sites within or near the project area: • only 8 of these are listed as greater than 'potential heritage significance'. • other than by potential blasting impacts, no sites would be impacted. There are no items of National or State Heritage significance within the project area.	CNA undertook a historical heritage assessment of Warkworth airfield (site of HVGC facilities) which concluded that its heritage significance is established by archival records rather than existing physical attributes. This site would be unaffected by mining unless an agreement is reached with HVGC concerning amenity issues. Existing management measures would continue to be implemented across the project site to ensure heritage items listed in the EA are not impacted by the project.
Hunter Valley Gliding Club	Mining operations in the vicinity of HVGC's landing ground have the potential to affect the Club's ability to fly gliders safely from its facilities. The project could affect the general amenity of the Club's members whilst they are using its facilities.	The Department has recommended a condition of approval that ensures mining activities do not intrude above the obstacle limitation surface (OLS) prescribed by CASA. Noise impacts and their management for HVGC's facilities are addressed in Section 5.1. The Department has also recommended a condition of approval that requires CNA to develop an amenity management plan for the HVGC that identifies when the club's facilities would be in use and concentrates amenity mitigation measures to those times.
Traffic and Transport	Comleroi Road would be realigned without the need to alter its intersection with Jerrys Plains Road. All coal is proposed to be railed from the project site, either by use of the existing arrangements to transfer ROM coal to HVO North for despatch by rail or by the construction of either a rail spur line and a	The project would have a significant positive impact through the proposed surrender of CNA's approval to transport up to 4.4 Mtpa of product coal by trucks along Jerrys Plains Road to the Mt Thorley Coal Loader. The Department is satisfied that impacts from both rail transport options, particularly noise impacts, have been fully assessed and included in worst-case scenarios. The Department believes that, having considered the impacts

Issue	Features/Impacts	Assessment / Mitigating Factors
	coal loading point to the east of LCPP or a short rail spur line in the vicinity of the South Lemington Pit. Coal would be transported to this latter option either by conveyor or trucks. The number of workers estimated to travel to the site by the local road network is not expected to change significantly.	of both rail options, there should be no impediment to CNA's selection of either option. The small increase in light traffic numbers that would be generated by the potential employment of 50 additional employees and up to 100 short-term construction workers would be minor in nature and require no specific management measures. Proposed closures of Jerrys Plains Road to allow the movement of mining equipment between mines would be in accordance with management plans approved by RTA.
Waste Management	Inadequate management of industrial wastes may lead to contamination of surface water and groundwater, bushfires, injury to wildlife, and aesthetic and local amenity impacts.	CNA has committed to continue and improve its comprehensive waste management procedures existing at HVO South. These procedures would ensure that waste would continue to be reduced at source, reused where possible, recycled where practicable, and disposed of appropriately and responsibly.
Limits of Mining	The Proponent has sought approval to mine "all coal seams in the HVO South area to unlimited depth". However, its EA (particularly the groundwater assessment and the calculations of coal resources, product coal, waste rock and tailings) relates to a predetermined mine plan, which does not include proposed open cut mining of all seams present. Some seams are too deep to permit open cut mining.	The Department considers that the project approval should contain depth limits for mining in each open cut pit within HVO South. This should ensure that mining conducted under the approval does not cause impacts (particularly in the case of groundwater) which exceed the impacts predicted and assessed in the EA. Appropriate limits for mining are the base of the: • Bowfield Seam at South Lemington; • Vaux Seam at Riverview and Cheshunt; and • Bayswater Seam within Deep Cheshunt.

6. RECOMMENDED CONDITIONS

The Department has prepared recommended conditions of approval for the project. These conditions are required to:

- prevent, minimise, and/or offset adverse impacts of the project;
- set standards and performance measures for acceptable environmental performance;
- ensure regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.

The Department has provided the draft conditions of approval for the project to relevant government authorities for comment, and has incorporated these comments into the conditions of approval where appropriate. CNA has reviewed and accepts the recommended conditions.

7. CONCLUSION

The Department has assessed the project application, EA, submissions on the project, CNA's response to submissions report (in two parts) and further information from DWE regarding the company's response, and is satisfied that there is sufficient information available to determine the application. This assessment has found that the project would have a number of environmental impacts, most notably the noise and dust emissions and vegetation clearing of the proposed open cut mining operations and the potential cumulative impacts associated with the concurrent operation of other mines in the general vicinity of HVO South.

The Department has carefully considered the uncertainty of impacts for the waters of the Hunter River and its connected alluvium which would arise if CNA was permitted to reduce the buffer width from its mining operations from 150 metres to 100 metres. The Department does not believe that the EA provides sufficiently robust evidence to support the proposed reduction in buffer width. Accordingly, the Department has recommended that the buffer remain at 150 metres, but has allowed the opportunity for the company to seek out and present robust evidence for future consideration.

The Department is satisfied that the residual environmental and socio-economic impacts of the project can be adequately mitigated, managed, offset and/or compensated for. In this regard, the Department

has recommended a comprehensive range of environmental conditions to articulate these measures, including requirements to independently audit the environmental performance of the project, and to justify the ongoing operation of the project based on this performance.

The project would have a significant positive impact through the proposed surrender of CNA's existing approval to transport up to 4.4 Mtpa of product coal by trucks along Jerrys Plains Road to the Mt Thorley Coal Loader. All product coal from the HVO South project would be transported by rail.

In addition, the Department's assessment recognises the significance and need for the project in terms of securing domestic and international energy needs, bolstering the regional and NSW economies and generating employment in the State.

On balance, the Department believes that the project's benefits sufficiently outweigh its costs and that it should be approved, subject to conditions.

8. RECOMMENDATION

It is RECOMMENDED that the Minister:

- consider the findings and recommendations of this report;
- approve the project application, subject to conditions, under section 75J of the *Environmental Planning and Assessment Act 1979*; and
- sign the attached project approval (see Appendix B).



Chris Wilson
Executive Director
Major Project Assessment

11.3.09



Howard Reed
A/Director
Major Development Assessment

27.2.09



Sam Haddad
Director-General

11/3/2009

APPENDIX A - SUMMARY OF CONDITIONS OF APPROVAL

Aspect	Condition	Requirement(s)
Schedule 2: Administrative Conditions		
Minimising Harm	1	Obligation to Minimise Harm to Environment
Terms of Approval	2-4	Project to be carried out in accordance with project documentation
Limits of Approval	5	Approval for mining restricted to 21 years
	6-7	Restriction on production to 16 million tonnes of coal a year and depth limits to mining in each open cut pit
	8-9	Progressive submission of any environmental management plan or monitoring program and continued implementation of existing plans
	10	Obligation to surrender existing consents within 12 months
	11	Structural adequacy of buildings and structures
	12	Demolition
	13	Operation of plant and equipment
	14	Requirement for provision of development contributions
Dispute Resolution	15	Dispute resolution
Schedule 3: Specific Environmental Conditions		
Land Acquisition	1	Acquisition rights for significantly affected privately-owned land
Noise	2-3	Noise impact assessment and acquisition criteria
	4	Additional noise mitigation measures for noise affected properties
	5	Continual improvement of noise performance
	6	Noise Monitoring Program
Blasting	7-9	Blast impact assessment criteria
	10	Restriction on blasting hours
	11-15	Blast-related operating conditions, including restriction on number of blasts and blasting within 500m of privately owned land, requirement for Road Closure Management Plan and requirement for public notification of blasting operations
	16-17	Rights for structural property inspections for properties potentially affected by blasting
	18	Blast Monitoring Program
Air Quality	19-20	Air quality impact assessment criteria and acquisition criteria
	21	Additional air quality impact mitigation measures
	22	Requirement to minimise air quality impacts
	23-24	Air Quality Monitoring Program and meteorological monitoring
Surface and Ground Water	25	Restriction on discharging mine water from the site
	26	Protection of watercourses and provision of a buffer zone between mining operations and the Hunter River
	27	Site Water Management Plan
	28	Groundwater impacts report
Rehabilitation and Landscape Management	29	Requirement to implement an Offset Strategy and to arrange for long term security of the offset areas
	30-32	Requirements to protect and manage River Red Gum populations, Hunter Lowland Forest communities and Habitat Management areas
	33	Requirement for a contribution to a regional vegetation corridor strategic study
	34	Requirement to progressively rehabilitate the site
	35-38	Landscape Management Plan
	39	Requirement for Conservation and Biodiversity Bond
Heritage	40	Aboriginal Heritage Management Plan
Transport and Utilities	41	Requirement to keep records of coal transported from the site
	42	Public roads not to be used to transport coal
	43	Relocation of Comleroi Road
	44	Heavy vehicle crossing of Jerrys Plains Road
	45-46	Provisions for the construction of a coal conveyor and rail line spur
	47-49	Agreement and Management Plan for Hunter Valley Gliding Club
Visual Impact	50	Requirement to minimise mine's visual and lighting impacts
	51-52	Identification of affected properties and implementation of visual impact mitigation measures
Greenhouse Gas	53-54	Greenhouse and Energy Efficiency Plan
Waste Minimisation	55	Requirement to monitor and minimise waste
	56	Requirement to upgrade wastewater treatment system
	57	Waste not to be brought onto the mine
Hazards	58	Control of dangerous goods
	59-60	Bush fire control

Schedule 4: Additional Procedures

Notification of Landowners	1-3	Requirement to notify landowners of acquisition rights, exceedances of relevant criteria during monitoring, and the potential health and amenity impacts associated with exposure to fine particulates
Independent Review	4-9	Procedures for independent review if landowners believe the mine to be exceeding relevant impact assessment criteria
Land Acquisition	10-12	Procedures for land acquisition

Schedule 5: Environmental Management, Monitoring Auditing and Reporting

Environmental Management Strategy and Program	1	Preparation and implementation of a consolidated Environmental Management Strategy and Environmental Management Program
Incident Reporting	2-3	Requirement to report incidents
Annual Reporting	4	Annual Environmental Management Report
Auditing	5-7	Requirement to undertake regular independent environmental audits
CCC	8	Requirement for Community Consultative Committee
Access to Information	9-10	Requirement to publicly report environmental management plans/programs/strategies, and monitoring results

APPENDIX B – CONDITIONS OF APPROVAL

APPENDIX C - ENVIRONMENTAL PLANNING INSTRUMENTS

1 SEPP No. 33 – Hazardous and Offensive Development

The Department is satisfied that the project is not potentially hazardous or offensive, and that the proposal is generally consistent with the aims, objectives and provisions of SEPP 33.

2 SEPP No. 44 – Koala Habitat Protection

The EA states that there is no evidence of Koala activity, neither direct observation of koalas or indirect evidence (such as scats or scratches on tree trunks) from the study area. Further, koalas are not likely to occur in the project area, nor likely to be affected by the proposal. The Department agrees with CNA that the project is unlikely to significantly affect Koala habitat and is satisfied that the proposal is generally consistent with the aims, objectives, and requirements of SEPP 44.

3 SEPP No. 55 – Remediation of Land

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

4 SEPP (Infrastructure) 2007 (and former SEPP 11 – Traffic Generating Development)

In accordance with clause 104 of the Infrastructure SEPP (and the now repealed SEPP 11), the application was referred to the RTA. The matters raised in the RTA's submission on the project were considered by the Department during its assessment of the project and conditions of approval in respect of Jerrys Plains Road have been recommended by the Department.

5 SEPP (Mining, Petroleum Production and Extractive Industries) 2007

Although not required to consider the provisions of the Mining SEPP for the HVO South project because Director-General's requirements were issued prior to 16 February 2007, the Department has nevertheless considered its provisions.

Part 3 of the SEPP lists a number of matters that a consent authority must consider before determining an application for consent for development for the purposes of mining, including:

- compatibility with other land uses;
- natural resource management and environmental management;
- resource recovery;
- transport; and
- rehabilitation.

The Department has considered all of these matters in its assessment report. Based on this assessment, the Department is satisfied that the project is able to be managed in a manner that is generally consistent with the aims, objectives and provisions of the Mining SEPP.

6 Hunter Regional Environmental Plan (REP) 1989

Clause 7 of the Hunter REP requires the consent authority to consider the content of the Hunter REP background report and the objectives, policies and principles contained in the REP and relevant to the proposal. The objectives of the REP in relation to mineral resources are contained in clause 39 of the REP, including to:

1. *manage the coal and other mineral resources and extractive materials of the region in a co-ordinated manner so as to ensure that adverse impacts on the environment and the population likely to be affected are minimised,*
2. *ensure that development proposals for land containing coal and other mineral resources and extractive materials are assessed in relation to the potential problems of rendering those resources unavailable, and*

3. *ensure that the transportation of coal and other mineral resources and extractive materials has minimal adverse impact on the community.*

Clause 41(1) of the REP provides that the consent authority, in considering applications:

- (a) *should consider the conservation value of the land concerned and apply conditions which are relevant to the appropriate post-mining or extraction land use,*
- (b) *should, in respect of extraction from river banks or channels, ensure that instability and erosion are avoided,*
- (c) *should consult with officers of the Department of Mineral Resources, and of the Department of Agriculture, to determine appropriate post-mining or extraction land uses,*
- (d) *should ensure the progressive rehabilitation of mined or extracted areas,*
- (e) *should minimise the likelihood and extent of a final void and the impact of any final void, or facilitate other appropriate options for the use of any final void,*
- (f) *should minimise any adverse effect of the proposed development on groundwater and surface water quality and flow characteristics,*
- (g) *should consider any likely impacts on air quality and the acoustical environment,*
- (h) *should be satisfied that an environmentally acceptable mode of transport is available, and*
- (i) *should have regard to any relevant Total Catchment Management strategies.*

The Department has considered these matters in its assessment report. Based on this assessment, the Department is satisfied that project is able to be managed in a manner that is generally consistent with the aims, objectives, and provisions of the REP.

7 Singleton Local Environmental Plan 1996

The land subject to the application is zoned Rural 1(a) under the *Singleton Local Environmental Plan 1996*. Mining is permissible in this zone with consent.

APPENDIX D – CNA’S RESPONSE TO SUBMISSIONS

See attached CD entitled *Hunter Valley Operations South Coal Project Response to Submission Report* (July 2008) and *Additional Response to Submissions* (September 2008).

APPENDIX E – SUBMISSIONS

See attached CD entitled *Appendix E: Submissions*

APPENDIX F – ENVIRONMENTAL ASSESSMENT

See attached CD entitled *Hunter Valley Operations South Coal Project Environmental Assessment Report* (Jan 2008).