Review of Environmental Assessment

Tarrawonga Coal Project

Submission

Construction Forestry Mining and Energy Union (Mining and Energy Division) Northern District Branch

February 2012

On 1 March 2011 Tarrawonga Coal Pty Ltd (TCPL) applied to the Minister, Department of Planning seeking approval for the continuation and extension of operations at the Tarrawonga Coal Mine.

The Director General made the Environmental Assessment publicly available on the 24 January 2012 at the DoP Information Centre Sydney, Narrabri Shire Council, Gunnedah Shire Council, Boggabri RSL and Nature Conservation Council.

The Union is pleased to take the opportunity to comment on the Tarrawonga Coal Project and related activities Environmental Assessment.

The Mining and Energy Division is a Division of the CFMEU under the Federal Workplace Relations Act 1996, with over 120,000 members, one of the largest in Australia. The Division covers several industries including the coal industry, coal ports, metalliferous mining industries, electrical power generation, oil and gas and the Nation's small coking industry.

The Northern District Branch of the CFMEU Mining and Energy Division, being the branch that on behalf of the organisation which is making the submission is the principal Union representing coal miners in the Northern District Coalfields of New South Wales. The Tarrawonga operations is located approximately 15 kilometres north east of Boggabri and 42 kilometres north-northwest of Gunnedah and is wholly within the State's Northern District Coalfields.

The Union is familiar with the Tarrawonga facility site and has engaged the services of an Environmental Consultant with extensive experience in local government and environmental assessments on coal mining related projects.

After reviewing all the material and taking advice, the Union supports the Tarrawonga Coal Project as proposed.

Project Overview

The proposed life of the Project is 17 years, commencing 1 January 2013, or when necessary approvals are in place.

The main activities associated with the development of the Project would include:

- Continued development of mining operations in the Maules Creek Formation to facilitate a Project ROM coal production rate of up to 3 Mtpa, including open cut extensions:
  - to the east within Mining Lease (ML) 1579 and Mining Lease Application (MLA) 2; and
  - to the north within Coal Lease (CL) 368 (MLA 3) which adjoins ML 1579;
- ongoing exploration activities;
- construction and use of a services corridor (including haul road link) directly from the Project open cut mining operation to the upgraded Boggabri Coal Mine Infrastructure Facilities;
- use for upgraded Boggabri Coal Mine Infrastructure Facilities for the handling and processing of Project coal and the loading of Project product coal to trains for transport on the Boggabri Coal Mine private rail spur to the Werris Creek Mungindi Railway;
- construction and use of a new mine facilities area including relocation of existing mine facilities infrastructure and service facilities;
- use of an existing on-site mobile crusher for coal crushing and screening of up to 150 000 tonnes of domestic specification coal per annum for direct collection by customers at the mine site;
- use an existing on-site mobile crusher to produce up to approximately 90 000 cubic metres of gravel materials per annum for direction collection by customers at the mine site;
- progressive backfilling of the mine void being the advancing open cut mining operation with waste rock and minor quantities of coarse reject material;
- continued and expanded placement of waste rock in the Northern Emplacement (including integration with Boggabri Coal Mine emplacement) and Southern Emplacement, as mining develops;
- progressive development of new haul roads and internal roads, as mining develops;
- realignment of sections of Goonbri Road and construction of new intersections;
- construction of an engineered low permeability barrier to the east and south-east of the open cut to reduce the potential for local drainage of alluvial groundwater into the open cut;
- removal of a section of Goonbri Creek within the Project open cut and the establishment of a permanent Goonbri Creek alignment and associated flood bund to the east and south-east of the open cut;
- progressive development of sediment basins and storage dams, pumps, pipelines and other water management equipment and structures;
- continued development of soil stockpiles laydown areas and gravel/borrow areas;
- ongoing monitoring and rehabilitation; and
- other associated minor infrastructure, plant, equipment and activities.

Approximately 50.5 Mt of ROM coal would be mined from the open cut during the life of the Project.

In Project Year 1 only, or until approvals and upgrades are in place for the transfer of Project ROM coal to the Boggabri Coal Mine Infrastructure Facilities, the Project would make continued use of the existing on-site ROM coal handling areas, coal crushing, screening and load out facilities. Road transport of sized ROM coal to the Whitehaven CHPP would also continue in this initial period (with no increase in the current maximum off-site coal trucking rate).

Key Mining Operations of Potential Relevance to the Interactions with the Project.

Boggabri Coal Pty Ltd (BCPL) owns the existing Boggabri Coal Mine, which is an open cut coal mine located immediately to the north of the Tarrawonga Coal Mine in CL 368.

ROM coal is currently crushed on-site and transported by truck via a 17km private haul road to the rail load out facility at the Boggabri Terminal, located to the south-west of the Boggabri Coal Mine on the Werris Creek Mungindi Railway.

The Boggabri Coal Mine is approved to produce up to 3.5 Mtpa of ROM coal until the end of December 2013 under its DA 36/88 as modified in October 2011.

In October 2009, BCPL submitted a Project Application for the Continuation of Boggabri Coal Mine to the DP&A.

The Continuation of Boggabri Coal Mine would involve open cut mining for a further 21 years at a production rate of up to 7 Mtpa.

BCPL is also seeking approval for modified and additional site infrastructure facilities including:

- upgrades to the existing ROM pad;
- construction of a CHPP and bypass crusher;
- upgrades to the product stockpile area and product reclaim system; and
- construction of a 17km private rail spur, rail loop and rail out facility which would connect to the Werris Creek Mungindi Railway and enable the transport of product coal directly from the mine.

Whitehaven and BCPL have entered into an agreement that enables the handling, processing and transportation of Project coal at the upgraded Boggabri Coal Mine Infrastructure Facilities and private rail spur.

Under this agreement BCPL would handle and process Project ROM coal at the upgraded Boggabri Coal Mine Infrastructure Facilities and associated CHPP on a campaign basis.

Project product coal would also be separately loaded to trains for transportation to the Port of Newcastle via the Boggabri Coal Mine private rail spur and Werris Creek Mungindi Railway.

The Project Northern Emplacement would also be extended to the north and east within MLA 3 to integrate with the southern extent of the Boggabri Coal Mine waste rock emplacement.

The Whitehaven CHPP currently receives sized ROM coal from the Tarrawonga, Rocglen and Sunnyside Coal Mines.

Once approval and upgrades are in place for the transfer of Project ROM coal to the Boggabri Coal Mine Infrastructure Facilities, Project sized ROM coal would no longer be trucked to the Whitehaven CHPP.

Consultation

The Project consultation program according to the proponent has been comprehensive and has assisted with the identification of issues that are of concern or interest to stakeholders.

NSW Government agencies were consulted during the preparation of the Environmental Assessment, including presentation of various refinements to the Project, key findings of the Environmental Assessment studies and design considerations for Project environmental mitigation measures.

A number of meetings were held with representatives of Narrabri Shire Council and Gunnedah Shire Council during the development of the Environmental Assessment. Discussions included potential impacts on the road network and potential financial contributions.

The Project was declared to be a 'controlled action' for the purposes of the Commonwealth Environment Protection and Biodiversity Conservation Act 1999. Various presentations and discussions were held with the Commonwealth Department of Sustainability, Environment, Water, Population and Communities.

A Project community information day was held in October 2011, and TCPL has consulted with the local community through the Tarrwonga Coal Mine CCC. In addition, TCPL has consulted with local landholders who participated in the Project bore census and landholders in the immediate vicinity of the mine with regard to noise/air quality management and potential property acquisitions. TCPL also discussed the Project with Maules Creek CCC representatives at the community information day.

Aboriginal community consultation was undertaken in accordance with Aboriginal cultural Heritage Consultation Requirements for Proponents 2010. Nine registrations of interest were received from

Aboriginal stakeholders and these stakeholders were invited to participate in the Project Aboriginal Cultural Heritage Assessment.

Where relevant to the Project, the issues raised by the parties above during the consultation program have been considered during the preparation of the proponents EA.

Groundwater

A Groundwater Assessment for the Project was undertaken by Heritage Computing and peer reviewed by Kalf and Associates.

The Project groundwater and surface water studies and the conceptual design of the low permeability barrier and permanent Goonbri Creek alignment have been undertaken in an integrated manner.

The Groundwater Assessment has evaluated the potential impacts of the Project on groundwater resources using a numerical regional groundwater model.

The Groundwater Assessment also included consideration of the cumulative impacts of the Project, Continuation of Boggabri Coal Mine, Maules Creek Coal Project and Rocglen Coal Mine.

The two relevant groundwater systems are:

- Porous Rock groundwater system – including the coal measures of the Maules Creek Formation; and
- Alluvial groundwater system – associated with the low lying floodplains of the Upper Namoi.

Modelling was also used to estimate the potential magnitude of annual groundwater inflows to the open cut over the life of the Project (and post-mining) from these two systems for the purposes of water licensing and water management planning.

Alluvial sediments associated with the Bollol Creek, Goonbri Creek and Nagero Creek surface drainages exist to the east, south and west of the Project area.

A low permeability barrier would be constructed using a soil-bentonite mixture in the alluvial sediments in order to meet the following design objectives:

- Minimise the potential for local drainage of alluvial groundwater into the open cut during operations and post mining;
- Minimise the potential for future instability of the open cut betters formed in the alluvium;
- Maintain the hydraulic character of Goonbri Creek by minimising the potential loss of base flow; and

- Maintain the value of alluvial groundwater, by minimising potential interactions with the mine final void, post-mining.

The low permeability barrier would also reduce the potential for impacts on the beneficial use of regional groundwater resource in the long term.

Average groundwater inflows to all four mines during the Project period are predicted to be approximately 2% of all groundwater discharge.

Based on the numerical modelling and experience at other similar projects in NSW, Heritage Computing concluded that the potential cumulative impact on the alluvial groundwater system or groundwater yield to privately owned bores in the alluvial groundwater system is expected to be negligible.

No measurable changes in the quality of groundwater are predicted to occur as a consequence of mining. As a result, there would be negligible impact on surface water quality in the local creeks due to the interaction of surface water flows and groundwater.

The performance of the low permeability barrier would be assessed during the life of the Project and the existing Surface Water and Groundwater Response Plan would be reviewed and revised to incorporate the Project.

TCPL proposed to establish, in co-operations with the adjoining Boggabri Coal Mine and the Maules Creek Coal Project, a regional monitoring program for groundwater resources.

Surface Water

A Surface Water Assessment for the Project was undertaken by Gilbert & Associates.

Permanent Goonbri Creek Alignment

The permanent Goonbri Creek alignment would be constructed in a manner so as to avoid and minimise any disruption to flows reporting to the downstream portions of Goonbri Creek.

The Project would involve the removal of a 3 kilometre section of Goonbri Creek within the Project open cut and the establishment of a permanent Goonbri Creek alignment and associated flood bund to the east and south-east of the open cut.

The design objectives for the permanent Goonbri Creek alignment comprise of:

- Installation of a low flow channel that approximates the existing section of Goonbri Creek upstream of the Project in terms of stream geometry, hydrology and geomorphology;

- Creation of a low flow channel that mimics the meandering path of the existing alignment of Goonbri Creek;
- Minimisation of disturbance to the upstream reaches of Goonbri Creek; and
- Provision of a stable transition back to the existing creek alignment.

The Project would result in changes to flows in local creeks due to the progressive extension of the open cut and associated capture and re-use of drainage from operational disturbance areas and controlled releases from licensed discharge points. Changes to groundwater base flow contributions to local creeks were also identified as a potential impact of the Project.

Prior to the open cut advancing into this section of Goonbri Creek, the permanent Goonbri Creek alignment would be established to the east of the open cut.

Water quality sampling of sites on Goonbri Creek would continue to be event based. In order to monitor the geomorphic performance of the permanent Goonbri Creek alignment, erosion and condition surveys would be conducted for the first five significant flow events following its commission.

Flooding

The Project area is predominantly on land with elevations greater than 275m AHD, and therefore would be above any conceivable flooding of the Namoi River. Lower sections of the Project site could however be affected by extreme flooding from Bollol/Goonbri Creeks and would be protected by both temporary and permanent flood bunds.

The impacts of the flood bunds and Goonbri Creek re-alignments on the adjacent and downstream floodplain would be minimal.

Changes in Contributing Catchment

The surface water flow regimes in Nagero Creek and Bollol/Goonbri Creeks would be affected by progressive changes in catchment area as a result of runoff capture in Project disturbance areas and controlled releases from licensed discharge points.

The Maximum predicted impact over the life of the Project when compared to the total catchment of the Namoi River is 0.02%.

Following the completion of rehabilitation post-mining, only the catchment area of the final void would remain excised from the Namoi River catchment. (approximately 155ha or 0.004% of the total catchment of the river).

The Surface Water Assessment included an evaluation of the cumulative impacts of the Project and the Continuation of Boggabri Coal Mine and Maules Creek Coal Project.

It is concluded that potential impacts of the Project on Goonbri Creek (incorporating the permanent Goonbri Creek alignment), Bollol Creek and Nagero Creek would be negligible and therefore the downstream potential impacts on the Namoi River would be negligible.

Noise and Blasting

A Noise and Blasting Impact Assessment for the Project was undertaken by consultants Wilkinson Murray. The Project would operate 24 hours and seven days per week.

An acoustic model was developed by the consultants which simulates the Project components and predicts noise levels at relevant receiver locations.

A number of iterative steps were undertaken to develop noise mitigation measures for the Project which resulted in the adoption of the following controls:

- Installation of an earth bund on the southern side of exposed sections of the ROM coal haul road to the Boggabri Coal Mine;
- Modification of the alignment of haul routes to reduce their exposure relative to nearby receivers; and
- A reduction in the number of mobile fleet items operating during the evening and night time periods.

With these measures in place, the operational noise assessment indicates:

- During the daytime, operational noise from the Project would comply with the relevant criteria at all privately-owned residences;
- Operational noise from the Project would also comply with relevant criteria during periods of calm meteorological conditions at night; and
- During evening and night-time periods with adverse meteorological conditions, operation noise would exceed the relevant criteria at three privately owned residences.

Cumulative noise impacts resulting from the concurrent operation of the Project, Continuation of Boggabri Coal Mine and the Maules Creek Coal Project were also assessed. This assessment indicated that cumulative noise levels would comply with the night-time recommended maximum amenity criteria at all receivers, and with the night-time recommended acceptable amenity criteria for all but two privately owned receivers.

TCPL proposes to establish, in co-operation with the adjoining operations, a cumulative noise monitoring program. The existing Noise Management and Blast Management plans will be revised to address the Project.

Air Quality

An Air Quality and Greenhouse Gas Assessment for the Project was undertaken by consultants PAE Holmes. Modelling was used to assess potential air quality impacts associated with the Project.

Emissions inventories were prepared for the Project in consideration of the anticipated mining activities including coal extraction, waste rock removal rates, haul road distances and routes, stockpile and pit areas and equipment operating hours. Best practice air quality management measures were considered by the consultants in the development of the Project emission inventories.

No exceedance of the OEH criteria was predicted at any privately owned residence for the Project Years 2,4,6 and 16 for PM_{10} concentrations, TSP concentrations or dust deposition levels.

In addition, no exceedances of the OEH annual average criteria for PM_{10} and TSP concentrations and dust deposition are predicted when accounting for background concentrations and levels.

Potential Cumulative Impacts

Annual Average PM_{10}

The annual average PM_{10} concentration at one privately owned receiver 45 is predicted to exceed the OEH annual average criterion due to the cumulative contributions of Boggabri Coal Mine, the Maules Creek Coal Project and background levels.

It is noted that the predicted contribution from the Project (7µg/m^3) at this receiver is less than half of the predicted contribution from the Continuation of Boggabri Coal Mine (15µg/m^3).

24-hour Average PM_{10}

Potential cumulative 24-hour PM_{10} impacts have been considered by consultants for receivers to the south of the Project.

During winds from the northern quadrant, receivers to the south of the Project would potentially be cumulatively impacted by mining operations from both the Project and the Continuation of Boggabri Coal Mine, given its location to the immediate north of the Project.

The Maules Creek Coal Project would not be a significant contributor to cumulative 24-hour average PM_{10} impacts in the vicinity of the Project, given its location and observed variation in meteorological conditions. Between the Project site and the Maules Creek Coal Project site.

This was confirmed by indicative modelling predictions for the Maules Creek Coal Project, which indicated that this Project is not a significant contributor to cumulative impacts at receivers to the south of the Project.

To provide a conservative assessment, the maximum 24-hour PM_{10} concentrations predicted for the Project have been added to the maximum concentrations predicted for the Continuation of Boggabri Coal Mine to predict the potential cumulative impacts for receivers to the south of the Project.

The results indicate:

- Receiver 45 exceeds the 50 µg/m^3 criterion as a result of the Continuation of Boggabri Coal Mine alone (i.e. this receiver already exceeds the criteria without the Project emissions);
- Cumulative impacts would potentially occur at receiver 44a to the south of the Project; and
- Cumulative impacts are not expected at receivers located to the south-east and south-west of the Project.

TCPL proposes to contribute to a local network of real-time PM_{10} monitors which would be used to assist with management of potential short-term cumulative PM_{10} impacts.

Annual Average TSP

No exceedance of the OEH annual average TSP criterion is predicted at any privately owned residence due to the cumulative contributions from the Project, the Continuation of Boggabri Coal Mine, the Maules Creek Coal Project and background levels.

Blasting activities also have the potential to result in fugitive fume and particulate matter emissions. The existing Blast Management Plan will be revised to include measures for the minimisation of fume and particulate matter emissions from Project blasts.

Greenhouse Gas

The potential for reducing greenhouse gas emissions at the Project is related predominantly to consumption of diesel use by plant and equipment.

TCPL continues to run a fleet of (diesel/electric) haul trucks which have proven to burn less diesel fuel as compared to the standard mechanical drive.

The revegetation of previously cleared areas at the proposed Project biodiversity offset would also assist with reducing the Project's net greenhouse gas emissions. The revegetation in the biodiversity offset area would be in addition to the extensive on-site vegetation of Project disturbance areas.

Flora

A Flora Assessment was prepared for the Project by Dr. Colin Bower of FloraSearch.

The Project would require the progressive removal of approximately 397 ha of native vegetation. Of this area, approximately 145 ha occur within the Leard State Forest, which equates to approximately 1.9% of its total area.

Approximately 13 ha of the Box-Gum Woodland EEC/CEEC would be cleared for the Project. This area would include:

- 5 ha of the mature form of White Box-White Cypress Pine grassy woodland, located along a portion of the Goonbri Rd reserve and within a grazing paddock.
- 5 ha of the semi-cleared and regenerating forms of the previously detailed community.
- 3 ha of the derived native grassland form of previously detailed community in a paddock previously used for grazing and cropping.

One vegetation community within the Project area and surrounds is considered to be potentially groundwater dependent (Bracteate Honey myrtle low riparian forest). This vegetation community occurs along the 3km long portion of Goonbri Creek that is located within the proposed open cut extension, and as a result approximately 15 ha of it would be cleared during mining operations. This would result in a local loss in biodiversity in this section of Goonbri Creek. However, this vegetation community also occurs to the north and south of the Project area. In addition an equivalent length of stream would be recreated and revegetated with this community in the permanent Goonbri Creek alignment, and TCPL would implement a riparian enhancement program for a further 3.2km below the re-aligned section.

The permanent Goonbri Creek alignment and low permeability barrier have been designed to minimise changes/disruption to the near surface groundwater flow along the retained sections of Goonbri Creek and associated alluvium, which would minimise the potential impacts of the Project on flora upstream and downstream of the Project during operations and post-closure.

Consequently, there is expected to be negligible drawdown to the aquifers of the alluvial groundwater system outside of the low permeability barrier and as a result groundwater dependent vegetation outside the Project disturbance footprint would be protected.

The failure to establish riparian habitat within the permanent Goonbri Creek alignment was identified as a risk. This risk would be managed by installing and revegetating the new section of the creek two to three years before it is required in Year 15. The revegetated sections would be monitored and remedial works conducted as required to maximise revegetation success.

No threatened floras have been recorded in the Project area, however three species were considered by consultants to have a medium to high potential to occur. The flora assessments undertaken conclude that the Project would be unlikely to significantly affect any threatened flora species listed under the TSC Act or EPBC Act.

The Project, Continuation of Boggabri Coal Mine and the Maules Creek Coal Project would all result in direct impacts on flora of Leard State Forest. If approved (and including disturbance associated with the currently approved Boggabri Coal Mine), the Continuation of Boggabri Coal Mine and the Maules Creek Coal Project would collectively clear approximately 1 802 ha and 992 ha respectively, or a total of 37.4% of the Leard State Forest. The Project includes the clearing of approximately 145ha of additional vegetation within the Leard State Forest. This equates to 1.9% of the total area or 3.1% of the residual area, should the Continuation of Boggabri Coal Mine and the Maules Creek Coal Project be approved.

The Project contribution of vegetation clearance within the Leard State Forest is considered to be small when compared against these other mining proposals. In addition the scale and nature of clearing required by the Project is considered to be minor when compared with past and current land clearing/disturbance processes throughout the region associated with agriculture.

The biodiversity offset for the Project is located on freehold land owned by Whitehaven, and is situated approximately 20km to the north-east. The proposed biodiversity offset is a portion of the former "Willeroi" property. It adjoins Mount Kaputar National Park to the west, and prior to its recent purchase by Whitehaven was used for agricultural purposes, mainly grazing.

The proposed biodiversity offset is considered to be a suitable offset against the residual flora and fauna impacts associated with the Project. Particularly given the anticipated improvement in

the flora and fauna habitat value that could be reasonably expected in the biodiversity offset over the medium to long-term.

Fauna

A Fauna Assessment was prepared for the Project by consultants Resource Strategies and Cenwest Environmental Services.

The Project area would be cleared progressively over the 17 year mine life, but would be accompanied by progressive rehabilitation of woodland/forest and riparian areas. The aim would be to reinstate cleared habitats over the medium to long-term.

Leard State Forest, and the adjoining Leard State Conservation Area, contains a large area of woodland and forest habitat that is relatively isolated in a predominantly agricultural landscape in the Liverpool Plains CMS Sub-region. Its uniqueness in the landscape adds to its conservation value, and its isolation means that cumulative impacts on its habitats are likely to adversely impact both resident fauna populations as well as species that may use Leard State Forest primarily as a movement pathway.

The portion of the proposed Project area (145 ha) that would impact Leard State Forest is elongated, relatively narrow, and located on the mid-southern edge of the forest. This area is situated between two existing mining operations and has lost habitat connectivity to the west, north-west and south-west.

A total of 30 threatened fauna species are considered likely to be affected or have the potential to be affected to some degree by the Project, either through loss of known or potential habitat and/or direct loss of individuals.

The Project would result in the removal of known habitat for the following resident species recorded on-site:

- Turquoise Parrot – a moderately abundant parrot, both inside and outside of Leard State Forest.
- Masked Owl – sparsely distributed owl that occupies a large territory in breeding pairs.
- Brown Treecreeper – a small bird that depends on large areas of continuous woodland and open forest habitat.

- Speckled Warbler – a bird that requires large areas of continuous woodland and open forest habitat with a well developed grassy, part shrub understorey.
- Hooded Robin – a woodland bird that inhabits woodland, a dry forest and semi-cleared farmland.
- Grey crowned Babbler – a woodland bird that occupies open woodland, edge habitats and farmlands with isolated trees.
- Varied Sittella – a small bird that resides in woodland and dry forest.
- Squirrel Glider – a hollow dwelling mammal usually located in a range of woodland and forest habitats.
- Yellow-bellied Sheathtail bat – a hollow dwelling bat than can inhibit a variety of habitats.

None of these species are confined to the Project area since there are records of each outside of the Project area. Furthermore it is considered likely that sufficient connectivity currently exists between the habitats within and outside of the Project area to enable the movement of these species between areas.

The main potential impact of the Project on fauna is considered to be the loss of habitat and the cumulative impact on the surrounding environment in particular Leard State Forest.

Each of the three developments that would impact Leard State Forest the Project (1.9%), proposed Continuation of Boggabri Coal Mine (24.1%) and Maules Creek Coal Project (13.3%).

The cumulative impacts on habitat and fauna without consideration of the proposed mitigation outcomes would likely result in adverse changes to the resident fauna populations, including some threatened fauna species.

Road Transport

A Road Transport Assessment for the Project was undertaken by consultants Halcrow.

The Project would reduce the vehicle kilometres travelled by coal trucks transporting sized ROM coal from the Tarrawonga Coal Mine to the Whitehaven CHPP by approximately 3.6 million vehicle kilometres travelled per year, once suitable approvals and upgrades are in place for the

transfer of ROM coal to the Boggabri Coal Mine. This reduction in truck movements would improve the efficiency of the relevant roads for the remaining road users.

The Project life would be approximately 17 years. In order to conservatively consider the potential impacts of the Project in context of potential background traffic growth and traffic growth associated with other proposed projects, an annual baseline growth rate and the expected traffic generation from key projects was considered.

The ROM coal road transport route intersects with the Kamilaroi Highway at the Whitehaven CHPP access road and the intersection with Blue Vale Road. The two intersections are each tee intersections, with the Kamilaroi highway being the road with priority.

The intersections are both constructed to a good standard with deceleration and acceleration lanes to accommodate the slower moving coal trucks.

The extent of the Project open cut and mine waste rock emplacements would require the realignment of sections of Goonbri Road and establishment of a new intersection with Dripping Rock Road to provide for continued public accessibility around the southern and eastern extents of the Project. All new roads and intersections will be designed and constructed in accordance with Narrabri Shire Council and the RTA.

The Union has been approached by members requesting as part of the Project an unsealed portion of Boggabri/Manilla Rd be sealed. Whilst acknowledging this four kilometre stretch of unsealed road may be outside the Project boundaries, consideration should be given to this request as part of the proposed Project road upgrades.

Visual

A Visual Assessment for the Project was undertaken by consultants Urbis.

The major aspects of the Project considered to have the potential to impact on the visual landscape include:

- Modification of topographic features including:
    - The extension of the open cut;
    - The extension of the Northern and Southern Emplacements;

    - A temporary increase in height of the Southern Emplacement prior to a reduction in final height during rehabilitation;
    - Construction of the permanent flood bund;
    - Construction of the noise control earth bund;
    - Establishment of the permanent Goonbri Creek alignment.
- Re-alignment of sections of Goonbri Road; and
- Extension of lighting associated with extended night-time mining operations.

The low level of visual modification coupled with the low visual sensitivity at the "Bellevue" dwelling means a low level of potential visual impact would be expected. With progressive and final rehabilitation the level of visual impact would reduce to very low.

The moderate level of visual modification coupled with the moderate visual sensitivity at the "Coomalgah" dwelling, and a moderate level of potential visual impact would be expected. The level of visual impact is expected to reduce to low following progressive and final rehabilitation of the Project landform components.

The low to moderate level of visual modification coupled with the high visual sensitivity at the "Ambado" dwelling means a moderate to high level of potential visual impact would be expected. As detailed previously this will be reduced to low with progressive and final rehabilitation works.

There are no privately-owned dwellings within the Project local setting.

The Project would vary the potential effects of existing Tarrawonga Coal Mine night-lighting. The Project would include an increase in the mine fleet and operational hours and consequently there would be an increase in mobile vehicle mounted night lighting effects.

However, the nature of the night-lighting for the Project would be similar to the existing night-lighting at the Tarrawonga Project.

Vegetation screens would be established on the permanent flood bund, noise control earth bund and along the re-aligned sections of Goonbri Road to reduce potential views of Project landforms. For the realigned sections of Goonbri Road, the vegetation screens would be planted

in advance of the realignment works, in order to reduce direct views of the Project once the realignments are completed.

Aboriginal Heritage

An Aboriginal Cultural Heritage Assessment (ACHA) was undertaken for the Project by consultants Kayandel Archaeological Services.

The ACHA used relevant information from previous assessments and the results of the Project field surveys and associated consultation with the Aboriginal community.

No Aboriginal heritage sites of high archaeological significance were recorded. However 12 sites of moderate archaeological significance and 49 sites of low archaeological significance were identified.

No Aboriginal heritage sites within the Project area or immediate surrounds are listed on the NSW State Heritage Inventory or the Australian Heritage Database.

The Project would result in the disturbance of 38 known Aboriginal Heritage sites and the possible disturbance of an additional sire due to its proximity to the proposed Project.

These sites are located either within the footprint of the proposed open cut, Goonbri Creek permanent alignment and associated flood bund and low permeability barrier, road realignments or the mine waste rock emplacements and would therefore be subject to direct disturbance by the Project.

The mitigation, management and monitoring measures developed by the proponent have been developed in consultation with the registered Aboriginal stakeholders and in consideration of the cultural and archaeological significance of the Aboriginal heritage sites to be impacted.

Non-Aboriginal Heritage

A Non-Aboriginal Heritage Assessment for the Project was undertaken by consultant Dr Michael Pearson of Heritage Management Consultants.

The former Blair Athol school house residence has been relocated to Boggabri for ongoing use as a residence and therefore, would not be impacted by the Project.

The survey marker (H10) is located approximately 500m south-east of the proposed road realignment and approximately 1km south-east of the proposed open cut extent. This item would not be directly impacted by the Project and potential impacts from blasting induced vibration are expected to be minimal.

Project Justification

The Project's location maximises the use of TCPL's existing facilities and enables the use of Boggabri Coal Pty Ltd's coal loading and rail transport infrastructure.

The EA has considered the Project in terms of potential impacts to the environment, and in particular, the extent to which potential impacts may pose a significant risk to the environment. Specialist impact assessments have been undertaken in areas where potential impacts were uncertain or unable to be quantified otherwise.

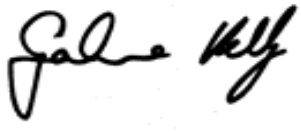
The Tarrawonga Coal Project is located in an area with a history of open cut coal mining. The objective of the Project is to continue environmentally responsible mining operations at the Tarrawonga Coal Mine.

Undertaking the Project in the proposed manner, including the implementation of identified safeguards, is justified taking into consideration potential environmental impacts. The assessment of the potential impacts of the environment demonstrates the environmentally acceptability of the Project, provided the recommended safeguards are implemented, and indicates there would be no significant adverse physical, biological, social or cultural impacts. The Project would have significant economic and social benefits and is aligned with the principles of ESD.

In Summation

Based on the assessment of environmental and socio-economic considerations which has been multi-disciplinary and involved consultation with the DP&I and other relevant stakeholders, the Tarrawonga Coal Project is anticipated to pose negligible additional environmental impacts when assessed cumulative with other neighbouring operations.

The Union considers that on balance, the Tarrawonga Coal Project is consistent with the objectives of the EP&A Act, and therefore supports the proponent's application and asks that the application be approved in the manner sought by the Proponent.



Grahame Kelly
DISTRICT SECRETARY