

Executive summary



Executive Summary

ES1 Context to the proposal

Development consent for the Mount Thorley Operations 2014 (the proposal) is required to prevent the sterilisation of coal resource that is approved for extraction but cannot be mined during the current consent period. It would also enable the ongoing provision of services to the adjacent Warkworth Mine which is critical to the viability of both mines.

The Mount Thorley Operations (MTO) development consent No. DA 34/95 (the development consent) was issued by the then Minister for Urban Affairs and Planning on 22 June 1996 and expires on 22 June 2017. The proposal seeks to extend the time for approved mining that has occurred slower than anticipated beyond 2017, due to mining in Loders Pit (the focus of extraction at MTO) being delayed for approximately three years due to a significant rain event in June 2007.

On the completion of mining, the MTO would continue to provide valuable services to Warkworth Mine including emplacement of overburden material to enable an improved final landform at MTO (including filling of the Loders Pit void, thereby preventing a post-closure final void) and the processing of coal in the MTO coal preparation plant.

The economic significance of the resource was a consideration in the granting of the development consent in 1996. The proposal would prevent the sterilisation of approximately 28.6 million tonnes (Mt) of run-of-mine (ROM) coal. Notwithstanding the volume of coal to be extracted under the proposal, MTO continues to provide social and economic benefits by enabling more time to extract the economic resource, while providing services critical to the viability of Warkworth Mine. Hundreds of millions of dollars have been invested in MTO since it commenced operations in 1981 and, as an existing mine, it has established access to product transport and distribution infrastructure such as road, rail and port.

The continued operation of the Mount Thorley Warkworth (MTW), which is comprised of MTO and the adjacent Warkworth Mine, has significant social and economic benefits in the form of continuing employment for a workforce of approximately 1,300 persons on average, net economic benefits of some \$1.5billion and royalties of some \$617million. The economic benefits attributable to the MTO include continuing employment for a workforce of approximately 121 persons, \$297million in direct expenditure and some \$50million in royalties.

ES2 Background to the proposal

The MTO is an existing open cut coal mine approximately 10.5 kilometres (km) south-west of Singleton in the Hunter Valley.

The proposal seeks to extend the time for approved mining that has occurred slower than anticipated beyond 2017 under Part 4, Division 4.1 of NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposal would enable the extraction of the resource approved for mining, continued use of existing mining infrastructure, and the transfer of additional overburden from Warkworth Mine to complete the final landform for an additional 21 years from the date of any approval. The proposal does not involve any additional disturbance beyond that currently approved under the development consent.

The MTO and Warkworth Mine are owned by different entities. This separate ownership is reflected in each mine having its own standalone mining leases and development consent. Coal & Allied is the main shareholder in each mine and has been appointed by the respective owners to manage the mines as an integrated operation. A single management team for the adjoining mines provides various cost savings across each operation by way of integration. Further, equipment, personnel, water, rejects and coal preparation are shared and provide significant synergies for both operations. The MTW operation has a workforce of approximately 1,300 persons on average, which includes full-time contractors.

It is noted that a separate development application for the Warkworth Continuation 2014 under Part 4, Division 4.1 of the EP&A Act has been lodged at the same time as the DA for the proposal. The Warkworth Continuation 2014 would enable, amongst other aspects, the extension of mining at Warkworth Mine beyond the current spatial limits of approval and of the mine life, with the consent life for this proposal being aligning with the timeframe contemplated under the Warkworth Continuation to enable the continued integrations of the two operations.

ES3 Impact assessment

A summary of predicted impacts from the proposal after the implementation of the proposed avoidance, management and mitigation is provided below.

ES3.1 Noise

Acoustic engineers worked collaboratively with mine planners to ensure noise amelioration measures were incorporated into the mine design where reasonable and feasible. The effectiveness of these measures was continually tested in an iterative process with mine planners until adverse modelling predictions at assessment locations were minimised to the maximum extent that is feasible and reasonable.

A noise and vibration study was undertaken for the proposal in accordance with the Industrial Noise Policy (the INP, EPA 2000). The study was independently peer reviewed with the outcomes reflected in the final study. The findings of the study were:

- all reasonable and feasible measures have been applied to control noise from MTO;
- the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP) non-discretionary standard for cumulative amenity noise levels at privately-owned residential dwellings is met for Bulga village and, therefore, noise impacts are below the acceptable noise levels and amenity of the village should not be reduced;
- the determining factor for the project specific noise levels (PSNLs) for all residences is the intrusiveness criteria. Background levels have been determined in full compliance with the required processes in the INP for setting background levels;
- a significant exceedance (>5dB(A)) of the PSNL is predicted to occur at one assessment location at Mount Thorley Industrial Estate (149) which is currently afforded acquisition rights from MTO under the development consent. It is noted that operational noise levels from the proposal are not expected to be materially different from current noise levels for locations east of the mine given relatively no changes to current activities in the eastern parts of the mine site;
- noise levels would be within 1 or 2dB of the PSNLs for the majority of the residences at Bulga. Current government practice is not to accord mitigation rights to residences unless noise levels are greater than 3dB(A) above PSNLs;

- low frequency noise levels predicted from the proposal meet current Government policy requirements. Noise levels are predicted to meet relevant Broner criteria for low frequency noise and INP criteria for sleep disturbance at representative assessment locations; and
- cumulative noise levels would satisfy the INP (and Mining SEPP) night time criterion at all but two representative assessment locations in Warkworth village (77) and Mount Thorley (146). As these are representative locations, the criterion is also likely to be exceeded at two neighbouring locations in Warkworth village (102 and 264) and two neighbouring locations in Mount Thorley Industrial Estate (144 and 915). It should be noted that these assessment locations are currently afforded acquisition rights from MTO or Wambo Mine with the exception of 264, which is inferred to have acquisition rights from Wambo Mine but is not currently included in its approval.

Overall, no additional privately-owned receivers would be significantly impacted due to predicted noise impacts under the proposal.

A noise management system is currently implemented at MTW which consists of real-time and attended noise monitoring, administration, substitution and elimination controls, engineering measures, and a commitment to continuous improvement. These management practices would continue under the proposal. Compliance assessment monitoring for MTO, including independent reviews, have demonstrated a high level of compliance with noise criteria.

ES3.2 Air Quality

An air quality and greenhouse gas study was undertaken for the proposal in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (DEC 2005b). The findings of the study were:

- all reasonable and feasible measures have been applied to control dust from MTO;
- air quality impacts would be primarily experienced at Warkworth village due to mining activities moving closer as the mine plan progresses westwards;
- the Mining SEPP's non-discretionary standard for cumulative air quality at privately-owned residential dwellings is met at all but two assessment locations (77 and 264). These assessment locations, and one non-residence (102 – Warkworth Hall), may experience concentrations above the relevant air quality goal for annual average PM₁₀ (particulate matter with a diameter of 10µm or less). Assessment location 77 is currently afforded acquisition rights from Wambo Mine. Assessment location 264 is inferred to have acquisition rights from Wambo Mine but is not currently included in its approval;
- the Mining SEPP's non-discretionary standard for cumulative air quality at privately-owned residential dwellings is met for Bulga village and, therefore, air quality impacts are below the acceptable air quality concentrations and amenity of the village should not be reduced;
- dust from mining is generally coarse in fraction (> PM_{2.5}) whereas the fine fraction dust (< PM_{2.5}) of concern to human health typically originates from combustion sources;
- cumulative PM_{2.5} (particulate matter with a diameter of 2.5µm or less) concentrations would be below the National Environment Protection Measure (NEPC 2003) advisory reporting standards at all of the assessment locations where the concentrations of other pollutants are below the relevant air quality goals;

- no air quality impacts are predicted to result from diesel emissions (NO₂ and CO) and blast fume emissions; and
- estimated annual average greenhouse emissions over the 21 year life of the proposal are conservatively estimated at 0.559Mt CO₂-e (Scope 1 and 2), which represents approximately 0.1 per cent and 0.35 per cent of Australia's and NSW emissions, respectively.

Air quality and greenhouse gas impacts are currently managed at MTW through an existing integrated management system which involves the implementation of a monitoring network, best practice mitigation measures, and operational control strategies and measures with the objective of continuous improvement. Recent air quality monitoring for 2012 and 2013 have shown that the MTW operations are complying with the relevant air quality criteria.

The objectives of MTW's climate change programme are integrated into existing business processes and funding is provided for a number of research projects related to the research of low emissions coal technologies. These practices would continue under the proposal.

ES3.3 Ecology

The proposal would not result in additional vegetation clearance and is expected to have negligible impact on the ecology of the Site and the local area. Potential direct and indirect impacts of the proposal would have very low to no residual impacts after implementation of current mitigation measures.

ES3.4 Social

A social impact assessment (SIA) was prepared for the proposal and the Warkworth Continuation 2014 due to the multifaceted nature of social impacts. The SIA was supported by a comprehensive stakeholder engagement programme.

As the proposal is to continue operations beyond 2017, and combined with the Warkworth Continuation 2014, enable MTW to maintain approximately 1,300 jobs over the longer term, the greater impacts on the socio-economic environment and community services are projected to occur if the proposal does not proceed.

These would include:

- workers and their families moving away from the area;
- workers and their families faced with unemployment and financial difficulties;
- reduced local spending;
- decreased local businesses;
- contribution to population decline;
- reduced viability of services such as local schools; and
- reduced community life and participation.

The stakeholder perceived impacts and opportunities of the proposal, paying particular attention to Bulga village, were determined through consultation and compared to the outcomes of the environmental aspects and economic technical studies that form part of the EIS or with external literature. Matters raised often related to predominately to the Warkworth Continuation 2014, not the proposal.

The selection of stakeholders focussed on consulting with those who were concerned regarding the proposal. The majority of the perceived impacts or matters raised by stakeholders are addressed by the corresponding technical studies of the impact. Coal & Allied would continue to address these matters of concern for stakeholders through ongoing consultation process to inform stakeholders of the impacts of the proposal and proposed mitigation, management and enhancement strategies. This EIS forms an important part of this consultation.

In addition, a suite of continuing and new social initiatives strategies have been developed by Coal & Allied to manage or mitigate perceived impacts and to enhance opportunities, based on feedback from stakeholders. These strategies include the continued investment in the community and engagement with key stakeholders including Singleton Council and near neighbours and enhancement of the two-way flow of information and feedback between the MTW operation and the community through appropriate programmes such as a 'Community Scorecard'.

A SIMP would be developed for the proposal to further develop these management and mitigation measures and detail a plan of implementation including responsibilities; timing; performance indicators and targets; and monitoring measures. The SIMP would be prepared in consultation with key stakeholders, following the EIS public exhibition and submissions process.

ES3.5 Economic

An economic study, in the form of a cost benefit analysis and regional economic impact assessment, was undertaken to assess the economic benefits of the proposal and address the requirements of the *Guideline for the use of Cost Benefit Analysis in mining and coal seam gas proposals* (NSW Government 2012), the *Guideline for economic effects and evaluation in EIA* (Planning NSW 2002), and the *NSW Government Guidelines for Economic Appraisal* (NSW Treasury 2007).

The economic significance of the resource, as stated in clause 12AA of the Mining SEPP set the context in which the proposal was assessed. Specifically, the matters outlined in clause 12AA(2) are shown below:

Table E.1 Matters in clause 12AA(2) of the Mining SEPP regarding the economic significance of the resource

Entity	Employment generation (annual average full time employees)		Incremental expenditure	Incremental royalties
	Reference case (no approval)	The proposal	(\$M NPV – real TBC)	(\$M NPV – real TBC)
MTO	152	121	297	50
Integrated MTW	987	1,307	6,020	617

The study described direct and flow-on economic benefits of the proposal for Singleton LGA, the Mid and Upper Hunter region, NSW and Australia. These economic effects were described as incremental impacts relative to a reference case, which assumed activities at MTW, inclusive of MTO, continued until the expiry of MTO's development consent in 2017. This is regarded as a conservative assumption as mining in Warkworth Mine's West Pit is forecast to reach consent limits in 2015 which would result in mining along a reduced strike length.

In net present value (NPV) terms, the proposal combined with the Warkworth Continuation 2014 would deliver net benefits to NSW of around \$1.5billion. Where the economic flow-on effects of the proposal are concerned, the benefits attributable to MTO, in NPV terms, amount to:

- for NSW, the additional disposable income received by employees of \$39million, additional annual employment of 15 full time employees, and a contribution to NSW gross state product (GSP) of \$45million;
- for the Mid and Upper Hunter region, the additional disposable income received by employees of \$23million, and additional annual employment of 16 full time employees; and
- for the Singleton LGA, the additional disposable income received by employees of \$9million, and additional annual employment of four full time employees.

ES3.6 Groundwater

A groundwater study was undertaken to assess the potential impacts of the proposal and address the requirements of NSW Office of Water's *Aquifer Interference Policy* and Mining SEPP. The study applied a groundwater model rigorously calibrated with data from the extensive MTW monitoring network. The groundwater model was independently peer reviewed with the outcomes reflected in the final study. The findings of the study were:

- the groundwater model has predicted a water take from the Permian and alluvial sources less than the currently approved water take;
- no privately-owned water supply bores would be impacted above the minimal harm criteria presented in the *Aquifer Interference Policy*;
- the proposal is not predicted to significantly change the water table in alluvium that supports groundwater dependent ecosystems;
- the reduction in saline Permian groundwater discharge to the Wollombi Brook alluvium is predicted to reduce the salinity in the alluvium during the life of the proposal; and
- groundwater, surface runoff and rainfall inflows would slowly fill the backfilled depression in Loders Pit forming a watertable within the backfilled area with the water level eventually reaching a state of equilibrium.

Groundwater and surface water at MTW are currently managed through an overarching water management plan (WMP). The MTW WMP includes a groundwater monitoring programme that would continue under the proposal. No additional mitigation measures, to those already implemented, are required for the proposal.

ES3.7 Surface water

The water management systems (WMS) for MTO and Warkworth Mine are currently integrated across MTW. Water engineers have worked closely with mine planners and operational teams over many years to design a WMS that minimises the risk of adverse impacts occurring on surface water resources.

Water requirements would be predominantly sourced from water collected onsite with some water sourced offsite through water sharing agreements with nearby mines and from the Hunter River in accordance with MTW's current licence entitlements. Water would continue to be discharged from MTW's licensed discharge points. All saline discharges would be controlled to meet the requirements of the Hunter River Salinity Trading Scheme so that offsite water quality impacts are managed.

The results of the surface water study indicate that the impacts of the proposal on surface water resources are unlikely to be significantly different to the existing approved operations and would not have a significant impact on surface water quality of the adjacent water features. Surface water would continue to be managed under the MTW WMP and the existing MTW surface water monitoring programme. No additional mitigation measures, to those already implemented, are required for the proposal.

ES3.8 Aboriginal cultural heritage

Previous Aboriginal cultural heritage baseline studies have identified a number of heritage items or places within and around the Site. There are 48 extant places of material cultural heritage identified within the Site. These places primarily consist of stone artefacts. None will be disturbed or destroyed as a result of the proposal or are the subject of any specific requirements to address issues of cultural sensitivity. Further, it is considered that there are no Aboriginal cultural heritage places with scientific values that constitute a constraint on the proposal.

Aboriginal cultural heritage at MTO would continue to be managed under the auspices of the Coal & Allied Upper Hunter Valley Aboriginal Cultural Heritage Working Group, established in 2005, and the applicable management plan. In particular, the Loders Creek Aboriginal Cultural Heritage Conservation Area would be established for the long-term conservation and management of Aboriginal cultural heritage places and values.

ES3.9 Historic heritage

The historic heritage study identified 50 historic features within the Site and its surrounds including seven registered and 43 non-registered items or places. There are three non-registered historic heritage features within or on the boundary of the Site. These are on land that would not be disturbed under the proposal and, therefore, would not be impacted.

ES3.10 Traffic and transport

As there are no changes proposed to the average existing MTW workforce, truck traffic or annual train movements, the proposal is not expected to have any traffic or transport impacts.

ES3.11 Final landform and rehabilitation

The approved final landform at MTO, incorporated into the 1995 EIS, consists of a narrow valley leading to a final void. On either side of this valley is an elevated ridge that grades into the surrounding landform. Design of this final landform was constrained by the amount of overburden available within MTO. The ability to transfer overburden from Warkworth Mine to MTO avoids the need for a final void and allows for the design of a more natural looking final landform which would integrate better with the final landform of Warkworth Mine and the Bulga Coal Complex.

Rehabilitation of the areas mined under the proposal would continue to be undertaken progressively to create a stable, free draining landform able to maintain viable land uses where mining areas are integrated with the surrounding landscape.

The final landform would be developed with recognition of the pre-mining landform features and would incorporate the existing rehabilitated landforms to ultimately be consistent with the surrounding landscape features of both MTO and Warkworth Mine.

Approximately 2,100ha of EEC woodland is proposed to be rehabilitated at MTW with around 483ha occurring at MTO and around 1,617ha at Warkworth Mine. Woodland and trees over grassland components of the rehabilitation would form a north/south connection corridor of vegetation connecting the planned rehabilitation of MTO, Warkworth Mine, and Bulga Coal Complex with the Singleton Military Training Area, the Pokolbin State Forest and the Yengo National Park.

ES3.12 Visual amenity

Existing topography and vegetation would continue to provide screening to MTO as mining within Loders Pit continues and overburden is emplaced within the Site. Some residences west of the Site, such as elevated residences around Bulga village, may experience high visual amenity impacts. Progressive rehabilitation of disturbed areas and implementation of visual impact mitigation measures would be undertaken to minimise impacts on visual amenity. In addition, residents would be able to request site specific visual assessments be undertaken at potentially sensitive properties which may identify the need for site specific mitigation measures.

ES3.13 Land and soils capability

The proposal would result in no new disturbances of remnant soils as pre-mining vegetation removal and topsoil stripping in the Site has been completed. The potential impacts on land capability from the proposal would result from the continuation of mining in Loders Pit and Abbey Green North and rehabilitation of mined areas over 21 years, including receipt of overburden from Warkworth Mine should the Warkworth Continuation 2014 be approved.

There is no biophysical strategic agricultural land, to which the *Strategic Regional Land Use Policy* (NSW Government 2012) applies, within at least 2km of the Site.

ES4 Justification and conclusion

The MTO and the adjoining Warkworth Mine are long standing members of the community having commenced operations in 1981. A workforce of approximately 1,300 people including full-time contractors is employed at MTW. In summary, the proposal should be approved for the following reasons:

- it enables the extraction of resource already approved for mining;
- it allows for the ongoing provision of services to Warkworth Mine which is critical to the viability of both mines;
- it enables an improved final landform, including the infilling of the currently approved final void in Loders Pit, thereby preventing a post-closure final void;
- no additional disturbance would result from the proposal and impacts on near neighbours have been minimised to the greatest extent possible while maintaining an economically viable mine plan;
- it meets all government policies;
- MTO has a long history of minimal non-compliances with government approvals;

- it ensures maximum return on hundreds of millions of dollars invested in the mine since it commenced operations and, as an existing mine, it has established access to product transport and distribution infrastructure such as road, rail and port;
- it provides a state significant economic benefit to the local, regional, state and national economies; and
- it contributes to the long-term security for approximately 1,300 jobs.

