

MANGOOKLA COAL

Modification 6 Environmental Assessment - **Main Report**

Final for Public Exhibition

Prepared for Xstrata Mangookla Pty Limited | May 2013

VOLUME 1

Mangoola Coal Modification 6 Environmental Assessment

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Prepared for Xstrata Mangoola Pty Limited | 23 May 2013

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Date	23 May 2013	23 May 2013	Date	23 May 2013

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Document Control

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FINAL	23 May 2013	Kate Cox/Rachael Russell	Duncan Peake



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ENVIRONMENTAL ASSESSMENT CERTIFICATION

For submission of an environmental assessment (EA) under section 75W of the *Environmental Planning and Assessment Act 1979*

EA prepared by

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Applicant

Xstrata Mangoola Pty Limited
Wybong Road
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Proposed development

Mangoola Coal Modification 6
Refer to Chapter 4 of the EA for a detailed description of the proposed development

Land to be developed

Refer to Appendix 1 of Project Approval 06_0014

Certification

We certify that we have prepared this EA in accordance with the Director-General's environmental assessment requirements and to the best of our knowledge the information contained in this EA is neither false or misleading



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23 May 2013



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Executive Summary

ES1 Overview

Xstrata Mangoola Pty Limited (Xstrata Mangoola) operates the Mangoola Coal open-cut coal mine (Mangoola Coal), approximately 20 kilometres (km) west of Muswellbrook and 10 km north of Denman. Project approval 06_0014 as modified (PA 06_0014) for Mangoola Coal was originally granted in June 2007 under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Operations at Mangoola Coal approved under PA 06_0014 are referred to herein as the 'current operations'.

Xstrata Mangoola is seeking approval from the Minister for Planning and Infrastructure to modify PA 06_0014 under section 75W of the EP&A Act. The proposed modification primarily involves increasing mining intensity. This can be achieved due to efficiencies already realised in the operation of the Coal Handling and Preparation Plant (CHPP).

This Environmental Assessment (EA) was prepared to accompany an application by Xstrata Mangoola for the proposed modification, in accordance with section 75W of the EP&A Act. The EA provides an assessment of the potential impacts resulting from the proposed modification and details measures that would be implemented to avoid, minimise and/or offset potential impacts. The EA provides information to allow NSW government authorities to assess the merits of the proposed modification and make a determination as to whether or not to grant approval.

ES2 Proposed modification

Xstrata Mangoola has identified opportunities to improve efficiency and resource utilisation and is seeking this modification primarily aimed at increasing mining intensity. The key modification sought is an increase in the maximum rate of extraction from 10.5 million tonnes per annum (Mtpa) run-of-mine (ROM) coal to 13.5 Mtpa ROM coal. Associated with this change are the following key aspects:

- increase in equipment numbers to support increased mining intensity (though the operation will remain a truck and shovel/excavator operation);
- increase in employee numbers to support additional equipment and operational needs and requirements. Up to 150 additional employees, employed over the next few years to meet peak operational capacity and continue to maintain a safe and efficient operation. Additionally, up to 90 full-time equivalent contractors may also be required and are considered in this assessment;
- amendment to blasting conditions to increase frequency of blasting from five blasts per week to six blasts per week and removing the condition relating to maximum instantaneous charge (MIC);
- re-define one temporary ROM stockpile to a permanent (life-of-mine) ROM stockpile;
- utilisation of suitable mined waste rock for on-site gravel production. Up to 50,000 tonnes per annum of gravel may be crushed for use on-site; and
- discharge of saline water to the Hunter River under the rules and regulations of the Hunter River Salinity Trading Scheme (HRSTS).

The proposed modification will be undertaken within the existing approved project disturbance boundary, and achieved through efficiencies already realised at the CHPP, and relatively minor alterations to site infrastructure with expected minimal environmental consequences beyond the current approval. No increase or extension to the approved project disturbance boundary is sought.

ES3 Stakeholder engagement

Xstrata Mangoola undertook a program of stakeholder engagement with the community which included engagement with relevant government agencies, Muswellbrook Shire Council, the community consultative committee (CCC), as well as meetings with near neighbours and a community information session with the wider community.

An integral part of the stakeholder engagement process for the proposed modification is the identification of the interactions between Mangoola Coal and stakeholders. In addition to consultation with neighbouring and local communities undertaken by Mangoola Coal, a social impact and opportunities assessment (SIOA) was undertaken by Coakes Consulting. A key objective was to identify potential social impacts of the proposed modification on neighbouring and local communities, and assess and develop strategies to address these matters for both the proposed modification and also for Mangoola Coal's operations generally. Consultation with the local community, service providers and key regional stakeholder groups was a primary component of the SIOA program, and is described further in Chapters 6 and 12, and in the SIOA in Appendix I.

During the preparation of this EA, stakeholders were provided opportunities to discuss and provide feedback on the proposed modification through face-to-face meetings, the distribution of community fact sheets, community information sessions, and presentations at CCC meetings. Xstrata Mangoola has also provided information on its website regarding the proposed modification. This EA has taken into account matters raised by stakeholders during this consultation and addressed the areas of concern where relevant to this proposed modification. Further details on the stakeholder engagement process are provided in Chapter 6.

ES4 Environmental impact assessment

ES4.1 Noise and vibration

Mangoola Coal is subject to noise limits as stipulated in PA 06_0014. A noise and vibration assessment was undertaken for the proposed modification. As Mangoola Coal is now in its operational phase with regular noise monitoring undertaken, site-recorded noise and meteorological monitoring data has been used in the predictive noise modelling process rather than manufacturer and industry specifications used in earlier environmental assessments for Mangoola Coal. The results of this noise monitoring show, for example, that the CHPP is operating at lower noise levels than previously predicted for the current operations.

The noise assessment for the proposed modification, used updated site-recorded sound power levels. Despite the proposed increase in the maximum extraction rate and additional equipment associated with this, predicted operational noise generated from the proposed modification will result in an overall reduction in Mangoola Coal's noise acquisition zone. An overall reduction in the number of receptors within the Mangoola Coal's management zone for operational noise impacts is also predicted.

An assessment of sleep disturbance and low frequency noise emissions predicted levels below the relevant noise criteria and existing noise levels for the current operations. An assessment of road traffic noise predicted the relevant criteria to be exceeded at one additional receptor (compared to current operations) as a result of the proposed modification. It is noted that this receptor (251) is currently within the noise management zone for operational noise impacts from current operations.

The modification proposes to amend Schedule 3, Condition 16 of PA 06_0014 to increase the number of blasts from five to six per week (averaged over a 12 month period) to reflect blasting requirements under the proposed increased maximum rate of extraction. The blast assessment included modelling of two nominal MIC values (1,500kg and 3,000kg) and distances between the source of blast and receptors, which established the minimum offset requirements to achieve blast criteria. This demonstrated that ground vibration criteria specified in PA 06_0014 (and associated agreements) could be achieved for nearby private residences and sensitive structures by applying best-practice blast design. Therefore, the proposed modification seeks to amend Schedule 3, Condition 16 to remove conditions which restrict the frequency of blasting with a MIC over 1,500 kg.

The proposed modification commits to feasible and reasonable noise and vibration management measures as well as a number of operational response measures. These measures, in addition to those already implemented under the current operations, will ensure that the noise and vibration impacts of the proposed modification are effectively managed and mitigated.

ES4.2 Air quality and greenhouse gas

Air quality impacts from the proposed modification are predicted to result in no additional receptors within Mangoola Coal's acquisition zone compared to current operations.

Modelling of dust emissions from rail transport of coal would not have adverse air quality impacts under the proposed modification. Blast fume modelling predicted that no impacts would occur during permitted blasting hours, and that existing blast management measures are adequate to control potential air quality impacts.

The proposed modification may result in an increase in annual average greenhouse gas emissions should the proposed maximum extraction rate be sustained. However, under this scenario there will be a reduction in total emissions over the mine life period of 12% from the original project approved in 2007 and of 9% from the current operations. The proposed modification will contribute approximately 0.023% of Australia's and 0.125% of NSW's annual emissions.

A range of air quality management measures are implemented under current operations, which incorporate best practices for the control of dust emissions from coal mines as outlined in the EPA's Katestone (2010) publication. The proposed modification includes a commitment to establish two additional air quality monitors within the surrounding environment to enhance Mangoola Coal's ability to manage dust impacts and verify environmental performance.

ES4.3 Traffic and transport

The increase in employees under the proposed modification will increase traffic movements on the surrounding road network used by Mangoola Coal related traffic. The potential for impacts to the performance and capacity of affected roads would be greatest during the periods when Mangoola Coal's workforce travel to and from the mine.

The traffic and transport impact assessment for the proposed modification found that predicted peak traffic volumes are within the design criteria for affected roads and will not materially affect the performance and capacities of the surrounding road network during peak periods. This is in part due to the recently upgraded New England Highway/Thomas Mitchell Drive intersection and planned upgrades at the Denman Road/Thomas Mitchell Drive intersection, which are both required by Mt Arthur Coal's project approval due to current and predicted traffic congestion at these intersections.

The increase in road traffic movements is not expected to significantly impact road safety within the surrounding road network. The proposed modification will not result in an increase to the maximum daily trains approved under the current operations.

ES4.4 Surface water

The increased maximum rate of extraction under the proposed modification will result in the water management system for Mangoola Coal evolving more rapidly than under current operations. This will result in minor changes to water storage infrastructure, peak water demand, and the realignment of the Anvil Creek and Clarks Gully diversion.

Potential water supply shortages during extended periods of drought would be identified through an annual review of the site water balance and managed through a number of possible contingency options which consider access to additional water, on-site efficiency opportunities and management of the operation commensurate with available supply.

The proposed modification includes discharges of saline water to the Hunter River under the rules and regulations of the HRSTS which aims to control salinity concentrations in the Hunter River, and meet prescribed water quality standards, by allocating 'credits' to users of the River including primary producers and mining operators. The ability to discharge to the Hunter River under the HRSTS would provide additional flexibility to Mangoola Coal's water management system, particularly during periods of prolonged or extreme rainfall, and would assist in reducing the risk of spills/uncontrolled discharges from on-site water storages.

No changes to in-stream habitat, channel stability or water quality are predicted as a result of the proposed modification. The discharges would utilise Mangoola Coal's existing Hunter River Pipeline and Hunter River Pump Station infrastructure.

ES4.5 Social impacts and opportunities

An SIOA of the proposed modification was undertaken in conjunction with a consultation program with neighbouring and local communities and other stakeholders, undertaken by Xstrata Mangoola and Coakes Consulting. The predicted peak population increase resulting from the increased workforce under the proposed modification has potential to create additional demand for a range of community infrastructure and services. The population increase also has potential for positive social impacts through additional employment and household expenditure in addition to Mangoola Coal's economic contribution to local communities.

Community infrastructure and services identified as having a medium social risk due to the proposed modification exacerbating existing capacity issues include, health care services in Denman, childcare and pre-school services in Muswellbrook and Denman, and utilities, specifically the Muswellbrook sewerage treatment plant.

Mangoola Coal's current operations make significant economic contribution to local communities through employment, business expenditure, household expenditure and use of local services and facilities, employees' participation in community groups and activities, and suppliers' employment impact (indirect impact) and business expenditure, which are predicted to have positive social impacts. At a local level, it is expected that the current economic benefits associated with Mangoola Coal, and workforce and supplier expenditure will continue and increase for the duration of the mine life as a result of the proposed modification, and that the majority of employment and business opportunities will flow to the surrounding region. Key towns which are likely to experience significant economic benefits associated with the proposed modification include Muswellbrook, Singleton, Scone, Denman, Maitland and Newcastle.

Mangoola Coal will continue to monitor the impacts, both positive and negative, of its operations on the social environment, as part of the current operations Social Involvement Plan.

ES4.6 Economics

A benefit-cost analysis was undertaken to determine whether the proposed modification is acceptable from an economic efficiency perspective. The proposed modification will result in an estimated net production benefit of \$92M to Australia incremental to the current operations. The residual environmental, cultural and social impacts of the proposed modification were estimated to be net positive as a result of the reduction in greenhouse gas emission and the potential non-market employment benefits. Therefore, the proposed modification is desirable and justified from an economic efficiency perspective.

The regional economic impact analysis estimated that the proposed modification would result in an additional contribution to the regional economy and NSW from 2014 to 2022. Therefore, the proposed modification will provide economic benefit to the NSW and regional economies.

ES4.7 Visual and lighting

The visual impact assessment for the proposed modification considered potential impacts resulting from additional mobile mine machinery, increased maximum rate of extraction, and minor changes to the final landform. The increased maximum extraction rate may result in some viewers being exposed to mine activities sooner but with a shorter exposure period. Minor changes to the final landform include an increase in the total area to be rehabilitated at 240 m RL but no increase to the final rehabilitated height approved under the current operations. A number of visual and lighting impact management measures are currently employed by Mangoola Coal which are considered sufficient to minimise the potential minor increases to visual and lighting impacts associated with the proposed modification.

ES4.8 Agriculture

The land surrounding Mangoola Coal typically supports a mixture of agricultural production, farming activities, commercial operations and rural properties. In addition, Mangoola Coal retains a sustainable agriculture offset area within its property boundaries.

The proposed modification is wholly within the approved project disturbance boundary and will not result in any additional land disturbance. Further, the proposed modification is not predicted to result in any additional acquisition of agricultural land. An Agricultural Impact Assessment was undertaken which considered impacts on land use as well as other aspects of the proposed modification relevant to the agricultural sector. The assessment concludes that the proposed modification is unlikely to have increased impacts on agricultural use and capability of the land surrounding the site including Mangoola Coal's sustainable agriculture offset area.

ES5 Proposed amendments to PA 06_0014

A summary of the proposed changes to conditions in PA 06_0014 including those relating to noise, air and blast acquisition and management is provided below.

- Condition 6 of Schedule 2 will be amended to increase the allowable maximum extraction rate from 10.5 Mtpa to 13.5 Mtpa of ROM coal.
- The noise impact assessment criteria in Table 1 of Schedule 3 will be amended to reflect the predicted noise levels under the proposed modification.
- Condition 8 of Schedule 3 will be amended to reflect an inconsistency between PA 06_0014 and the NSW Industrial Noise Policy. This condition will also be amended to include receptor 251 as an additional residence where traffic noise levels are expected to exceed the traffic noise criteria.
- Condition 13 Table 4 of Schedule 3 will be amended to allow a peak particle velocity of 100 mm/s for 500kV transmission line pylons – suspension towers. An amendment will also be made to specify that the criteria for residences and the transmission line pylons will apply unless otherwise agreed with the relevant owner/s of the residence or infrastructure and the Department of Planning and Infrastructure has been notified in writing of the terms of this agreement.
- Condition 16 of Schedule 3 will be amended to allow six blasts per week, averaged over a 12 month period, and to delete Conditions 16(c) and 16(d) which relate to MIC limits.
- The acquisition table in Appendix 5 will be amended to reduce the number of landowners subject to significant noise impacts from 10 to four and remove those properties previously acquired by Xstrata Mangoola. No changes will be made to landowners subject to significant air quality or blast impacts.
- The noise contour figure in Appendix 5 and the final landform figure in Appendix 6 will be replaced with the relevant proposed modification figures.

ES6 Conclusion

The proposed modification is primarily aimed at increasing mining intensity, which can be achieved due to efficiencies already realised in the operation of the CHPP. The proposed modification is considered to have the following benefits and outcomes:

- overall reduction in the number of properties at which criteria for noise is exceeded;
- both direct and indirect increase in employment;
- local, regional and state economic benefits;
- reduced risk of uncontrolled discharge of saline water from site;
- maximisation of resource recovery;
- effective utilisation of existing site infrastructure;
- reduction of gravel trucks on the road network;

- maximises operational flexibility within the approved project disturbance boundary; and
- minimal environmental consequences are expected beyond the current operations.

The benefits of the proposed modification largely outweigh its costs and it is considered to be in the public interest for it to be positively determined.

