xstrata coal

Wandoan Coal Project

Initial Advice Statement

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Contents

List of Figures

Executive Summary

This initial advice statement (IAS) provides information in accordance with Section 27 of the *State Development and Public Works Organisation Act 1971,* to the Coordinator General for consideration as to whether the proposed Wandoan Coal Project should be declared a significant project under section 26(1)(a) of that Act.

The Wandoan Coal Project (the "Project") will comprise the development of thermal coal resources for export markets and possibly domestic markets with an open-cut coal mine and related local infrastructure. The provision of water and power supply to the mine will also be involved.

The coal resources are situated to the immediate west of the Wandoan township, located in the Taroom Shire. The Wandoan township is located approximately 350 km northwest of Brisbane and 60 km south of Taroom.

The Project is proposed to be developed by the Wandoan Joint Venture (WJV). The joint venture partners are Xstrata Coal Queensland Pty Ltd (75%), ICRA RPW Pty Ltd (12.5%) and Sumisho Coal Australia Pty Ltd (12.5%). Further exploration is planned to confirm the coal resources and the economic viability of the Project.

The open-cut coal mine will be developed using a combination of truck and excavator, dozer and dragline mining equipment. Coal will be mined at an initial rate of about 30 million tonnes per annum (Mtpa) run of mine (ROM) from the area covered by three Mining Lease Application areas 50229, 50230 and 50231.

The coal will be crushed, sized and washed to yield around 70% washery recovery of product coal before being transported by rail to the Port of Gladstone.

It is envisaged by Xstrata that a new rail connection (The “Surat Basin Railway” (SBR)) will be constructed between Wandoan and the existing Moura – Gladstone Line to allow transport of coal by rail to Gladstone. Negotiations with the Queensland Government have resulted in a Conditional Exclusive Mandate being granted to a Joint Venture, in which Xstrata Coal Surat Basin Rail Pty Ltd, a wholly owned subsidiary of Xstrata Coal Queensland is participating, to concurrently undertake the feasibility study and complete approval process prior to the construction of the SBR. The SBR has been declared a significant project under the *State Development and Public Works Organisation Act 1971*. The EIS for the SBR will examine a corridor approximately 1km wide.

Environmental information is available regarding the project area. Given the size and scope of the Project, further detailed studies are scheduled during early project development phases to assess the effects of the Project on flora, fauna, water resources, air quality, noise, visual amenity and socio-economic environments in the study area as part of the process for the Environmental Impact Statement ("***EIS***").

1. INTRODUCTION

1.1 THE PROJECT

This section describes the Wandoan coal project.

The Wandoan Coal Project comprises the development of thermal coal resources situated immediately west of the Wandoan township, located in the Taroom Shire.

The Wandoan township is located approximately 350 km northwest of Brisbane and 60 km south of Taroom as shown in Figure 1.

The coal resource for this Project exists within the area, the subject of three Mining Lease applications, MLA 50229, 50230 and 50231 (the "Mine Area") as shown in Figure 2.

The coal resources will be developed by an open-cut mine and related local infrastructure.

The infrastructure will include accommodation facilities which will, depending on the outcome of ongoing investigations, be either on the Mine Area or outside but adjacent to the Mine Area.

Provision of an airstrip for transport requirements to the mine is also being investigated as part of the project. If ultimately required, this could involve either an upgrade of the existing Taroom airstrip or provision of a new airstrip. This will be assessed during feasibility studies and the EIS.

The open-cut coal mine will produce thermal coal for export markets and possibly domestic markets.

The open-cut coal mine will be developed on the Mine Area.

The Wandoan joint venture holds mineral development licences and exploration permits for coal over the Mine Area and has applied for mining leases over the Mine Area for an initial 30 year period.

Several major coal areas have been identified for the initial mining operations within the Mine Area. The mining operations will commence in the eastern deposits on MLA 50230 and progressively expand to the west of Woleebee Creek. The details of the actual mine development and progression will be finalised as part of the overall mine planning.

The mine will be developed using a combination of truck and shovel, dozer, and dragline mining equipment.

The currently anticipated initial rate of extraction will produce around 30Mtpa of ROM coal from the major coal areas which have been identified for initial mining on the Mine Area. This will be the input for the operation of three modular coal preparation plant units. It is also intended that the ultimate initial site layout will accommodate the possible subsequent addition of a fourth coal preparation plant unit.

The rate of extraction of coal may well change and increase:

(a) if market conditions change and warrant the installation and operation of a fourth coal preparation plant unit (where the rate of production could be in the vicinity of 40 Mtpa) and

(b) If a new power station were developed in the vicinity of the Mine Area (this is discussed in section 2.10), the supply of coal to such a power station could also increase the overall rate of production of coal from the Mine Area to in excess of 40 Mtpa.

The coal will be crushed, sized and washed to a yield of around 70% before being railed to the Port of Gladstone for export. Export of coal through the proposed Wiggins Island Coal terminal is envisaged.

It is envisaged that a new rail connection will be constructed between Wandoan and the existing Moura – Gladstone Line to allow transport of coal by rail to Gladstone. The environmental impact assessment for the rail link will be undertaken as a separate project by a joint venture which has been granted a conditional exclusive mandate by the Queensland Government of which a related company of Xstrata Coal Queensland Pty Ltd is a participant.

The estimated employment to be generated by the Project is approximately 1000 persons during the construction phase and up to 500 to 600 persons during the operations phase. These numbers will be finalised during the EIS process.

Staged feasibility studies were undertaken during 2006 and will continue through 2007 and 2008.

The proposed schedule for the Project currently targets first coal approximately two years after the granting of the Mining Leases and subsequent financial approval. This allows for the rail construction period, and a final commitment to proceed with the project will depend on the market demand and port access at the time.

Development of the coal resource for the Project will also involve the provision of water and power supplies for the mining operations.

Approximately 7000Ml of water is estimated as being required to wash 30Mtpa of ROM coal and provide dust suppression at the mine. Several alternatives are being considered with a pro rata larger volume required for mining at a higher rate per annum

1. Development of a borefield extracting water from the Great Artesian Basin with a pipeline from the bore field to the mine;

2. Treated by-product water from coal seam gas (CSG) extraction via

pipeline from either:

(a) CSG operations to the west of the Mine Area (approximately 80km from the Mine Area); or

(b) CSG operations to the south of Miles (approximately 100km from the Mine Area); or

3. Supply of water from the Dawson River via:

(a) a pipeline from the raised Glebe Weir prior to completion of the Nathan Dam; or

(b) a pipeline from the to be constructed Nathan Dam.

The components for water supply included as alternatives for the Project and which will be covered by the terms of reference and studied and assessed by the EIS are:

- development and operation of a water pipeline from either the raised Glebe Weir or the Nathan Dam to the mine;
- the development of the bore field and associated pipeline to the mine;
- a pipeline or pipelines for the delivery of treated by-product CSG water from the CSG treatment facility to the mine.

Considerations relevant to these alternatives are discussed in section 4.2.

Power supply from the existing power system or a dedicated gas fired power station are being considered.

Considerations relevant to power supply are discussed in section 2.5.2.

Figure 1: Project Location

Figure 2: Mining Lease Application Areas

1.2 PROPONENT

The proponent for the Project will be the Wandoan Joint Venture (WJV), which includes Xstrata Coal Queensland Pty Ltd (75%), ICRA RPW Pty Ltd (12.5%), and Sumisho Coal Australia Pty Ltd (12.5%). The mining lease applications and the existing mining tenements for the Mine Area are currently held by the WJV.

Xstrata Coal Queensland Pty Ltd (XCQ) has its headquarters in Brisbane, and is a wholly owned subsidiary of Xstrata Coal Ltd. Xstrata Coal Ltd, whose headquarters are in Sydney, is an Australian company and is recognised as the world's largest exporter of thermal coal. It manages a large coal business across more than 30 operations in Queensland, throughout the Hunter Valley and the western coalfields of NSW, South Africa and Colombia. It is a wholly owned subsidiary of Xstrata plc.

Xstrata plc is a major global diversified mining group, listed on the London and Swiss stock exchanges and included in the FTSE top 15. The group is headquartered in Zug, Switzerland and has around 43,000 employees worldwide, including contractors. Xstrata plc obtains approximately 25% of its revenue from Australia and has invested more than A$8.5 billion in this country since 2002 in its coal, copper and zinc operations in Queensland, NSW and the Northern Territory.

Xstrata Coal Ltd makes up to 17% of Xstrata plc's commodity businesses. XCQ produced 24.4 million tonnes in 2006 of thermal and coking coal for the Asia-Pacific export market.

Existing operations being managed by XCQ include the Oaky Creek Mine at Tieri (three underground), Newlands Mine at Glenden (two underground and two open cut), and the Collinsville Mine at Collinsville (open cut). XCQ commenced commercial railings in October 2005 from the Rolleston Mine which are expected to increase to about a rate of 7Mtpa by the end of 2007. XCQ brings considerable operations and development experience to the joint venture. The applicants have the necessary financial and technical resources to carry out the development of the Wandoan Coal Project.

1.3 PROJECT NEED

The Wandoan Coal Project will be developed to supply export and domestic demand for thermal coal. World-wide demand for thermal coal is expected to grow at more than 3% per annum and the Wandoan Coal Project will meet the market requirements for both export and domestic thermal coal. The demand for thermal coal will be predominately driven by developing Pacific Rim markets.

The Wandoan coal has ideal coal characteristics for Integrated Gasification Combined Cycle (IGCC) and other low emission technologies.

1.4 THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

1.4.1 Scope

The EIS will cover the mining activities.

It is proposed that terms of reference will be developed to also include each of the possible alternatives for water and power supply to the Mine Area and other associated facilities which may ultimately be required such as accommodation facilities or an airstrip so that these can be assessed in the EIS.

Continuing commercial and other feasibility assessments of the water or power supply options may mean that one or more of them may be excluded as possible water or power supply alternatives and therefore would not form part of the overall assessment undertaken for the EIS.

The terms of reference for the EIS will be drafted so as to allow for the assessment of all relevant external infrastructure (including alternatives) on the basis that those elements are and remain part of the project as carried out by the Wandoan joint venture.

The terms of reference are intended to also provide that where:

(a) the ultimate mode of delivery of those elements of external infrastructure or services means that they are properly classified as not part of the Project but as a separate undertaking being undertaken independently by a third party; or

(b) an external component or an alternative being considered for an external component no longer remains a viable alternative for the Project;

that external element or component will no longer be assessed as part of the EIS for this Project.

The project excludes the Surat Basin rail development (which will be developed concurrently by the Surat Basin rail joint venture as a separate project).

1.4.2 EIS Process

It is proposed that the EIS for the Project will be assessed under Part 4 of the *State Development and Public Works Organisation Act 1971*.

1.5 PROJECT TENURE

The Wandoan joint venture lodged three mining lease applications (***MLA***) MLA 50229, 50230 and 50231 with the Mining Registrar on 23 May 2007 for mining leases seeking an initial term of 30 years over the Mine Area.

The Mine Area covers existing tenures held by the Wandoan joint venture being the relevant parts of mineral development licenses (***MDL***) 221, 222 and 223 and parts of exploration permits for coal (***EPC***) areas (EPC's 787, 792 and 859). These tenures, as well as other currently held EPCs and MDLs in the Wandoan area, are shown in Figure 3.

The mining lease application areas for the Mine Area and other land tenures are shown in Figure 4.

Figure 5 indicates the current coal and petroleum tenures in the project area. Coal seam gas tenures are addressed in Section 4.

1.6 NATIVE TITLE

Searches undertaken with the National Native Title Tribunal in October 2007 showed Iman People No 2 (NNTT No. QC97/55; Federal Court No. QUD6162/98) as the only registered native title claimants over the Mine Area.

The majority of the Mine Area is subject to freehold land tenure or other forms of land tenure which have extinguished native title.

There are isolated areas within the Mine Area which are not subject to such land tenures. The potential for native title to exist in these isolated areas will be investigated and confirmed as part of the EIS process.

1.7 COMMUNITY AND STAKEHOLDER CONSULTATION

The purpose of community and stakeholder consultation during the EIS process is to ensure that all relevant stakeholders are aware of the Project and have the opportunity to comment on issues of relevance to them.

As part of the EIS process for the mine development, it is proposed that community consultation will be conducted with the local community and other relevant stakeholders.

A "Community Engagement Plan" for the Wandoan Coal Project will be developed accordingly. The aim of this plan will be to:

- provide the community with information regarding the Project
- provide a mechanism for community contact with the Project team
- identify any issues and concerns that the community may have with the Project

- ensure feedback provided by the community can be used in relevant studies being completed during the EIS.

Figure 3: Mine Leases and Exploration Permits

Figure 4: Land Tenures

Figure 5: Coal and Petroleum Tenures

2. PROPOSED DEVELOPMENT

2.1 PROPOSED OPERATIONS

The Project will proceed through a staged development process that currently targets first coal in late 2011. The likely output from the mining of the major areas identified for initial mining is currently expected to be 30Mtpa. Some possibilities for greater output have been mentioned in section 1.1. The coal will supply the export and possibly domestic markets with low ash thermal coal product. The coal will require washing for the export market and, at 75% washery recovery, 30Mtpa of ROM coal equates to around 23Mtpa of product coal.

2.2 MINING METHOD

The depth to the top of the target coal seams within the major coal areas ranges between 15 to 60 m which makes the target coal deposits within the Mine Area suitable for dragline and truck and shovel operations. The mining method will involve the use of draglines removing overburden to the upper coal seam. The coal and subsequent parting and inter-burden removal will be by truck and excavator equipment. Some thicker interburden material will be removed by dragline. Up to three draglines are planned to be initially utilized during a staged ramp-up of production. Detailed mine planning will finalise the mining sequences and the tonnages.

2.3 PROCESSING

An initial assessment of the coal resource has indicated that raw coal ash levels average around 25%. Accordingly, the coal will require washing to produce an export quality thermal coal of approximately 9% ash.

2.4 PRODUCT TRANSPORT

It is proposed to transport the coal product via heavy freight rail to the Port of Gladstone. Approximately 200 kilometres of new rail line will be required to be constructed from Wandoan to the Moura-Gladstone rail line.

Over the past five to ten years, various reports and investigations have been conducted on the possible construction of a railway connecting the missing southern link from Wandoan to the Moura – Gladstone rail line. Negotiations with the Queensland Government has resulted in an Exclusive Mandate being issued to a Joint Venture, whose principals are Australian Transport and Energy Corridors Ltd, Queensland Rail, IFM, Anglo Coal and XCQ, to concurrently undertake the feasibility, approval process and eventual construction of the southern missing rail link. As stated earlier, the environmental impact assessment for the rail link will be undertaken by the Surat Basin rail joint venture as a separate project and will examine a 1km wide corridor.

2.5 INFRASTRUCTURE REQUIREMENTS

2.5.1 Water Supply

A number of water supply options (as discussed in Section 1 and 4.2) are undergoing evaluation as part of the Project's feasibility study including the EIS.

2.5.2 Power Supply

The area is presently supplied with power by way of a 33 KV line from Chinchilla to Wandoan and then a 22 KV feed from Wandoan to Taroom. Initial indications are that at least an additional 132 KV powerline would be required from Miles together with significant transmission line upgrades with the existing system to provide power from the existing network for mining activities including the coal wash plant and the necessary accommodation facilities.

The power requirements will be investigated further in the feasibility studies including the EIS.

Alternate power supplies, which could include a dedicated gas fired power station, will also be considered during the EIS process.

2.5.3 Mine Infrastructure

Mine infrastructure for the Project would consist of:

- accommodation facilities for mine personnel for both the construction and operational phases of the Project
- communications infrastructure
- light vehicle access roads and heavy vehicle haul roads
- a water management system
- waste water treatment facilities
- fuel and oil storage facilities
- high voltage transmission lines/poles and reticulation facilities
- maintenance workshop, offices and associated amenities
- coal handling and preparation facilities and tailings dams.

Further detail on the infrastructure facilities will be outlined in the EIS once the Project's feasibility studies have been completed.

The accommodation facilities will, depending on the outcome of ongoing investigations, be either on the Mine Area or outside but adjacent to the Mine Area. If they are outside the Mine Area, separate approval including development approval under the *Integrated Planning Act 1997* will be required.

2.5.4 Airstrip

Provision of an airstrip for transport requirements to the mine is also being investigated as part of the project. If ultimately required, this could involve either an upgrade of the existing Taroom airstrip or provision of a new airstrip. This will be assessed during feasibility studies and the EIS.

2.5.5 Roads

A number of local roads pass through the Mine Area as shown in Figure 4. The major roads include the Leichhardt Highway and Jackson Road. It is expected that Jackson, Grosmont and Q Road will initially need to be diverted during the Project. Several other roads in the Mine Area will also require relocation.

2.6 WATER MANAGEMENT

The mine operation has the potential to impact on downstream water quality as well as the groundwater resource. Accordingly, a Water Management System (WMS) will comprise a network of water management infrastructure that will allow for flexibility in transport and storage of water around the site. The key water management goal for the Project will be to minimise downstream impacts from the proposed mining operation. The key commitment to meet this strategy will be to design the WMS to achieve a 'no planned' mine water discharge from the site. Mine water will be designated as surface runoff, and groundwater inflow captured in the open cut pits. Mine water will be diverted for storage and subsequent reuse when required.

The key element of the mine water management strategy will be to individually manage the five sources of water generation for the Project. These sources and their corresponding control strategies are as follows:

- runoff from undisturbed catchments both upstream of, and within the proposed Wandoan mining lease, will be passed through the proposed mining lease area in defined drainage corridors

- runoff from catchments disturbed by mining activities will be directed through sediment basins, where necessary, to reduce sediment load, and allowed to flow off-site
- runoff from the industrial area will be directed through sediment basins with base flows being utilised for dust suppression
- water from the Coal Handling and Process Plant (CHPP) will be recycled in a closed loop system
- mine water will be managed in a series of dedicated storage facilities.

There are several creeks within the Mine Area as shown in Figure 4. It is intended that some of these creeks will require diversion as part of the Project.

Additional ground and surface water hydrology, riparian vegetation and aquatic ecology studies will be required for the development of the WMS on the Mine Area.

2.7 MINE WASTE

Reject and tailings management will be required since the ROM coal will require washing on-site. Plant water consumption and water availability are the major considerations in the selection of the most appropriate method of tailings disposal. The method of reject and tailings disposal will be ascertained in conjunction with the water resource study as part of the EIS assessment.

2.8 NON-MINE WASTE

General and regulated wastes will be generated during the construction and operations stages of the Project. A waste identification and management strategy will be developed as part of the feasibility study and EIS stage of the Project.

A water treatment facility will be established to treat waste water generated from the mine infrastructure area such as sewage and washdown water. The facility will be designed in accordance with local and statutory requirements and will be finalised as part of the feasibility study.

2.9 MARKETING SAMPLE

A marketing sample (up to 200,000 tonnes) may be extracted from the initial mining area following the grant of the Mining Lease. The proposed timing, location of washing the coal and any transportation routes will be finalised during the study period and addressed in the EIS.

2.10 POWER STATION

The proposed mine is proposed primarily as an export mine. However, domestic coal sales are also possible. In light of the historical interest in a power station at Wandoan, WJV is seeking interest from potential proponents for a coal fired power station in the vicinity of the mine to use product coal from the mine. Any power station will be a separate project with its own impact assessment and approval process. Discussions to date have indicated that power station operators may seek to dispose of ash from any such power station in the mining voids at the mine. If there is potential for a power station at the relevant time, the impacts of disposal of fly ash on the mine will be considered as part of the EIS process for the power station.

3. EXISTING ENVIRONMENT

3.1 LAND SYSTEMS

3.1.1 Land Use

The mine area is predominately used for grazing and crops. Most of the site has been cleared for agricultural purposes. Grain growing and beef production are now the major land uses with most properties in the Mine Area being mixed enterprises. Winter forage crops are also widely grown. A representative photograph of the area is shown in Figure 6.

A number of state forests and national parks surround the Mine Area which includes Precipice National Park (60 km north) and Isla Gorge National Park (70 km north).

3.1.2 Soils and Land Capability

A number of soils and land capability studies have been conducted in the past on MDL 221. The majority of these studies do not cover the entire Mine Area site. Accordingly, additional studies will be required over the Mine Area.

The majority of the Mine Area appears to consist of non-cracking and cracking clays overlying sandstone from two geological units namely the Springbok Sandstone and the Injune Creek Group. Alluvial clays occur along the alluvial flats in the vicinity of Woleebee and Wandoan Creeks.

3.1.3 Topography

The Mine Area consists of extensive, undulating to nearly flat terrain with two gently-sloping ridges aligned north-south. The crests of ridges are typically wide and flat. Elevations range from 240 m to 295 m above sea level (AHD). Upper and mid slopes are generally between three and six percent over moderate lengths of up to about 300 m. Local relief is mainly 15 m AHD but in some areas attains 30 m AHD.

3.1.4 Geology

The Mine Area is located in the northern portion of the Surat Basin. Four major Jurassic sedimentary stratigraphic units are present, including the overlying Gubberamunda Sandstone and the basal Hutton Sandstone.

The Injune Creek Group which lies above the Hutton Sandstone consists of:

- the Westborne Formation (sandstone and mudstone with coal, about 140 m thick)
- the Springbok Sandstone (friable sandstone with beds of mudstone and thin coal seams near its base, about 90 m thick)
- the Walloon Sub Group (variable sandstone/ siltstone/ mudstone/ coal lithology with thick banded coal seams, up to 510 m thick)
- the Eurombah Formation (quartzose sandstone with some silt, mudstone and fine coal fragments).

Figure 6: Representative Photograph of the Local Area

The Walloon Sub Group contains two distinct coal-bearing formations namely the lower Taroom Coal Measures and the upper Juandah Coal Measures. These two coal measure sequences contain the substantial, potentially open-cut, steaming coal resources of the Surat Basin.

Figure 7 shows a typical stratigraphic column of the Wandoan geology and the occurrence of coal seams. The project will involve the mining of the Jurandah Coal measures.

3.2 CLIMATE

Rainfall in the Wandoan and Theodore region is variable and unreliable, with most falls in the warmer months. On average, 70% of the 650 mm average annual rainfall is received between October and March. Rainfall is lowest during the period June to September.

3.3 HYDROLOGICAL CHARACTERISTICS

3.3.1 Surface Water

The hydrology on the mine site is dominated by a number of ephemeral creeks flowing north into the Dawson River. Figure 4 shows the location of the creeks within Mine Area. There is limited information on the surface water parameters for the Mine Area. Further studies will be undertaken regarding water quality and water management.

3.3.2 Groundwater

Some information exists with respect to groundwater within the coal seams on the Mine Area and further studies will be undertaken to increase the understanding of the local and regional groundwater systems.

Figure 7: A Typical Stratigraphic Column

3.4 BIOLOGICAL CHARACTERISTICS

3.4.1 Existing Vegetation

The Mine Area consists mainly of cleared Brigalow lands used for grazing and crop production. The remaining area consists of open forests of poplar box and ironbarks on the alluvial flats of the various creek systems.

Previous reports prepared prior to 1999 have focused on Austinvale and Woleebee areas and therefore limited information is available on the presence of threatened species and regional ecosystems listed under the *Vegetation Management Act 1999* or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Any proposed significant removal of brigalow vegetation as part of the Project may be regarded as a 'controlled action' under the EPBC Act.

3.4.2 Fauna

Terrestrial and aquatic fauna of the area are expected to be typical of the central Surat Basin. Little information exists with respect to threatened fauna that could potentially occur on site. A detailed fauna survey on the Mine Area has not yet been conducted. Fauna and associated habitat along the water supply corridors will be assessed as part of the feasibility studies including the EIS through desktop studies and field surveys as required.

3.4.3 EPBC Database Search

A broad-scale Protected Matters On-line Database Search (EPBC Act) was conducted for the general area to find any potential areas of habitat for threatened communities or species. A total of four threatened ecological communities, and 10 plant species were recorded in the general vicinity. The threatened fauna records included six bird species, three mammal species, five reptile species, one invertebrate, and 12 migratory bird species. A site assessment will be required to confirm the presence of the findings of the desktop study.

The Project will be referred to the Commonwealth Department of Environment and Water Resources for determination as to whether or not it is a controlled action due to the potential for the project to impact upon matters of national environmental significance.

3.5 NOISE AND VIBRATION

There is limited noise data currently available for the local area. Background noise levels in the existing environment would be typical of most rural areas. These would vary from 30-40 dB(A) at night to 50–60 dB(A) during the day depending on the extent of traffic, machinery operations and general activity in the area.

Additional studies would be required to assess potential noise issues and to develop mitigation strategies particularly given the proximity of the Project to the Wandoan township.

3.6 AIR QUALITY

There is limited air quality data currently available for the local area surrounding the Project area. Existing air quality in the Wandoan area is generally expected to be characteristic of a largely undeveloped rural environment. Local sources of particulates are expected to include general rural and residential activities, use of local roads, bushfires and high-wind conditions occur.

Ambient air quality particulate monitoring may be required due to the proximity of the Project to the Wandoan township.

3.7 SOCIO-ECONOMIC CONDITIONS

The initial mine location is situated in a rural area with the mine centre approximately 5 km west of the Wandoan township. The proposed mine is expected to employ approximately 500 to 600 people. A number of accommodation alternatives will be considered including accommodation villages and housing, taking into account responsible safe post work travel distances.

3.8 CULTURAL HERITAGE VALUES

Two archaeological surveys have been conducted in the Wandoan mine region. The first was undertaken by Morwood (1992) over the majority of the mining area, concentrating on the Austinvale and Frank Creek sections. The survey included ground-truthing preliminary information from topographic mapping, cadastral mapping and aerial photography. The mining area was systematically traversed in search of potential archaeological sites.

No sites were found in the Austinvale or Frank Creek sections. Both the areas have been heavily disturbed by previous clearing of native vegetation and cultivation of crops. Stone artefacts reportedly occur in the Frank Creek section but are superficial, very disturbed and of limited scientific or archaeological significance (Morwood, 1992).

Morwood's study also suggested future archaeological work should be carried out, focusing of uncleared sections of the open eucalypt forests and watercourse crossings.

The second study conducted by Ann Wallin and Associates Pty Ltd (1996) was less field based. Registered cultural heritage sites exist in the Project area. Further cultural heritage studies will be undertaken for the Project.

4. POTENTIAL IMPACTS AND MANAGEMENT REQUIREMENTS

4.1 LAND SYSTEMS

The proposed Mine Area is currently being used for low density grazing and cropping. The exposure of ROM coal using truck and excavators and dragline operations will result in a number of out-of-pit spoil dumps. The spoil will be reshaped, topsoiled using previously stockpiled material and revegetated. Factors which can impact on the long term stability of these spoil dumps, reducing their ability to meet or maintain the proposed land use capability, include climatic factors, geotechnical factors, chemical factors, and geomorphological factors such as erosion rates. These factors will be investigated to assist in determining the associated rehabilitation design parameters and the most appropriate post mine land use. Much of this information will be determined during the EIS process while the remainder will be obtained from studies undertaken during the rehabilitation program. Proposed monitoring of rehabilitated areas will also be outlined in the EIS and EMP.

The majority of dam structures constructed for pit-dewatering purposes and collection of surface water run-off will remain after the coal operation is finished and will potentially be used as farm dams.

As the mine develops, progressive rehabilitation of dump and other mining areas will occur in order to minimise the total land area disturbed by mining at any time.

Land use capability impacts will be limited to areas directly affected by mining activities. The degree to which the land use capability is impacted upon by the proposed operation will be documented in the EIS. This will include plans for Project rehabilitation and decommissioning.

4.2 WATER SUPPLY AND HYDROLOGICAL IMPACTS

When developed to the anticipated initial rate of extraction producing around 30Mtpa of ROM coal, the Project is expected to require water supplies of approximately 7,000 ML per year. This demand is made up predominantly of the coal handling and preparation plant (CHPP) requirements, with quantities also needed for haul road dust suppression.

As discussed in section 1, several water supply options are under consideration.

4.2.1 Great Artesian Basin Bore Field

Work is continuing to develop a model of the Great Artesian Basin (GAB) to investigate the availability of water from the Precipice Sandstone Aquifer or deeper. A potential bore-field to the south and associated pipeline may be established.

The sustainability of groundwater extractions, and their impacts on nearby groundwater users, and springs at the margins of the Great Artesian Basin will be investigated as part of the groundwater licence application and EIS processes.

4.2.2 Water from the Dawson River

The only currently viable alternative to groundwater is a new water storage on the Dawson River e.g. the proposed Nathan Dam which could, if constructed, reliably supply the Project.

The Queensland government has made a commitment to the development of the Nathan Dam to address the long term water needs of the Western Downs region, which includes $120 million for design work and construction of the Nathan Dam subject to obtaining Commonwealth approval under the *Environmental Protection and Biodiversity Conservation Act 1999*.

On 10 July 2007 the Queensland Government announced funding and proponents for implementing various water supply measures and SunWater was given responsibility to investigate the feasibility of the Nathan dam and $1.976 million has been allocated for this purpose in 2007-08.

The Nathan Dam option will require the construction and operation of an 80km long pipeline to the Project site. The proposed Nathan Dam, and a possible pipeline route are shown in Figure 8. The water pipeline route may conceivably parallel a route for the proposed SBR.

A short-term solution to providing some water prior to the Nathan Dam construction would be to raise the existing Glebe Weir, which is upstream of the Nathan Dam site.

Impact assessment for the Nathan Dam construction or Glebe Weir raising could be undertaken by SunWater, in a parallel process to the Wandoan Coal Project.

However, if the Dawson river remains as an alternative source of water supply, the EIS for the Wandoan Coal Project may consider the potential impacts of construction and operation of a raised Glebe Weir and/or a water pipeline from a future Nathan Dam/or a raised Glebe weir to the Mine Area.

4.2.3 Coal Seam Gas By-Product Water

By-product water from coal seam gas (CSG) extraction in the region is also being considered as an alternative supply.

The relevant CSG facilities with this water in the vicinity of the Mine Area are shown on Figure 9.

The current quality of the CSG by-product water means that,

without at least some treatment and/or dilution, it may not be suitable for the operational requirements at the mine, such as coal washing.

The Wandoan joint venture is currently undertaking further investigations to enable it to determine the water quality requirements for the proposed operation of the Wandoan mine. When the mine water quality requirements have been determined, the suitability and feasibility of the supply of CSG by-product water will then be further investigated .

4.2.4 Overland Flow

Supplementary supplies will be drawn from overland flows captured by the site water management system. While these may be substantial during wet periods, the available supplementary supply may be negligible during the dry years. The Fitzroy Basin Resource Operations Plan currently allows the capture of such overland flow in mine water management systems operated under an approved environmental authority.

Due to the preliminary nature of studies for the proposed Project, a water management system has not yet been developed. Drains will be established adjacent to disturbed areas such as roads to intercept sediment laden run-off into sediment dams to minimise the movement of sediment into the adjacent waterways. Mine water from active mining areas, coal stockpiles and the CHPP will be contained in environmental management dams and reused to manage the risk of off-site discharge, with no planned releases from the site.

4.2.5 Groundwater

The magnitude of groundwater inflows to mine pits, and the extent of the resultant lowering of the groundwater table and the consequent potential impact on surrounding groundwater users are unknown at this stage. These issues will be addressed during the EIS process.

Figure 8: Nathan Dam and Glebe Weir Pipelines

Figure 9: Coal Seam Gas Fields

4.3 BIOLOGICAL IMPACTS

Clearing of regrowth and sparse remnant native vegetation will be necessary for the mine, and associated infrastructure. At the end of mine life, there will be an increased number of permanent water bodies on the mining lease. During the mine life, it is intended that grazing will continue on those parts of the Mine Area which are not required by mining operations. In addition, some parts of the Mine Area, with exception of rehabilitated mine spoil, may be used for grazing purposes.

Much of the proposed Mine Area has been extensively cleared of remnant vegetation and has been grazed by cattle for many years. Nonetheless, a detailed flora and fauna assessment will be undertaken as part of the EIS process.

4.4 NOISE AND VIBRATION IMPACTS

The proposed operation will be required to meet noise standards for occupational health and safety, and environmental standards determined in accordance with the *Environmental Protection Act 1994*.

Detailed noise and vibration studies will be undertaken as part of the EIS process.

4.5 AIR QUALITY IMPACTS

The proposed operation will be required to meet dust standards for occupational health and safety, and the *Environmental Protection Act 1994*.

Detailed air quality studies will be completed as part of the EIS process.

4.6 VISUAL AMENITY IMPACTS

The EIS will investigate impacts to visual amenity generated by the Project and measures to ameliorate any impacts. Visual impacts produced by the operation may be reduced by progressive rehabilitation of spoil areas.

4.7 SOCIO-ECONOMIC IMPACTS

It is expected that Taroom and surrounding local towns in particular Dalby and Toowoomba, will provide some of the construction workforce, with the remainder being brought in from elsewhere. Local and other appropriately experienced mine workers will be sought to service the mine.

Facilities to house the construction and operations workforces will be evaluated as part of the feasibility studies. The successful accommodation approach used at the Rolleston mine will be adopted for Wandoan.

Detailed information on a wide range of social factors was presented in the

Preliminary Environmental Impact Assessment (Envirosciences 1992). The report is outdated in some areas as the information used in the assessment was based on 1986 census data and accordingly the study will need to be reassessed.

A community consultation program will be developed. Consultation will continue during the EIS process to ensure that community issues are identified and addressed.

A social monitoring group (similar to that successfully undertaken during the Rolleston Project) will be established during the construction phase to monitor impacts on the community.

4.8 CULTURAL HERITAGE IMPACTS

The two archaeological studies outlined in Section 3.8 proposed that further archaeological assessments of MDL 221 be undertaken (Morwood, 1992; Wallin 1996). Legislation relating to the significance of cultural heritage sites has been amended since these two reports were produced and additional assessment work will be required. Assessments of the Mine Area and other relevant areas will be undertaken during the feasibility studies and the EIS process for the Project. Consultation with native title claimants has commenced and an initial ground survey undertaken.

A Cultural Heritage Management Plan will be developed for the Project in accordance with the *Aboriginal Cultural Heritage Act 2003*.

4.9 MINE INFRASTRUCTURE IMPACTS

4.9.1 Waste Generation

General and industrial waste management strategies will be developed in the EIS. Likely wastes to be developed during the construction stage includes green waste, concrete materials, metals, waste hydrocarbons, timber, tyres, sealant/resin and paint materials, sewage, effluent washdown and exhaust emissions. Wastes that would be produced during the operations phase include green waste, batteries, general waste (e.g. paper, cans cardboard), scrap metal, tyres, water treatment plant waste, and, tailings and reject waste. As discussed in Section 2.7, reject and tailings management will be generated from the washing of ROM coal. Plant water consumption and water availability will determine the most appropriate method of tailings disposal. The method of disposal will be ascertained in conjunction with the water resource study as part of the EIS process. Reject material will be returned to the mine pits or spoil dumps for burial using mine trucks.

4.9.2 Storage of Materials

It is expected that fuel, oil, and detergents will not be stored in any significant quantity on site during the construction and operational phases of the Project. Hazardous materials such as batteries and hydrocarbon materials will be stored in accordance with the relevant Australian Standards to ensure that any spillages are contained. Standard operating procedures including an emergency response process will be implemented for the Project.

4.10 TRANSPORT IMPACTS

A transport impact assessment will be undertaken to address potential increases in traffic during the construction and operations phases of the Project. A Road Impact Assessment for the Project will be developed in consultation with the Department of Main Roads and Queensland Transport during the EIS process.

Potential impacts of the operational rail transport of the coal are likely to be assessed as part of the proposed Surat Basin Railway Project EIS process to be conducted in parallel with the Wandoan Coal Project EIS. The EIS for the Surat Basil Railway will prepared in accordance with the *State Development and Public Works Organisation Act 1971*. Potential impacts of the proposed port handling of the coal at Gladstone are currently being assessed as part of the Wiggins Island Coal Project EIS. This Project has been declared a significant project under section 26(1)(a) of the *State Development and Public Works Organisation Act 1971.*

A test sample of coal (greater than 100,000 tonnes) is proposed to be undertaken under authorities for MDL 221 following approval by the Minister for Mines. This work will be undertaken under an amended Environmental Authority. Approval will be sought in 2007/2008 with extraction planned for 2008. The coal will be transported by road to a wash plant and then to either the Ports of Gladstone or Brisbane before a decision on the full-time operation of the Wandoan mines is made. The potential road impacts of these trial shipments will be assessed as part of the approval process under MDL 221 prior to the EIS for this Project. As addressed in Section 2.9, initial marketing samples may be excavated during the mine construction period under the Mining Lease conditions.

5. REFERENCES

Ann Wallin and Associates (1996), *A cultural heritage assessment of the Frank Creek, Austinvale and Woleebee Mining Leases held by Mt Isa Mines near Wandoan, Central Queensland.*

Environsciences (1992), '*Preliminary Environmental Impact Assessment, Coal Mine Development, Wandoan, Queensland'*.

Morwood, M.J (1992), *Archaeological Assessment Austinvale, Frank Creek and Woleebee Coal Deposits, Wandoan Region, Central Queensland*.