

PROPOSED BROKEN HILL MINERAL SEPARATION PLANT

**REPORT ON THE ASSESSMENT OF A DEVELOPMENT APPLICATION
(DA 345-11-01) PURSUANT TO SECTION 79C OF THE
ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979**

FILE: S01/02182

1. INTRODUCTION AND BACKGROUND

1.1 *The Applicant*

BeMaX Resources NL on behalf of the BIP Joint Venture (a joint venture between BeMaX Resources NL 75% and Probo Mining Pty Ltd 25%).

1.2 *Overview of the Proposal and its location*

BeMaX Resources NL ("BeMaX") is seeking development consent to develop a Mineral Separation Plant (MSP), ("the Project"), located on the south-western outskirts of Broken Hill in western New South Wales as shown in Figure 1.

The Project includes the construction, operation and rehabilitation of the MSP and ancillary infrastructure, including an electricity transmission line and a water supply pipeline.

Heavy mineral concentrate produced at the proposed Ginkgo mineral sands mine located some 160km to the south of Broken Hill would be separated and treated at the MSP to produce the valuable minerals ilmenite, altered ilmenite, rutile and zircon. An annual total of 450,000 tonnes of mineral concentrate would be transported to the MSP.

Operations at the MSP site would include:

- stockpiling of mineral concentrate;
- mineral separation by gravity, electrostatic and magnetic methods within the plant;
- water disposal through a settling dam and by evaporation in purpose built ponds;
- disposal of waste materials in an on-site waste emplacement or by backloading to the Ginkgo mine for burial; and
- storage and train loading of mineral products.

The major MSP site components are proposed to include:

- a mineral concentrate stockpile;
- mineral concentrate and product transport systems including conveyors, hoppers and elevators;
- the separation plant which separates mineral concentrate into product streams;
- product and waste by-product storage bins;
- train loading facilities and a rail spur line;
- administration and workshop buildings;
- a water supply balancing tank;
- a waste emplacement;
- a settling dam and evaporation ponds;

- soil stockpiles;
- fuel storage facilities; and
- an access road linking to Pinnacles Road.

The major ancillary infrastructure for the Project comprises:

- A 1.5km long electricity transmission line from an electrical substation to the MSP site via the Broken Hill rail corridor;
- A 2.3km water supply pipeline from the Wills Street WWTP to the MSP site via the Broken Hill rail corridor.

1.3 State Significant, Integrated, and Designated Development

The Proposal is defined as State Significant Development under the *Environmental Planning and Assessment Act 1979* (“the Act”). As such, the Minister for Planning is the consent authority for this DA. Under Section 91 of the Act, the development proposal is also ‘integrated development’, as in addition to requiring development consent, the application requires other approvals or licences from other government agencies. These agencies (referred to as integrated approval bodies under the Regulation) include:

- A licence from the Environment Protection Authority (EPA) under sections 47 and 48 of the *Protection of the Environment Operations Act 1997*;
- An approval from the National Parks and Wildlife Service (NPWS) under section 90 of the *National Parks and Wildlife Act 1974*;
- A license under section 116 of the *Water Act 1912*; from the Department of Land and Water Conservation (DLWC); and
- An approval from Broken Hill Shire Council under section 138 of the *Roads Act 1993*.

EPA, DLWC and Broken Hill Shire Council have submitted their general terms of approval (GTAs), which have generally been adopted as Conditions in the recommended instrument of consent. NPWS forwarded correspondence dated 1 May 2002 incorporating suggested GTAs for the project. However, following review of these recommended GTAs, the Department raised some concerns about the implementation and enforceability of these GTAs. The Department convened a meeting with NPWS to discuss these concerns and in response formulated appropriate GTAs for endorsement by NPWS. The Department is satisfied that the revised recommended GTAs interpret the intent of NPWS and may be effectively implemented and enforced within the context of the recommended consent conditions.

The Proposal is also Designated Development under Schedule 3 of the *Environmental Planning and Assessment Regulation 2000* (“the Regulation”) and an EIS has therefore been prepared.

1.4 Lodgement of DA and exhibition

On 26 November 2001, BeMaX lodged the DA and EIS with the Department of Planning. The DA and EIS were publicly exhibited from Friday 14 December 2001 to Wednesday 6 February 2002, in accordance with the *Environmental Planning and Assessment Act, 1979*. The DA and EIS were exhibited at the following locations:

- The Department of Planning Information Centre, Sydney;
- Nature Conservation Council, Sydney;
- Broken Hill City Council.

Submissions were received until close of the exhibition period. A summary of submissions resulting from the public exhibition of the Proposal is given at Appendix 1.

Public notification of the DA involved the placement of notices in the Broken Hill Barrier Daily Truth, and the placement of site signs at various locations on and around the DA area.

The Department is satisfied that the requirements for public exhibition of the DA and EIS and public participation have been fully met.

1.5 Local Council position

Broken Hill City Council (BHCC) is supportive of the proposed MSP and will assist wherever possible to ensure that the MSP is obtained for the benefit of the community.

BHCC submitted that the major issues of concern relate to dust control and the impact of transport of MSP material on Council roads.

Council expresses the need for dust suppression, particularly with relation to risks associated with Monazite dust inhalation.

BHCC would require negotiations with the Applicant to provide a suitable method of ensuring that the proposed road network meets requirements for safety and ongoing maintenance of assets. Council may also require the Applicant to provide suitable upgrades to intersections and carriageways. In particular, the intersection of the Silver City Highway and Kanandah Road may require upgrading to RTA standards. BHCC also stated that all required signage should be at the Applicant's cost.

BHCC also considers that the EIS provides an inadequate definition of "heavy vehicle" for the traffic study; the Council has requested that this information be provided prior to any negotiations regarding road infrastructure requirements.

Council would like the opportunity to discuss Construction Certificate requirements prior to the commencement of construction.

1.6 Government agencies' position

A total of seven submissions were received from government agencies. The government agencies who made submissions were the EPA, the Department of Mineral Resources (DMR), the Western Region Development Committee (the regional traffic committee), NSW Agriculture, NPWS and Transgrid. The agencies raised a number of issues in relation to the Project, which are discussed in detail in Section 4 of this report and throughout Section 5 of this report. The Department is satisfied that these issues were either clarified or resolved by the Applicant in response to submissions or are addressed by the Conditions of Consent.

1.7 Local community position

One submission was received from the public. Broken Hill Exports (abattoir) is an adjoining industry and considers that the dust from the Proposal, in addition to current dust levels will put the abattoir project at considerable risk. Broken Hill Exports does however support the Project if the dust problem can be alleviated.

1.8 Request for Commission of Inquiry

No submissions were received that requested a Commission of Inquiry (COI) into the proposed Project.

2.0 THE PROPOSAL

2.1 *Site details*

The MSP site is located on the south-western outskirts of Broken Hill. Surrounding land uses include vacant Crown land, pastoral leasehold lands, abattoirs, a tailings storage facility, municipal landfill, a quarry and the Kanandah industrial area.

The Project also involves the construction of a 1.5km long electricity transmission line from an electrical substation to the MSP site via the Broken Hill rail corridor, a 2.3km water supply pipeline from the Wills Street WWTP to the MSP site via the Broken Hill rail corridor and a access road linking to Pinnacles Road.

The MSP site is flat to gently sloping and vegetation cover is predominantly restricted to a combination of grasses and low shrubs. A number of ephemeral drainage channels cross the site from culverts under the rail corridor.

2.2 *Land Ownership and Landuse*

The MSP site is on leasehold property, under the jurisdiction of the Western Lands Commissioner appointed by the Department of Land and Water Conservation (DLWC). The MSP site lands are currently predominantly used for pastoral/grazing purposes. The existing leaseholder has lodged an application with DLWC for freehold tenure of the site to permit development of the Project.

DLWC have advised (letter dated 15 February 2002) that possible land administration issues will arise if the conversion to freehold is delayed or ceases.

2.3. *Production Process*

Heavy mineral concentrate would be transported to the MSP from the Ginkgo mine by 100t payload triple road trains.

The mineral concentrate would be separated into product streams by magnetic, electrostatic and gravity separation methods. Magnetic separation separates the ilmenite (magnetic) fraction from the rutile and zircon (non- magnetic) fraction.

The magnetic concentrate (ilmenite) is subjected to Mineral Washing, a Bed Dryer, Separators and an Ilmenite Kiln (portion of ilmenite). Non-magnetic concentrate (rutile and zircon) is subjected to Mineral Washing, a Bed Dryer, Separators, and other separating equipment including Spirals, Cyclones, Shaking Tables and Air Tables.

Ilmenite, rutile and zircon are stored in rail load-out bins.

The process water used to remove salts and enhance separation prior to magnetic separation is transferred to the settling dam prior to reuse or disposal to evaporation ponds. Evaporation ponds dispose of water that cannot be recycled.

Wastes generated at the MSP site would include:

- natural salts from the evaporation ponds;
- silica, quartz and clays from the settling dam;
- unsaleable ilmenite from the dry mineral separation circuit;
- monazite from the zircon dry circuit; and

- clay materials from the zircon and other dry circuits

The disposal strategy for MSP waste includes burial, covering and rehabilitation. Monazite separated from the product minerals at the MSP would be combined with a proportion of the total waste produced by the MSP and periodically back-loaded on road trains and transported back to the Ginkgo mine for disposal.

2.4 Project Development

The Project will develop in two phases, a construction phase and an operational phase.

The construction phase would involve the installation and commissioning of surface facilities to allow the commencement of mineral separation. An 18 month construction period is expected with construction work undertaken during the day.

The major construction activities at the MSP site would be:

- vegetation clearance and soil management;
- construction of hardstand and water management structures;
- construction of electricity transmission line and water supply pipeline;
- construction of rail spur line;
- construction of settling dam and evaporation ponds;
- MSP assembly; and
- commissioning of the MSP.

The operational phase will involve:

- transportation of the mineral concentrate to the MSP;
- processing of the mineral sands;
- product storage and transport; and
- disposal of wastes.

2.5 Annual production, hours of operation and employment

The Applicant advises that an average of 450,000 tpa of heavy mineral concentrate will be processed by the MSP producing approximately 335,000 tpa of mineral products.

The construction phase of the Project would require a workforce averaging around 100 people with a maximum of approximately 160 employees required during a peak 2-3 month period. The construction would be undertaken during daytime.

An operational workforce of some 60 employees is expected. Operations would be undertaken 24 hrs/ 7 days and employees would work on a shift basis.

2.6 Mineral Concentrate Transport Route

The transport of the mineral concentrate from the Ginkgo mine site to the MSP would be undertaken using one hundred tonne payload triple road trains.

The mineral concentrate transport route from the mine site to the MSP will follow:

- A newly constructed road between the mine site and Old Roo Roo Road;
- Old Roo Roo Road;
- A newly constructed road between Old Roo Roo Road and the Old Broken Hill Road;
- The Old Broken Hill Road;

- A newly constructed road between the Old Broken Hill Road and the Silver City Highway; and
- The Silver City Highway;
- Kanandah Road;
- Pinnacles Road; and the
- MSP access road

The route to the Silver City Highway will comprise an all weather road with gravel pavement. Roadworks along the route will include the construction of new roads and a new crossing (across the Great Darling Anabranch), and various intersection upgrades.

The development of all roads up to but not including The Silver City Highway forms part of the Development Application for the Ginkgo mineral sands mine proposal and is therefore not the subject of this MSP proposal assessment.

2.7. Building Assessment

The Department considers that the mine will require a Construction Certificate for the erection of the following buildings / structures:

- Class 5 (Administration, construction, contractor, engineering, processing and control room offices)
- Class 7 (Store(s))
- Class 8 (Workshop(s))
- Class 9 (Laboratory)
- Class 10 (Change house(s), fuel storage(s), pump house(s) and compound(s), communication tower(s), wet high intensity magnetic separator, filter house(s), silo(s), conveyor(s), storage bin(s), mill building(s), kiln building(s), tank(s))

Conditions pertaining to building matters are included in the recommended instrument of consent. In addition, section 80A(11) of the Act refers to clause 133 of the *Environmental Planning and Assessment Regulation (2000)* which contains prescribed building conditions that are part of development consent.

2.8. Justification

The Applicant provides justification for the Project proceeding in the Benefit Cost Analysis (section ES3.5 of the Executive Summary). Should the Project be approved, the EIS states that the establishment and operation of the MSP would stimulate the Broken Hill economy, increase business turnover in a number of sectors and provide direct and indirect employment.

Operation of the Project would have major regional output flow-on impacts occurring for example in the electricity supply and machinery manufacturing sectors. Significant flow-on employment effects would also be felt.

The benefit cost analysis indicated that the net production benefits to Australia are likely to have a value in the order of \$126M.

Were the Project not to proceed the following consequences are implied in the EIS:

- a peak of 160 construction phase and 60 operation phase direct job opportunities, along with indirect opportunities would not be created;
- capital expenditure of some \$70 million for the MSP and ancillary infrastructure would not occur;

- some \$36 million in annual economic benefit to the regional economy as a result of the Project would not be realised;
- Alterations to current landuse practices at the MSP site would not occur; and
- tax revenue and royalties would not be generated.

3.0 STATUTORY PLANNING MATTERS

Various State, regional and local statutory planning provisions apply to the proposed MSP.

State Significant Development

By operation of State Environmental Planning Policy No. 34 (Major Employment Generating Industrial Development (SEPP 34)) the Project is classified as State Significant Development. The application of SEPP 34 to this Project was determined by the Minister on 4 May 2001.

Designated Development

The Project is designated development as it is a "mineral processing works" as described under Schedule 3 of the *Environmental Planning and Assessment Regulation 2000*. Subsequently, an EIS has been prepared in support of the DA. The Department is satisfied that procedures relating to the preparation and public notification of the EIS have been followed.

Integrated Development

The Proposal is integrated development, under section 91 of the EP&A Act, as it requires:

- A licence from the Environment Protection Authority under sections 47 and 48 of *the Protection of the Environment Operations Act 1997*;
- An approval from the National Parks and Wildlife Service under section 90 of *the National Parks and Wildlife Act 1974*;
- A license under section 116 of the *Water Act 1912* from the Department of Land and Water Conservation
- An approval from Broken Hill Shire Council under section 138 of the *Roads Act 1993*.

3.1 Local Planning Considerations (Broken Hill LEP)

The Project is located within the Broken Hill City Council area. The planning provisions for the City are contained within the Broken Hill Local Environmental Plan 1996 (Broken Hill LEP). Under this plan, the proposed Project area is zoned 1(a) General Rural Zone. The Applicant does not advise whether the Proposal is consistent with the objectives of the zone and is permissible with development consent. However, Broken Hill City Council have not raised any zoning issues. The Department is satisfied that the Project is permissible and consistent with the zone objectives.

3.2 Regional Environmental Plans

There are no Regional Environmental Plans that pertain to the proposed MSP.

3.3 State Environmental Planning Policies (SEPP)

SEPP 11 (Traffic Generating Developments)

SEPP 11 requires the consent authority to refer a copy of the DA for the Project to the RTA. The Department referred a copy of the DA to the RTA on 11 December 2001. As the RTA raised no objection to the Proposal, the Department is satisfied that the project has met the provisions of SEPP No 11.

SEPP No. 33 (Hazardous and Offensive Development)

SEPP 33 was introduced in 1992 to ensure that in considering any application to carry out potentially hazardous or offensive development. A preliminary hazard analysis is provided in Appendix E of the EIS. The Department reviewed this preliminary hazard analysis and, to enable an assessment of whether the development is hazardous or offensive and to develop Conditions to reduce or minimise any adverse impact, requested further information from the Applicant on hazard issues. The Applicant's response is considered to be adequate and the Department is now satisfied that the provisions of SEPP 33 have been complied with.

3.4 Schedule 3 of EP&A Regulation

The Proposal is designated development under Schedule 3 of the EP&A Regulation 2000 and an EIS was prepared accordingly. Procedures relating to the preparation and public notification of the EIS have been followed.

3.5 Environment Protection and Biodiversity Conservation Act, 1999 (EPBC Act)

The Commonwealth EPBC Act commenced operation on 16 July 2000, with the primary objective of providing protection for the environment, particularly those aspects of the environment that are matters of "national environmental significance". The EPBC Act establishes a scheme requiring environmental assessment and approval of proposals likely to significantly impact on such matters and a determination by the Commonwealth Minister as to whether the Proposal is a "controlled action" under the EPBC Act.

The Project has not yet been referred to Environment Australia for an assessment of whether it includes a controlled action under the EPBC Act.

3.6 Threatened Species Conservation Act, 1995

The EIS addresses each of the matters set out in section 5A of the EP&A Act, and concludes that there was unlikely to be a significant impact on threatened species and therefore a species impact statement was not required (SIS). The Department concurred with the original assessment for all threatened species as presented in the EIS with the exception of the impact on the Painted Burrowing Frog (*Neobatrachus pictus*) where an assessment was not carried out. In response to these concerns the Department requested further information in regard to the impact of the Project on this species.

The Applicant's response stated that a list of flora and fauna species to be targeted during field surveys and included in the "Eight Part Tests of Significance" was formulated in accordance with standard methodology and sent to NPWS as a draft for their review. This review resulted in the addition of nine species for assessment. This list did not include the Painted Burrowing Frog (*Neobatrachus pictus*). Following review of this additional information, the Department concluded that the impact on this species was unlikely to be significant and an SIS was not required.

3.7 Conclusion

The Proposal is in accordance with the provisions of all the relevant environmental planning instruments. The Department is satisfied that statutory obligations as to the preparation of the EIS, notification and public participation have all been met.

4.0 SUBMISSIONS RECEIVED

In accordance with section 79 of the EP&A Act, the Department received a total of nine submissions in response to the exhibition period. A detailed summary of submissions resulting from the public exhibition of the Proposal is given at Appendix 1. Seven submissions were received from government agencies, one submission from Broken Hill City Council and one from an adjoining abattoir. None of the submissions objected to the Proposal, however there were a number of issues raised. There were no requests for a Commission of Inquiry.

4.1 *Government Agency Submissions*

A total of seven submissions were received from government agencies. No agency objected to the Proposal.

Submissions were received from:

- NSW Environment Protection Authority (EPA);
- The Department of Mineral Resources (DMR);
- The Western Region Development Committee (the regional traffic committee);
- NSW Agriculture;
- The Department of Land and Water Conservation (DLWC)
- NSW National Parks and Wildlife Service (NPWS); and
- Transgrid.

NSW Environment Protection Authority (EPA)

EPA required additional information from the Applicant relating to:

- the classification of waste on the site; and
- the impact on the environment of this waste.

The Applicant has responded to this request for information to the satisfaction of the EPA.

Department of Mineral Resources (DMR)

The Department of Mineral Resources expresses support for the Project as an appropriate and effective development of a valuable resource. DMR is firmly of the view that the environmental and safety issues associated with this development can be effectively and satisfactorily managed to the ultimate benefit of the local region and the State.

DMR raised the following issues:

- DMR will commence occupational Health and Safety monitoring at the beginning of the construction phase;
- safety inspections will monitor safe work procedures, radiation levels, dust suppression facilities and compliance for high energy electromagnetic installations etc;
- safety plan required within 12 months of work commencing on site;
- risk management and operational procedures should be in place before construction;
- high level of site security needed because of sites proximity to Broken Hill;
- Appropriate procedures for the safe storage and handling of Monazite needed; and
- Hazchem procedures and the appropriate materials safety data sheets should form part of the SMP.

Western Region Development Committee (the regional traffic committee)

The Western Region Development Committee has made the following comments:

- Access by triple road trains is not permitted within the areas designated for haulage between the Ginkgo Mineral Sands excavation site and the MSP.
- Traffic generation for haulage operations should be based on the use of 36.5 metre road trains.
- Access into and out of the site as well as access roads within the site to be of sufficient width to accommodate two-way vehicle flow.
- Sufficient on-site vehicle parking to be provided.
- All vehicle movements should be kept clear of the access and parking areas.

NSW Agriculture

The submission from NSW Agriculture relates to the issues of dust and the use of waste material as landfill.

NSW Agriculture is concerned about the levels of dust from unsealed areas and along the access from the mine to the highway and the impact of this on neighbouring agricultural enterprises. They have also expressed concern about the impact on the adjacent abattoir.

With regards to waste, NSW Agriculture suggest that all waste material produced at the site, should be returned to the mine to be used as landfill to aid in the restoration of a more natural topography.

Department of Land and Water Conservation (DLWC)

The submission from DLWC relates to the issues of:

- Native title
- Dust impacts
- Greenhouse
- Tenure

The comments from DLWC include:

- Applicant should demonstrate ownership of, or legal access to use the site (prior to decision on application to convert the lease to freehold). Current land lease purpose not consistent with proposed land use.
- Condition for DLWC to be involved in the phases of the EMPs
- End of Project land use and rehabilitation best dealt with as time approaches
- Water Management Act approvals are not required for surface water
- Native title issues on Willyama Common for water supply pipe from water treatment plant
- Lack of information on interactions with or potential impacts on the adjacent abattoirs.
- Road dust may impact on pastoral productivity. Concern that operation of MSP could harm natural resource values of Crown estate.
- Concern that the process water supply line that passes through a rail culvert will compromise the capacity of the culvert to service storm events.
- Greenhouse impacts are very large and should be costed or acknowledged in the cost benefit study. This impact should be ameliorated or justified.
- Detail in submission of alternative methods of waste management that should be explored.
- Suggest a plantation (probably old man salt bush) to ameliorate some of the greenhouse impact and utilise some of the water for irrigation

The Department (in consultation with DLWC) has requested additional information from the Applicant on the above issues. The Applicant has responded to these issues to the satisfaction of the Department and DLWC. DLWC has issued General Terms of Approval (GTA's) for the Project, which have been included in the Conditions of Consent.

National Parks and Wildlife Service (NPWS)

NPWS raised a number of outstanding issues pertaining to the Aboriginal cultural heritage assessment. These concerns related to:

- Lack of precise information on which sites Consent is applied for
- Lack of detailed information on sites for which Consent will be sought.
- Lack of information on the views of the Local Aboriginal Land Council (LALC)
- Lack of information on the future management of sites not in the impact zone
- Conservation of sites

The Applicant has provided written advice on these issues and NPWS expressed satisfaction with the additional information provided by the Applicant.

Transgrid

Transgrid were concerned about the effect of dust emissions on the sub-station and requested a dedicated dust deposition gauge at the nearest border to the MSP as a Condition of Consent.

4.2 Council Submission

Broken Hill City Council (BHCC) is supportive of the proposed MSP and has stated that they will assist wherever possible to ensure that the MSP is obtained for the benefit of the community.

BHCC submitted that the major issues of concern relate to dust control and the impact of transport of MSP material on Council roads.

Council expresses the need for dust suppression, particularly with relation to risks associated with Monozite dust inhalation.

BHCC would require negotiations with the Applicant to provide a suitable method of ensuring that the proposed road network meets requirements for safety and ongoing maintenance of assets. Council may also require the Applicant to provide suitable upgrades to intersections and carriageways, in particular, the intersection of the Silver City Highway and Kanandah Road may require upgrading to RTA standards. BHCC also stated that all required signage should be at the Applicant's cost.

BHCC also feels that the EIS provides an inadequate definition of "heavy vehicle" for the traffic study, this information should be provided prior to any negotiations regarding road infrastructure requirements.

Council would like the opportunity to discuss Construction Certificate requirements prior to the commencement of construction.

4.1.2. Requests for further information

As stated above, two integrated approval bodies requested further information after reviewing the EIS to enable them to assess whether General Terms of Approval could be issued for the Proposal:

Environment Protection Authority (EPA)

In response to their review of the information provided in the EIS, EPA required further information in respect of the classification for waste.

The Applicant supplied the information requested by the EPA and the EPA has supplied their General Terms of Approval, which are contained in the Conditions of Consent.

National Parks and Wildlife Service (NPWS)

NPWS raised a number of outstanding issues about the Aboriginal cultural heritage assessment. The Applicant has supplied the information requested by NPWS.

4.2 *Public submissions*

One public submission was received from Broken Hill Exports (abattoir), which is an adjoining industry. Broken Hill Exports considers that the dust from the Proposal in addition to current dust levels will put the abattoir project at considerable risk. Broken Hill Exports does however support the Project if the dust problem can be alleviated.

5.0 PLANNING NSW CONSIDERATION

Key issues

The Department has identified the key issues for the Project as being:

- Air Quality (dust generation)
- Aboriginal Archaeology
- Transport and roads
- Waste management
- Hazards and Risk
- Ecologically Sustainable Development (ESD)

5.1. Air Quality

Applicant's Position

The Applicant commissioned Pacific Air and Environment Pty. Ltd. to undertake an air quality assessment for the Project. This assessment report is contained in full in Appendix B to the EIS, and the results are summarised in Section 4.4 of the EIS.

Existing Environment

The EIS states that the most significant air quality factor is assumed to be particulate matter derived from wind erosion, industrial activities and dust from vehicles travelling on surrounding roads. Background dust levels were estimated from data collected by Pasminco (to the south-east of the proposed facility). Particles of size less than 10 microns (PM₁₀) and total suspended particles (TSP) has been estimated and is shown in Table 1 below (EIS section B4.1 of EIS Appendix B).

Table 1 - Existing background dust levels.

Dust Fraction	Estimated Background Concentration	Timeframe
PM ₁₀	Approx 23 µg/m ³	24-hour average
PM ₁₀	Approx 17 µg/m ³	Annual average
TSP	27 µg/m ³	Annual average
TSP	2.4 grams/m ² /month	Annual dust deposition

Air Quality Criteria

The air quality criteria used to assess the impacts of dust were compiled using criterion from various regulatory bodies. The health based and amenity based air quality criteria used in the EIS for the assessment of air quality at the MSP site and in areas surrounding the MSP area are shown in the Table 2 below (EIS Appendix B).

Table 2. Air Quality Criteria (MSP Site).

POLLUTANT	CRITERION	AGENCY
TSP	90 $\mu\text{g}/\text{m}^3$ (annual mean)	NHMRC
PM ₁₀	150 $\mu\text{g}/\text{m}^3$ (average of 99 th percentile of 24-hour averages over three years)	US EPA Standard
	50 $\mu\text{g}/\text{m}^3$ (annual mean)	US EPA Standard
	50 $\mu\text{g}/\text{m}^3$ (24-hour maximum)	NSW EPA reporting standard
	30 $\mu\text{g}/\text{m}^3$ (annual mean)	NSW EPA long-term reporting goal
	50 $\mu\text{g}/\text{m}^3$ (24 hour average, 5 exceedences permitted per year)	NEPM reporting standard

Assessment of Impacts

To assess the impacts of the estimated emissions, dispersion modelling was undertaken. The CALPUFF dispersion model was used to predict pollutant ground level concentrations and dust deposition rates in the area surrounding the MSP.

Concentrations of Particulate Matter.

Particulate (TSP and PM₁₀) emissions from the proposed MSP Project were estimated for the operational phase, based on worst-case emissions (i.e. minimum moisture content pf 3.5%).

The EIS estimates that particulate emissions for the operation phase would total 26.15 kg/hr for TSP and 24.16 kg/hr for PM₁₀.

Table 3 below summarises the maximum predicted ground level concentrations and air quality criteria for particulates at various receptors (Figure 1.2 of EIS) close to the MSP site. These values are increments above the existing background of 2.4 g/m²/month.

Table 3. Predicted Ground Level Concentrations and Deposition Rates

Pollutant	Averaging period	Predicted level (above background) At receptors (Figure 1.2 of EIS)				Criteria (adjusted for existing background)
		Abattoir	Smith	Talbot	Brooks	
PM ₁₀	24 hr	20.5	11.4	13.0	6.1	*
PM ₁₀	Annual	3.1	0.8	1.4	0.6	13 $\mu\text{g}/\text{m}^3$
TSP	Annual	8.0	1.0	1.8	0.7	63 $\mu\text{g}/\text{m}^3$
Dust Deposition	Annual	0.76	0.08	0.14	0.05	1 g/m ² /month

- Due to significant short term background variations in 24-hour PM₁₀ concentrations, PM₁₀ 24-hour criteria cannot be set by simply subtracting background values from the EPA regional criteria.

Predicted annual average PM₁₀ concentration increases at the nearby residences is less than 1.5 $\mu\text{g}/\text{m}^3$. The abattoir caretakers residence is expected to receive an increase of 3.5 $\mu\text{g}/\text{m}^3$. The EIS states that accounting for average background levels (17 $\mu\text{g}/\text{m}^3$) resultant levels

would be within the EPA's regional long-term goal of $30\mu\text{g}/\text{m}^3$ and well within the USEPA standard of $50\mu\text{g}/\text{m}^3$.

Predicted annual average TSP concentration increases at the nearby residences is less than $2\mu\text{g}/\text{m}^3$. The abattoir caretakers residence is expected to receive an increase of approx $8\mu\text{g}/\text{m}^3$. The EIS states that accounting for average background levels ($27\mu\text{g}/\text{m}^3$) resultant levels would be well within the NHMRC standard of $90\mu\text{g}/\text{m}^3$.

Chromium

The EIS also estimates that emissions of hexavalent chromium from the kiln would be no greater than 0.1ppb, this equates to an emission rate of 0.1944 nanograms/second after control. The maximum predicted Cr^{VI} ground level concentration is some $1.44 \times 10^{-10}\mu\text{g}/\text{m}^3$ which is well below California Air Pollution Control Officers Association (CAPCOA)(1993) exposure limits of $7.2 \times 10^{-6}\mu\text{g}/\text{m}^3$.

Dust Deposition

The EIS states that the Talbot, Brooks and Smith residences would experience an increase in annual average dust deposition of less than $0.2\text{ g}/\text{m}^2/\text{month}$ as a result of MSP operations. The abattoir caretaker's residence would receive an increase of less than $1\text{ g}/\text{m}^2/\text{month}$. Figure 4.2 of the EIS shows that levels of greater than $2\text{ g}/\text{m}^2/\text{month}$ are restricted to a small area within the rail corridor to the north of the site.

The EIS also assessed potential dust impacts on the operation of the abattoirs located adjacent to the MSP. Current operations at the abattoirs include contamination control systems including positive pressure airlock systems. The EIS concludes that the predicted increase in dust generation as a result of the MSP construction and operation poses no additional risk to meat processing at these facilities.

Mitigation Measures proposed by the Applicant

Notwithstanding the predicted moderate levels of dust deposition, the EIS does outline a number of air quality safeguards, which would be employed to reduce emissions of atmospheric dust. These measures are as follows:

- moisture content of stockpiles, high specific gravity of mineral and surface crusting;
- covered conveyers;
- enclosed building;
- work area watering;
- road watering;
- enclosed storage areas;
- vegetative mulching, cover crop and progressive revegetation; and
- minimisation of disturbance area.

The Applicant advises that the safeguards are based on current control techniques as recommended by the NSW EPA and should effectively minimise the dust impact from the Proposal.

Community/Agency Position

One submission was received from the public. Broken Hill Exports (abattoir) is an adjoining industry and considers that the dust from the Proposal in addition to current dust levels will put the abattoir project at considerable risk. Broken Hill Exports requests the two following measures to mitigate the impact on the abattoir be made a Condition of Consent.

1. Capital contribution from BEMAX to the abattoir to enable an increase of positive ventilation and to seal exposed areas
2. The goat holding paddock adjacent to the abattoir be relocated to another site.

Broken Hill Exports Pty. Ltd. does however support the Project if the dust problem can be alleviated.

DLWC and NSW Agriculture both raised concerns about the impact of dust on neighboring enterprises such as the abattoir.

Other dust issues raised by both DLWC and NSW Agriculture related to dust generated as a result of transport from the mine partially on unsealed roads. The Department considers that these issues are part of the Ginkgo mineral sands mine Development Consent, and as such are not part of this assessment.

Transgrid was concerned about the effects of dust deposition on the substation and requested a dust deposition gauge be placed at the nearest border to the MSP.

In relation to the issue of air quality, the EPA requested that the Applicant provide information on the following points:

- The EIS gives stack height for the 4 filter houses and control serving the roasting kiln as 35 metres. Is this correct? What is the obstruction height for each stack?
- Provide a diskette dispersion model input, output and meteorological data files used to predict ground level particulate concentrations and deposition rates.
- Provide the CSIRO report about the possible hexavalent chromium emissions from the ilmenite roaster.
- Provide justification for not considering emission of other metals and halogens from the ilmenite roaster.
- Detail how the monazite will be blended with a portion of the other waste. Will this be carried out in a mixing vessel? Is this the operation inside or outside a building. How will the conveyor and monazite mixing operation be vented? How will spills be avoided?

The Applicant responded to this request to the satisfaction of the EPA. The EPA therefore provided its GTAs for the Project, which included requirements for the operation to be carried out in a manner that will minimise dust emissions and requiring dust mitigation measures to be undertaken.

Department's Position

The Department considers that the air quality assessment given in the EIS satisfactorily assessed the possible effects on air quality and dust deposition due to the Projects activities. The Department is satisfied, based on the conclusions made in the EIS, that TSP and dust levels generated at the receptors in closest proximity to the MSP are expected to be moderate and below the relevant criteria.

Although the EIS does not predict exceedances of the air quality goals, the recommended Conditions of Consent provide that the Applicant shall manage the Project so as to satisfy the relevant EPA air quality criteria for dust deposition and TSP.

The Conditions also require the Applicant to prepare a Dust Management Plan detailing air quality safeguards and procedures for dealing with dust emissions from the Project. The Plan shall include, amongst other issues, protocols for dust suppression and equipment to be used

to control dust generation, details of a dust monitoring program and the establishment of a protocol for handling dust complaints.

The Conditions of Consent provide also that if a landholder believes that the relevant air quality criteria is being exceeded at his/her residence, and the Director-General is satisfied that further investigations are required, the Applicant must:

- consult with the landholder to determine his/her concerns;
- arrange for independent dust investigations to quantify impact and determine the source of the effect;
- if dust criteria are demonstrated to be in exceeded take steps in accordance with the Dust Management Plan including the introduction of additional controls and/or the negotiation of an agreement regarding amenity at the residence.

The Department considers that the recommended Conditions of Consent regarding management, mitigation and monitoring, in addition to the measures detailed in the EIS, will adequately address the concerns raised in submissions and enable a sufficient level of management of potential dust impacts.

5.2 Aboriginal Heritage

Applicant's Position

The Applicant engaged Heritage Search to undertake an Archaeology and Aboriginal Heritage survey for the Project area. The results are summarised in Section 3.7 and Section 4.8. of the EIS, and the report is contained in full in Appendix F to the EIS.

The Aboriginal heritage survey was undertaken with input from the following Aboriginal organisations:

- Broken Hill Local Aboriginal Land Council; and
- The Bakandji Native Title Applicants.

The survey included a search of the NSW National Parks and Wildlife Services (NPWS) Aboriginal Site Register and a field survey of the MSP site.

No Aboriginal heritage sites were recorded on the NPWS register within the proposed development area. However the field surveys identified 16 Aboriginal sites and artefacts.

The EIS states that the Aboriginal sites identified by the survey are considered common in the local area with approximately 86 sites on record within a 7km radius of Broken Hill. The sites are considered to be of low Aboriginal heritage or educational significance.

Potential Impacts

The 16 identified Aboriginal sites include camp sites and quartz quarries. Of these sites, 10 sites are located within disturbance areas and would be potentially impacted by the development.

Mitigation Measures proposed by the Applicant

- The Applicant states that prior to construction, artefacts from the sites to be disturbed would be salvaged under NPWS Section 90 Consent. The detail of salvage procedures would be formulated in consultation with the NPWS and local Aboriginal representatives.

- Sites that are located outside of the proposed disturbance areas would be fenced-off with signage to avoid accidental damage during the construction period.
- In the event that additional relics are discovered during construction activities that fall outside the Section 90 Conditions of Consent, works in the immediate area would cease pending consultation with the NPWS, Broken Hill LALC and Bakandji NTA.

Community/Agency Position

The NSW National Parks and Wildlife Service (NPWS) raised a number of issues in their submission to the Department. These issues are summarised as follows:

- Lack of precise information on which sites Consent is applied for
- Lack of detailed information on sites for which Consent will be sought.
- Lack of information on the views of the Local Aboriginal Land Council (LALC)
- Lack of information on the future management of sites not in the impact zone
- Conservation of sites

The Applicant has provided written advice on these issues and the NPWS has expressed satisfaction with the additional information provided.

Department's Position

The Department is satisfied that the Aboriginal assessment provided in the EIS provides a comprehensive overview of the items and sites of Aboriginal significance that may potentially be impacted by the Project.

The Department received correspondence from NPWS expressing satisfaction with the assessment and incorporating suggested GTAs for the project, although noting concerns about the consultative process with the local Aboriginal groups. However, following review of these recommended GTAs, the Department raised some concerns about the implementation and enforceability of these GTAs. The Department convened a meeting with NPWS to discuss these concerns and in response formulated appropriate GTAs for endorsement by NPWS. The Department is satisfied that the recommended GTAs interpret the intent of NPWS and may be effectively implemented and enforced within the context of the recommended instrument of consent.

In addition, the Department believes that the formulation of a Aboriginal Heritage Management Plan will provide a framework for the identification and management of all sites of archaeological significance and effectively minimise the impacts on and loss of archaeological values in this area.

5.3 Transport and Roads

Applicant's Position

The Applicant engaged the company Traffix and Resource Strategies to assess the transport requirements and impacts of the Project during construction and operation of the Project. This report is included in full in Appendix A to the EIS and the key findings are described in Section 3.2 and 4.2 of the EIS.

The EIS assessed transport related impacts resulting from transport of minerals concentrate to the MSP and for other vehicles associated with the construction and operation of the Project. The transport assessment in this EIS covers the Silver City Highway, Ryan Street, Kanandah Road and Pinnacles Road. Further transport assessment for the Ginkgo mineral sands mine

(GMS) highway access road and its intersection with the Silver City Highway are detailed in the GMS Project EIS and its approval.

Construction Stage

The construction phase for the Project is expected to have a duration of 18 months. The construction phase is expected to generate light traffic associated with the construction workforce and small numbers of heavy vehicles delivering equipment.

The EIS details that on a peak day the site would experience 210 light vehicle trips, and 4 heavy vehicles trips.

The EIS indicates that based on the expected vehicle movements during the construction phase, the maximum total daily vehicle trips on local roads would increase as follows:

- Silver City Highway (north of Kanandah Road) - 4%
- Silver City Highway (south of Kanandah Road) - 3%
- Ryan Street - 11%
- Kanandah Road - 8%
- Pinnacles Road - 40%

The EIS states that this increased flow would be well accommodated without any adverse impacts and with no change to existing levels of service.

Operational Stage

Operational phase traffic would include a higher proportion of heavy vehicles associated with the delivery of mineral concentrate from the mine (20 round trips per day) than during construction and a lesser contribution from workforce traffic.

During the operations phase, Project traffic would include the workforce, visitors, heavy vehicles delivering consumables and triple road trains (up to 20 round trips per day) hauling mineral concentrate. The EIS estimates that during operations, the site would experience 90 light vehicle trips, and 50 heavy vehicles trips.

The EIS indicates that based on the expected vehicle movements during the operation phase, the maximum total daily vehicle trips on local roads would increase as follows:

- Silver City Highway (north of Kanandah Road) - 2%
- Silver City Highway (south of Kanandah Road) - 15%
- Ryan Street - 5%
- Kanandah Road - 12%
- Pinnacles Road - 26%

The EIS states that this increased flow would be well accommodated without any adverse impacts and with no change to existing levels of service.

Community/Agency Position

- Broken Hill City Council (BHCC) raised impact on roads as a concern. BHCC would require negotiations with the Applicant to provide a suitable method of ensuring that the proposed road network meets requirements for safety and ongoing maintenance of assets. Council may also require the Applicant to provide suitable upgrades to intersections and carriageways, in particular, the intersection of the Silver City Highway and Kanandah Road

may require upgrading to RTA standards. BHCC also stated that all required signage should be at the Applicant's cost.

BHCC has issued General Terms of Approval for the Project, which the Department has included in the Conditions of Consent.

A submission from the Western Region Development Committee states the following as issues of concern:

- Access by triple road trains is not permitted within the areas designated for haulage between the Ginkgo Mineral Sands excavation site and the MSP.
- Traffic generation for haulage operations should be based on the use of 36.5 metre road trains.
- Access into and out of the site as well as access roads within the site to be of sufficient width to accommodate two-way vehicle flow.
- Sufficient on-site vehicle parking to be provided.
- All vehicle movements should be kept clear of the access and parking areas.

The Department has included a Condition of Consent requiring the Applicant to consult with the Western Region Development Committee with regards to road upgrades and maintenance.

Department's Position

The Department concurs with the assessment provided in the EIS. Notwithstanding this, the recommended Conditions of Consent provide that the Applicant is required to prepare a road construction program and enter into a Road Maintenance Agreement with Broken Hill City Council for roads within the City which are likely to be used by Project related traffic. The agreements shall include details of traffic monitoring and mechanisms to calculate contributions for road maintenance commensurate with MSP traffic use.

The Department has also included the Condition that the Applicant is required to prepare a Traffic Code of Conduct. This Code shall ensure that operators conform to designated haulage routes, drive within speed limits, adequately maintain vehicles and ensure loads are covered.

The Department is satisfied that the management and mitigation measures outlined in the EIS and the recommended Conditions of Consent adequately address the potential transport impacts arising from the Project.

5.4 Waste Management

Applicant's position

The EIS considered the generation and management of the following types of waste from Project activities:

- silica/quartz;
- salt and clay rejects;
- un-saleable ilmenite; and
- monazite.

Silica/quartz and clay

Materials sent to the settling dam would include silica and clay materials from a range of processing stages. Inert quartz (SiO_2) would dominate the silica portion of settling dam materials, while clay rejects would be composed primarily of chromite (FeCr_2O_4) and kyanite (AlSiO_5).

Salt

Excess process water would be disposed of in the evaporation ponds, resulting in the generation of approx 2,000 tpa of salt.

Monazite

The Applicant describes that all heavy mineral sand ore bodies contain traces of the natural radioactive elements uranium and thorium, together with their decay products. The only mineral sand component that is significantly radioactive is monazite. Monazite is a radioactive material and is a source of the radioactive element thorium. The EIS notes that in ore or heavy mineral concentrate produced by a wet concentrator, radiation levels from monazite are typically too low for classification or handling as a radioactive substance. However, when monazite is separated from other heavy minerals at a MSP, radiation levels may increase to levels that require some minor health and safety controls. These measures are outlined below.

Disposal of Wastes

Approximately 30,000 t of material would be removed annually from the settling dam and up to 10,000 tpa of unsaleable ilmenite would be produced by the dry mineral separation circuit. A proportion of the total waste material would be returned to the Ginkgo mine as blended waste with the monazite collected within the plant and salts that accumulate in the evaporation ponds.

Up to 30,000 tpa of the total waste material would be disposed of in the waste emplacement on a quarterly basis. The waste emplacement is designed to hold 210,000 m³ of material over the 11 year Project life.

Mitigation Measures proposed by the Applicant

- Potential impacts relating to the construction and operation of the waste emplacement (eg. Wind erosion and dust generation) would be mitigated by the progressive construction and capping of each trench.
- Construction, operation and rehabilitation of the waste emplacement would be addressed by a LEMP appropriate to the classification of the waste.
- Further assessments and appropriate controls and monitoring programs would be implemented to ensure that radiation levels remain below OH&S exposure limits throughout the processing and transport operations.

Community/Agency Position

The private and Council submissions received by the Department did not raise any concerns relating to the generation and management of municipal, saline or radioactive wastes.

DLWC and NSW Agriculture both raised the issue that alternatives to disposal of 'wastes' was not considered in the EIS. This issue was raised to the Applicant by the Department (see below).

The EPA requested further information regarding the classification of generated wastes, to enable them to assess whether General Terms of Approval could be granted. The EPA sought the following information:

- The radiation classification of the monazite fraction;
- The radiation classification of the leucoxene product;
- Classification of waste to be landfilled;
- Classification of other wastes generated at the site; and
- Total amounts (in tpa) of hazardous/industrial wastes that will be generated at the site.

The Applicant provided an appropriate response to this request for information from the EPA. Following receipt of this information, EPA provided their General Terms of Approval (GTAs) for the Project. These GTAs included conditions relating to waste management, landfilling of waste and monitoring of waste movements. The EPA's GTAs have been incorporated in the recommended Conditions of Consent.

Department's Position

In response to submissions by DLWC and NSW Agriculture, the Department requested additional information from the Applicant regarding alternatives to the disposal of wastes. The Applicant has responded appropriately to this request and the Department is satisfied that the wastes generated at the MSP site have been adequately considered and assessed.

The recommended Conditions of Consent also include a number of requirements relating to waste management. In accordance with the EPA GTAs, these Conditions include the requirement for the Applicant to prepare a Landfill Environmental Management Plan to provide procedures and a monitoring program to ensure that the requirements of the *Code of Practice on The Management of Radioactive Wastes from the Mining and Milling of Radioactive Ores 1982* are complied with. The Conditions also impose limitations on the type of waste to be disposed of at the premises.

The Department considers that the proposed management and monitoring of waste, including radioactive material, will adequately ensure protection for employees and the environment from waste generated as a result of the Project.

5.5 Hazard and Risk

Applicant's Position

The Applicant conducted a preliminary hazard analysis (PHA) to gain an understanding of the potential hazards and risks associated with the Project. The Project components and operations were subdivided into areas and each area was assessed for various hazardous scenarios.

The risk analysis stated that the main potential risk areas include:

- Transportation and storage of LPG for use in the mineral drying and ilmenite kiln circuits (eg. Explosions and fires);

- The haulage of mineral concentrates to the MSP and the backloading of MSP waste products to the mine by road train (eg vehicle accidents, leaks/spills).

The analysis of the consequences and likelihood of these hazardous scenarios was carried out with regard to the public, property and the environment. The analysis concluded that no identified risks posed significant off-site impacts, provided the proposed mitigation measures were implemented.

Mitigation Measures proposed by the Applicant

Mitigation measures proposed by the Applicant relating to specific hazard mitigation and/or preventative measures include:

- Traffic controls at the intersection of the Ginkgo highway access road and the Silver City Highway and minor intersection safety upgrades in Broken Hill at the Kanandah Road/Pinnacles Road intersection and the Pinnacles Road/ MSP access road intersection.
- A road safety audit to be undertaken on the mineral concentrate transport route prior to commencement of operations;
- The regular maintenance of all plant and equipment to prevent failures;
- The training of staff in safety matters;
- Civil engineering structures to be constructed in accordance with applicable codes, guidelines and Australian Standards;
- Triple road trains to be designed and constructed in consultation with the RTA;
- The implementation of an Emergency Response Plan (ERP);
- Water management structures to be built to separate upslope and operational areas and to collect MSP site run-off;
- The safe storage of diesel and LPG;
- The development of a site emergency response team.

Community/Agency Position

No submissions received by the Department raised concern with the risks and hazards associated with the Project.

Department's Position

The Department requested additional information from the Applicant on the issues of Hazard and risk.

The Department's assessments of the EIS and additional information supplied by the Applicant indicated that there are no dangerous goods on site, and the only material likely to cause concern is diesel fuel and LPG. Accordingly, the Conditions of Consent require the storage of diesel and LPG to be in accordance with the requirements of WorkCover NSW and the relevant Australian Standards.

The Department considers, in view of the low hazard risk of the development as outlined in the EIS, that the implementation of mitigation measures proposed in the EIS and the recommended Conditions of Consent will adequately minimise the risk of hazardous incidents.

5.6.1 Ecologically Sustainable Development (ESD)

Applicant's Position

The EIS addresses the principles of ESD in Section 1.5 of the EIS. The EIS states that the principles of ESD have been applied to the Project and have been incorporated in the overall development description and addresses each of the four principles.

Community/Agency Position

- The submission from DLWC included the issue of Greenhouse impacts of the Proposal. DLWC states that the impacts are very large being broadly equal to 1/500 of annual greenhouse gas production over the project life or annualised 1/5000 of national output. DLWC states that greenhouse impact should be costed or acknowledged in the cost benefit study and that this impact should be ameliorated or justified.

Department's Position

Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* states that an EIS must include reasons justifying the carrying out of development in the manner proposed having regard to amongst other things, the principles of ESD. For the purposes of Schedule 2 the principles of ESD are:

- (a) The precautionary principle – namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
- (b) Inter-generational equity – namely, that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.
- (c) Conservation of biological diversity and ecological integrity.
- (d) Improved valuation and pricing of environmental resources.

The Department considers that overall appropriate information is available in the EIS to justify consistency with the ESD principles. However, in recognition of the environmental sensitivity of the project, and to ensure the environmental impacts of the proposal are properly managed consistent with the ESD principles, the Department includes special provisions for independent auditing and monitoring of the project in the Conditions of Consent.

The EIS indicates that total carbon emissions from the MSP due to energy consumption will be approximately 103,000 tonnes per annum. This represents approximately 0.022% of the national greenhouse emission rate.

The Department considers the emissions from combustion can only be resolved by a reduction in the use of coal as an energy source.

The Department requested further information from the Applicant on the issues of Energy Management and Greenhouse.

The Applicant has responded that the minimisation of greenhouse gases from the Project is directly linked to the type of fuel selected for the Project. EIS Section 1.3 includes a discussion of the alternative fuels considered for the MSP and states:

“Alternative fuels that were considered for the MSP mineral dryers and kiln include:

- *a diesel and coal mix; and*
- *Liquefied Petroleum Gas (LPG) from an on-site storage.*

LPG gas from an on-site storage was selected on economic and environmental grounds (eg. fewer air pollutants are released from the use of LPG)."

In accordance with the reporting requirements for the National Pollutant Inventory (NPI), BeMaX would annually report emissions of substances listed in the Inventory (relevant to the Project) where emission levels are above thresholds. BeMaX would then propose to employ this as an accounting system for emissions and to provide a benchmark for establishing emission minimisation techniques and practices. This methodology is in accordance with principles 2, 4, 5 and 6 of the Australian Minerals Industry Code for Environmental Management.

The Department is satisfied that the management and mitigation measures outlined in the EIS and the recommended Conditions of Consent adequately address the potential energy and greenhouse impacts arising from the Project.

6.0 SCOPE OF CONDITIONS OF CONSENT

The recommended Conditions of Consent at Attachment A have been prepared taking into consideration the General Terms of Approval and other issues raised by Government agencies, Council, and all other submitters including land-owners.

The recommended Conditions of Consent provide for appropriate management of air quality (dust generation), Aboriginal archaeology, transport and roads, waste management and hazards and risk. The Conditions of Consent also include specific provisions for independent monitoring, set appropriate noise and dust criteria, require the preparation of Annual Environmental Management Plan Reports and compliance reports, a number of environmental management plans, and provisions for the involvement of the local community.

The Department has undertaken extensive consultations with the Applicant concerning the content and intent of the Conditions of Consent.

7.0 CONCLUSION

The Department considers that there are no environmental impacts from the proposed Broken Hill Mineral Separation Plant, which could not be effectively managed through the recommended Conditions of Consent. The Proposal is consistent with State and regional planning objectives.

8.0 RECOMMENDATION

It is recommended that the Minister approve the development application (DA 345-11-01) for the proposed Broken Hill Mineral Separation Plant as submitted by BeMaX Resources NL Limited subject to the attached Conditions of Consent.

Endorsed

Gordon Kirkby
Team Leader
State Significant Development

Sam Haddad
Executive Director

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

79C EVALUATION

(1) Matters for consideration - general

In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:

(a) the provisions of:

- (i) any environmental planning instrument, and
- (ii) any draft environmental planning instrument that is or has been placed on public exhibition and details of which have been notified to the consent authority, and
- (iii) any development control plan, and the regulations (to the extent that they prescribe matters for the purposes of this paragraph), that apply to the land to which the development application relates.

Refer to pages 7 to 8 of this Report

(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,

Refer to pages 13 to 24 of this Report.

(c) the suitability of the site for the development, ***Refer to pages 4 to 24 of this Report.***

(d) any submissions made in accordance with this Act or the regulations,

Refer to pages 2 to 3 and 8 to 11 of this Report.

(e) the public interest, ***Refer to pages 1 to 26 of this Report.***

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