ENVIROMENTAL ASSESSMENT REPORT

Transport Terminal

Fraser Beach, King Island

Dr Allan J Bond & Associates Pty Ltd

Report and recommendations of the
EPA Division
Department of Primary Industries, Parks, Water and Environment

to the Board of the Environment Protection Authority
November 2010
### Environmental Assessment Report

<table>
<thead>
<tr>
<th>Proponent</th>
<th>Dr Allan J Bond &amp; Associates Pty Ltd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposal</td>
<td>Transport Terminal</td>
</tr>
<tr>
<td>Location</td>
<td>Fraser Beach, King Island</td>
</tr>
<tr>
<td>NELMS no.</td>
<td>8072</td>
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<tr>
<td>DA number</td>
<td>021011</td>
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<td>112027</td>
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<tr>
<td>Document</td>
<td>EEO\EAS \P\AllanJ Bond_Naracoopa\AR\EAR_Bond.docx</td>
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<tr>
<td>Class of Assessment</td>
<td>2B</td>
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### Assessment process milestones

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 July 2010</td>
<td>Permit application submitted to Council</td>
</tr>
<tr>
<td>4 August 2010</td>
<td>Start of public consultation period</td>
</tr>
<tr>
<td>11 August 2010</td>
<td>Council required by the Board to refer the application</td>
</tr>
<tr>
<td>18 August 2010</td>
<td>End of public consultation period</td>
</tr>
<tr>
<td>30 August 2010</td>
<td>Supplementary Information required</td>
</tr>
<tr>
<td>7 October 2010</td>
<td>Supplementary information submitted to Board</td>
</tr>
<tr>
<td>12 October 2010</td>
<td>Start of non-statutory comment period</td>
</tr>
<tr>
<td>26 October 2010</td>
<td>End of non-statutory comment period</td>
</tr>
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### Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tr>
<td>AHT</td>
<td>Aboriginal Heritage Tasmania, DPIPWE</td>
</tr>
<tr>
<td>Board</td>
<td>Board of the Environment Protection Authority</td>
</tr>
<tr>
<td>CLS</td>
<td>Crown Land Services, DPIPWE</td>
</tr>
<tr>
<td>Council</td>
<td>King Island Council</td>
</tr>
<tr>
<td>DAJB</td>
<td>Dr Allan J Bond &amp; Associates Pty Ltd</td>
</tr>
<tr>
<td>DHHS</td>
<td>Department of Health and Human Services</td>
</tr>
<tr>
<td>DIER</td>
<td>Department of Infrastructure, Energy and Roads</td>
</tr>
<tr>
<td>DPIPWE</td>
<td>Department of Primary Industries, Parks, Water and Environment</td>
</tr>
<tr>
<td>EC</td>
<td>Electrical Conductivity</td>
</tr>
<tr>
<td>EIA</td>
<td>Environmental impact assessment</td>
</tr>
<tr>
<td>EMPC Act</td>
<td><em>Environmental Management and Pollution Control Act 1994</em></td>
</tr>
<tr>
<td>EPBC Act</td>
<td><em>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</em></td>
</tr>
<tr>
<td>HDPE</td>
<td>Heavy Density Polyethylene</td>
</tr>
<tr>
<td>HMS</td>
<td>Heavy Mineral Sands</td>
</tr>
<tr>
<td>LUPA Act</td>
<td><em>Land Use Planning and Approvals Act 1993</em></td>
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<tr>
<td>MAST</td>
<td>Marine Safety Tasmania</td>
</tr>
<tr>
<td>MRT</td>
<td>Mineral Resources Tasmania</td>
</tr>
<tr>
<td>MPMP</td>
<td>Marine Pest Management Plan</td>
</tr>
<tr>
<td>PCAB</td>
<td>Policy and Conservation Assessment Branch, DPIPWE</td>
</tr>
<tr>
<td>RMP</td>
<td>Radiation Management Plan</td>
</tr>
<tr>
<td>SD</td>
<td>Sustainable development</td>
</tr>
<tr>
<td>SEE</td>
<td>Statement of Environmental Effects</td>
</tr>
<tr>
<td>Supplement</td>
<td>SEE Supplement</td>
</tr>
<tr>
<td>TDS</td>
<td>Total dissolved solids</td>
</tr>
</tbody>
</table>
Report summary

This report contains an environmental assessment and recommendations to the Board of the Environment Protection Authority in relation to Dr Allan J Bond & Associates Pty Ltd’s (DAJB) proposed temporary transport terminal.

The proposal is to enable the transport of heavy mineral sands (HMS) from Mining Lease 1673P/M and involves the construction of 2 slurry pits on the beach, a pipeline system extending 170 metres out to sea and a barge loading structure. Product, which is currently stockpiled on the mining lease will be mixed with sea water to form a slurry which will then be pumped to one of 2 barges for transport to a bulk carrier moored in Sea Elephant Bay. The project is defined as a Level 1 activity.

It should be noted that this assessment is not related to the existing structure or ‘causeway’ built by DAJB which is currently subject to an appeal.

On 11 August 2010, the Director, acting under s 24(1) of the EMPC Act required Council to refer the application to the Board for assessment under the EMPC Act on the grounds that:

- There is potential for the project to cause environmental harm; in particular impacts on water quality;
- There is potential for the project to cause environmental nuisance; in particular impacts from noise;
- There is likely to be significant public interest in the project; and
- It is likely to be expedient that the project and the adjacent Level 2 activity (mining and mineral works) be regulated by the same body.

On 30 August 2010, the Board required that the applicant submit supplementary information to address public and government agency (including DPIPWE) comments on the application. The supplementary information was submitted by the applicant on 7 October 2010.

This report has been prepared by the EPA Division of the Department of Primary Industries, Parks, Water and Environment based on information provided by the proponent in the Statement of Environmental Effects (SEE), Planning Report and SEE Supplement. The advice of relevant Government Agencies and the public has also been sought and considered as part of this assessment.

Background to the proposal and details of the assessment process are presented in Section 1 of this report. Section 2 describes the context of this assessment. Details of the proposal are contained in Section 3. Section 4 reviews the need for the proposal and considers the project, site and design alternatives. Section 5 summarises the public and agency consultation process and the key issues raised in that process. The detailed evaluation of key issues is contained in Section 6. Section 7 identifies other environmental issues and the report conclusions are contained in Section 8.

Appendix 1 contains a tabular evaluation of other environmental issues referred to in Section 7. Appendix 2 contains a summery of issues raised in the consultation process. Appendix 3 contains a summary of issues raised in regard to the Supplement. Appendix 4 contains groundwater diagrams. Appendix 5 contains recommended environmental permit conditions for the proposal. Attachment 2 of the recommended permit conditions contains a table of the commitments from the SEE and Supplement.
Recommendations

It is recommended that the Board of the Environment Protection Authority:

1. Consider the Division's evaluation of environmental issues associated with the proposal in Section 6 and Section 7 of this report.

2. Note that the evaluation has concluded that the proposal is capable of being managed in an environmentally acceptable manner such that it is unlikely that the RMPS and EMPCS objectives would be compromised, provided that the recommendations made in this report are satisfactorily implemented. These recommendations include the implementation of the commitments made by the proponent in the SEE and Supplement.

3. Approve the proposal subject to the conditions attached to this report.

4. In accordance with s.25(5)(a)(i) of the EMPC Act, notify King Island Council that the conditions and restrictions detailed in Appendix 5 (recommended permit conditions) must be contained in a permit granted by the planning authority under the LUPA Act in respect of the proposal, if a permit is to be granted.

5. In accordance with s.25(5)(a)(ii) of the EMPC Act, provide Council with a copy of this report to outline the reasons for the conditions and restrictions.

6. In accordance with s.24(4) of the EMPC Act, determine that the activity should be subsequently treated as a Level 2 activity for the purposes of regulation.
# Report approval

<table>
<thead>
<tr>
<th>Prepared by:</th>
<th>Reviewed by:</th>
<th>Recommendations accepted:</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. Lond-Caulk</td>
<td>Rosemary Cross</td>
<td>John Ramsay</td>
</tr>
<tr>
<td>Clare Lond-Caulk</td>
<td>Section Head, Assessments Section</td>
<td>Chair 2.3 NOV 2010</td>
</tr>
<tr>
<td>Environmental Officer - Assessments</td>
<td>Senior Environmental Officer, North-West Region</td>
<td>Board of the Environment Protection Authority</td>
</tr>
<tr>
<td>Date: 15/11/2010</td>
<td>Date: 15/11/2010</td>
<td>Meeting date: 16 NOV 2010</td>
</tr>
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Environmental Assessment Report – Allan J Bond, Transport Terminal, Naracoopa
Table of Contents

1 Approvals process ........................................................................................................ 1
2 SD objectives and EIA principles .................................................................................. 2
3 The proposal .................................................................................................................... 3
4 Need for proposal and alternatives .................................................................................. 9
5 Public and agency consultation .......................................................................................... 10
6 Evaluation of key issues .................................................................................................... 11
   6.1 Surface Water Quality .................................................................................................. 11
   6.2 Noise .......................................................................................................................... 15
   6.3 Flora and Fauna .......................................................................................................... 18
   6.4 Groundwater Impacts ............................................................................................... 21
7 Other environmental issues ............................................................................................... 24
8 Conclusions ....................................................................................................................... 24
9 References ......................................................................................................................... 25
10 Summary of appendices ................................................................................................. 25
    Appendix 1: Assessment of other environmental issues .................................................. 26
    Appendix 2: Summary of issues raised by public submissions ......................................... 34
    Appendix 3: Issues raised by public submissions in regard to the Supplement ................. 37
    Appendix 4: Groundwater Diagrams ............................................................................... 40
    Appendix 5: Recommended Permit Conditions ............................................................... 41
1 Approvals process

An application for a permit under the *Land Use Planning and Approvals Act 1993* (LUPA Act) in relation to the proposal was submitted to King Island Council (Council) on 9 July 2010. The application was released for public inspection for a 14-day period commencing on 4 August 2010. Advertisements were placed in the King Island Courier and the Advocate. 8 public submissions were received.

On 11 August 2010, the Director, Environment Protection Authority in accordance with Section 24(1) of the *Environmental Management and Pollution Control Act 1994* (EMPC Act), required Council to refer the application to the Board of the Environment Protection Authority (the Board) for assessment under the Act. The application was received by the Board on 24 August 2010.

On 30 August 2010, the Board requested that the proponent prepare a Supplement to address public and government agency (including DPIPWE) comments on the application. The Supplement was submitted by the proponent on 7 October 2010.

A draft of the Supplement was submitted to the Division for comment prior to its formal submission. The documentation was referred at this time to relevant government agencies for comment and a non-statutory comment period was provided to enable local residents, potentially affected by the proposal, to comment on the Supplement.

The comments received in this non-statutory comment period have been taken into consideration during this assessment.
2 SD objectives and EIA principles

The proposal must be considered by the Board in the context of the sustainable development objectives of the Resource Management and Planning System of Tasmania (RMPS), and in the context of the objectives of the Environmental Management and Pollution Control System (EMPCS) established by the EMPC Act. The functions of the Board are to administer and enforce the provisions of the Act, and in particular to use its best endeavours to protect the environment of Tasmania, and to further the RMPS and EMPCS objectives.

The Board must undertake the assessment of the proposal in accordance with the Environmental Impact Assessment Principles defined in Section 74 of the EMPC Act.
3 The proposal

The proposal is for a sand pumping operation that will enable approximately 200,000 tonnes of heavy mineral sand (HMS) (ilmenite), from an existing stockpile, to be pumped to barges over a one year period. Council have advised that the proposal is defined as a transport terminal under the planning scheme.

The following processes will be undertaken:

• HMS will be extracted from the stockpile and delivered to a small stockpile located on the land side of the slurry pits using two dump trucks over an existing access track. A front end loader will then deposit 3000 tonnes of the product into the slurry pit.

• Seawater will be drawn into a pipe and discharged into the pit containing the HMS. One slurry pit will be filled while the other slurry pit is being pumped out to the barges.

• A slurry of seawater and HMS (20-30% HMS component) will be pumped 170 metres out to sea via a HDPE pipe to a hopper on the barge. Both inlet and outlet pipes will lie on top of the beach and sea bed, secured using cast concrete saddles, of approximately 50kg each, at intervals of approximately 20 metres (every second length of pipe).

• The slurry pipe will rise to the top of the southern middle pylon and then horizontally 7 metres to the northern middle pylon with a flexible pipe connected to an elbow located over the centre of the hopper for filling.

• During loading, workers on the barges will direct the flexible pipe into one of two hoppers (10m x 10m x 3m) in the moored barge. When the first hopper has been filled, the barge will be moved to position the second hopper under the pipe.

• Pumping will be at a rate of approximately 500 tonnes of sand/1500 tonnes of slurry per hour. This allows each barge, which contains two hoppers, to be filled every two hours.

• Seawater from the slurry will drain back to the marine environment via large pipes covered by fine steel mesh and a fine shade cloth. The barges will contain mineral sands with a small percentage (5% of total content) of water.

The main characteristics of the proposal are summarised in Table 1. A detailed description of the proposal is provided in the documentation.
## Table 1: Summary of key proposal characteristics

<table>
<thead>
<tr>
<th>Activity</th>
<th>Location and planning context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport terminal: to allow the transport of up to 200,000 tonnes per</td>
<td>Fraser Beach, near Naracoopa, King Island.</td>
</tr>
<tr>
<td>annum of heavy mineral sand (ilmenite).</td>
<td>Slurry pits will be located in Mining Lease 1673 P/M, which extends to the low water mark.</td>
</tr>
<tr>
<td></td>
<td>Pipeline infrastructure and barge loading will be in the Crown Lease, which extends 200</td>
</tr>
<tr>
<td></td>
<td>metres out from low water mark.</td>
</tr>
<tr>
<td></td>
<td>Land zoning Public Open Space according to King Island Planning Scheme 1995.</td>
</tr>
<tr>
<td></td>
<td>Land tenure Crown Land.</td>
</tr>
<tr>
<td></td>
<td>Bond MRT currently hold a bond of $200,000 for the mining lease.</td>
</tr>
</tbody>
</table>
## Existing site

<table>
<thead>
<tr>
<th><strong>Land Use</strong></th>
<th>The approved mining activity has not yet commenced. A causeway structure built by the proponent is located within the mining lease adjacent to the site of this proposal.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Topography</strong></td>
<td>Coastal plain with active undulating beach, small frontal dunes, narrow interdunal area, and a steep rise to main sand dunes at a height of approx 29 metres.</td>
</tr>
<tr>
<td><strong>Geology</strong></td>
<td>Beach and aeolian dune deposits with associated interdunal lagoonal sediments. Sand deposits are generally quite silty, sub-angular to sub-rounded quartz, and contain diagenetic, carbonaceous and iron rich indurated layers derived from the precipitation of organic acids from decaying vegetable matter in a low pH environment. The heavy minerals that are the focus of the mining operation have been deposited in this sand complex and are concentrated along old beach strandlines and disseminated within the dunes.</td>
</tr>
</tbody>
</table>
| **Soils** | Two major soil types are found within the project area:  
Naracoopa Sand has an extremely hard deep hardpan horizon; and  
Lappa Sand has a horizon only a few centimetres deep.  
Both soils are considered to be strongly podsolised within a surface horizon consisting of grey to dark grey sand and contain substantial amounts of organic matter. The subsurface is generally very pale and almost devoid of organic matter. |
| **Hydrology** | The groundwater table is expected to be at approximately 2 metres depth with the saturated zone extending to a depth of at least 9 metres. |
| **Fauna** | Potential shore birds, marine mammals, Gunn’s screwshell (Gazameda Gunnii), Orange-bellied Parrott (Neophema chrysogaster). |
| **Flora** | Potential orchid Caladenia pusilla and Blueberry Ash (Elaeocarpus reticulatus) |

## Local region

| **Surrounding land and uses** | Fraser beach runs along Sea Elephant Bay between the Naracoopa and Cowper Point headlands.  
The Fraser river is to the south, a large swamp to the west, intermittent Rocky Creek to the north.  
An informal reserve on Forestry Land is approximately one kilometre to the west.  
4 residences are located within the mining lease the nearest being approximately 350 metres distance from the proposed activity.  
Naracoopa township is to the south at approximately one kilometre distance. |

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Environmental Assessment Report – Allan J Bond, Transport Terminal, Naracoopa
### Proposed infrastructure

| **Major equipment** | 1x pile driving rig;  
|                     | 2 x front end loader;  
|                     | 1 x dump truck;  
|                     | 1 x 3 tonne immersion pump (30 litres/sec capacity), suspended by a crane above the slurry pit;  
|                     | 1 x centrifugal pump;  
|                     | 2 x diesel generators (500 kVA); and  
|                     | 2 x barges.  

| **Other infrastructure** | 2 x slurry pits, lined with sheet piles, located above the beach.  
|                          | 2 x 300mm HDPE pipelines (constructed out of 9m lengths): 1 seawater suction pipe will extend 150 m out to sea in 2 m of water; 1 slurry delivery pipe will extend 170 m out to sea where the 300mm pipe will extend to the top of the southern middle pylo.  
|                          | pipeline support structure: six pylons (610mm diameter, 12 metres long, 10mm walls);  
|                          | steel mesh platform 170m out.  
|                          | The proposal will use the existing infrastructure, such as sheds, on the mining lease.  

### Inputs

| **Water** | Approximately 1 Megalitre of sea water per hour for slurry; which will be returned to the sea less 7.5% which will be retained by the saturated HMS.  
| **Energy** | Fuel for mobile equipment and generators.  
| **Other raw materials** | Heavy Mineral Sands (ilmenite). Heavy mineral sands are naturally occurring in the local environment and are low-level radioactive.  

### Wastes and emissions

| **Liquid** | Stormwater runoff; slurry water to be released from barges.  
| **Atmospheric** | Dust; fumes from engines.  
| **Solid** | General wastes such as welding waste, oily rags; sediment.  
| **Noise** | From all machinery.  
| **Greenhouse gases** | The documentation states that this proposal will avoid the need for trucks to travel to Grassy Port (20 trucks per hour, 24 hours per day) with a significant reduction in greenhouse gases.  
| | The only source of greenhouse gases associated with the pumping operation will be the use of diesel generators and mobile equipment. There is limited opportunity to reduce greenhouse gases associated with the use of this equipment.  

Commissioning and operations

<table>
<thead>
<tr>
<th>Operating hours</th>
<th>Proposed 24 hours; 7 days a week; approximately 112 weeks per year.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project timetable</td>
<td>Construction approximately one month; Operation approximately 12 months; decommissioning. This proposal is to be temporary in nature, used to remove the existing stockpile; once mining operations commence a more permanent method will be adopted.</td>
</tr>
</tbody>
</table>

Other key characteristics

EPN 7678/2 applies to the approved mining activity on mining lease 1673 P/M

Figure 1: Site Location
Figure 2: Site plan (from Figure 2-4 of the SEE)

Figure 3: Site Plan
4 Need for proposal and alternatives

The proposal is to allow the removal of the stockpile from the mining lease. Previous approvals for the mining operation allowed for the transport of this material to be undertaken by trucks to Grassy Port.

The SEE states that DAJB no longer wish to use Grassy Port for the following reasons:

- Grassy Port has restricted hours of operation, weekly interruption from other shipping services, and shallow water that necessitates movement of barges out of the Port several times per day;
- The social and infrastructure impact of truck movements of 20 trucks per hour 24 hours per day from Naracoopa to Grassy; and
- The costs associated with use of trucks, Grassy Port and containers make road transportation sub-economic (US$180.00 per tonne compared to an optimistic current landed price in China of $US 60.00 -70.00 tonne).
5 Public and agency consultation

A summary of the public representations is contained in Appendix 2 of this report. The proponent’s response to those issues is contained in the Supplement.

8 representations were received. The main environmental issues raised in the representations included:

- Noise
- Groundwater Impacts
- Lighting
- Water Quality- sedimentation

The Supplement prepared by the proponent provides a response to each of the relevant environmental issues raised by the public.

Local residents were provided the opportunity to comment on the Supplement. 2 submissions were received. The main environmental issues raised in the submissions included:

- Noise
- Water Quality-sedimentation
- Groundwater Impacts

The application was referred to a number of government agencies/bodies with an interest in the proposal. Responses were received from the following:

- PCAB, DPIPWE
- Crown Land Services (CLS), DPIPWE
- Aboriginal Heritage Tasmania (AHT), DPIPWE
- Heritage Tasmania, DPIPWE
- (Noise Specialist) EPA Division
- (Water Specialist) EPA Division
- Water and Marine Resources, DPIPWE
- Public and Environmental Health Service, Department of Health and Human Services (DHHS)
- Mineral Resources Tasmania (MRT), DIER

A summary of the public representations is contained in Appendix 3 of this report.
6 Evaluation of key issues

The key environmental issues relevant to the proposal that were identified for detailed evaluation in this report were:

- Water Quality
- Noise
- Flora and Fauna
- Groundwater Impacts

These issues are discussed individually in the following Sections. A table of the commitments from the SEE and Supplement is included in Appendix 5 of this report.

6.1 Surface Water Quality

The proposal has the potential to impact on surface water quality during construction and operation. Potential impacts include pollution of freshwater and the marine environment through turbidity and emissions of sediment, acidic water (and associated metal contamination), processing residues and spills of hazardous substances.

The activity is located on Fraser Beach and in Sea Elephant Bay to which Fraser Beach drains. The nearest surface freshwater course is Fraser River approximately 500 metres to the south. The SEE stated that this proposal will have no effect on surface freshwater as it is not being constructed near a freshwater body.

Contamination - the activity has the potential to contaminate surface water through spilt hydrocarbons and mishandled wastes during construction and operations. These issues are discussed in Appendix 1.

During operations the activity has the potential to impact on surface water through the release of leachates, such as metals or processing chemicals, when effluent (slurry water) is returned to the marine environment.

Sedimentation & scouring – The activity has the potential to cause sedimentation of stormwater and the marine environment through erosion resulting from vehicle movements and disturbance, the release of sediment with the return of slurry water and through the scouring of the sea bed due to the velocity of returned slurry water.

The SEE stated that:

- Seawater from the slurry will drain from barges via large pipes covered by fine steel mesh and a fine shade cloth. This will ensure that no HMS is discharged to the marine environment.

- Water will be discharged at a rate of 500 tonnes of water per hour. One barge, the ‘Endeavour’, will discharge water underneath the vessel via a 70cm pipe at approximately 0.36m/s, in a minimum water depth of around 0.6m above the seabed. Velocity at the seabed will be less than 0.36m/sec due to dispersion in the sea column which will cause very minor disturbance of surface sand. The second barge the ‘Moggill’ will discharge water over the deck and will not result in any scouring.

Acid Drainage – The proposal has the potential to cause acid drainage through the disturbance of acid sulphate soils. Acid sulphate soils are known to occur on King Island. Mapping has classified Fraser Beach as having a ‘low’ (6-70%) probability of occurrence. The SEE did not address issues associated with Acid Sulphate Soils.
Submissions

A number of public submissions raised concern about potential sedimentation, silt plumes and associated impacts, particularly given the silt plumes which they state were caused by the ‘causeway’ structure built by the proponent adjacent to the site of this proposal.

One submission stated that a buffer to Blowhole Creek should be maintained.

Supplement

Contamination – The stockpile was produced by a different operator between 1969 and 1977. The Supplement states that the only chemical thought to have been used in the prior processing is caustic soda as per the standard method of processing HMS. Given this and the fact that the stockpile has been in-situ for more than thirty years, the Supplement stated that it is unlikely that the stockpile contains any contaminants.

A basic field leach test was conducted on-site in September 2010. Three samples were taken from the stockpile, mixed with seawater and tested over a period of 30 minutes for electrical conductivity (EC) and pH using a field meter. A control of seawater was compared to the samples. The results of the field leach test show that the conductivity and pH of the three slurry samples are very similar to the conductivity and pH of the seawater sample. The Supplement states that this indicates there are very limited, if any, contaminants present in the stockpile.

Sedimentation - the Supplement states that the only land disturbance will be due to construction of the slurry pits. The slurry pits will be constructed within dunes on area of land previously disturbed by historical mining operations, located approximately 50m from the high water mark. The sand material excavated during the construction of the slurry pits, will be placed inland from the pits on previously disturbed areas.

The Supplement clarified that during pumping operations, a ‘sacrificial layer’ of HMS at the bottom will be retained at the bottom of each pit and the slurry extraction pipe located above this sacrificial layer to ensure the heavy mineral is maintained in a clean condition.

Seawater from the slurry will drain to a sump on each of the barges prior to discharge. It will pass through a stainless steel mesh and a geotechnical fabric, with a pore size smaller than the smallest HMS particle.

Acid Sulphate Soils - a soil survey conducted in 1989 described the area surrounding the proposed location of the pumping operation (and the slurry pits in particular) as the Lanherne Beach Deposit (Naracoopa Sand soil type) with the following characteristics:

Ao Horizon (0-1cm): pH 6.5; A1 Horizon (1-6cm): pH 6.5; A2 Horizon (6cm+): pH 6.0; B Horizon (expected at 112cm): hardpan ‘coffee rock’.

The Supplement states that the above indicate that soils at the proposed location may be slightly acidic. However; the only disturbance that will occur will be in relation to the construction of the slurry pits; once constructed these pits will be filled with stockpile material and seawater (pH 8.3) limiting the potential for any oxidation to occur of any potential acid sulphate soils.

Management measures

- DAJB will ensure that on-site personnel monitor the occurrence of sediment plumes during operations and, in the event of a sediment plume occurring, cease operations until the cause of the plume is rectified (Commitment 3).
• DAJB will ensure that the pumping operation operates with an emergency cut-off system, able to be implemented by barge, tug or pump operators, such that no HMS is discharged into the marine environment (Commitment 4).

• Sediment control measures such as silt curtains will be used to control sediment run off as required (Commitment 9).

• Visual monitoring will be conducted and recorded for turbidity twice per day during pumping operations. If waters more than 20 metres from the barge are noticeably discoloured by discharge from the barges then pumping will cease and sediment control measures reviewed (Commitment 10).

• Surface water drains will be constructed to divert runoff into existing disturbed areas, and silt curtains will be used if required (Commitment 21).

• Pumps are operated by diesel powered gensets and in the event of an emergency they can be turned off at short notice. (sited 150m out to sea in 2 m of water and suspended 1 m above the sea bed to ensure no inflow of sand)

• The loading operation will be controlled by detailed operational procedures and a manual emergency shutdown system. During barge loading, the barge skipper and the pump operator will be in constant contact using UHF. When the hopper being filled has adequate fill, apart from a short water flush, pumping stops whilst the barge is moved to place the second hopper for filling.

• A management measure will be implemented to monitor the immediate area of impact around the discharge points from the barges to ensure that discharge is not resulting in localised acidification of the marine environment. The sampling will occur using a field meter given difficulties in transporting samples within holding times to laboratories in Melbourne.

• Seawater in the immediate vicinity of the barges will be monitored (using a field meter) twice daily for pH to determine the impact of discharge from the barges on the marine environment. Discharge will only be permitted while pH in the immediate vicinity of the barges remains >6.0 (Commitment 11).

**Evaluation**

Ilmenite is naturally occurring throughout Fraser Beach, both on land and in the marine environment; it is not considered to be a potential source of contamination other than through residual processing chemicals and sedimentation.

**Contamination**

The leach test showed little variation in the EC of the product and a sample of seawater (stockpile slurry conductivity 52.3-52.9; seawater 52.8) and no evidence of residual caustic (stockpile slurry samples pH 7.33 - 7.56, seawater pH 8.29). Advice from the water specialist, EPA Division is that the test was appropriate for the potential level of risk of the activity; that the results indicate no further testing is required and that there is unlikely to be an impact on water quality through release of leachates.

If a different material was to be used in this process the risk of potential contamination may be increased. It is therefore recommended that the proponent be required to seek further approval if material other than product from the existing stockpile is to be transported in this activity (condition G10).
Sedimentation

Construction activities, which are expected to last up to 10 days in total, will inevitably cause the mobilisation of sediments; it is recommended that the proponent be required to implement sediment controls during construction to prevent sediment from leaving the Land (condition CN3).

Ilmenite is a heavy mineral sand; by definition denser than quartz sand and are therefore less likely to remain suspended in water if released; It is considered that the measures outlined above, including those to ensure the integrity of the product are generally sufficient to prevent the release of sediment during operations. Condition G8 requires compliance with the commitments.

It is recommended that the proponent be required to implement control measures during operations to the extent necessary to prevent the release of polluted stormwater from the Land and to prevent the release of polluted effluent from the barges. The following condition are recommended: EF1 requires the installation of perimeter drains; EF2 which applies to construction and operation, requires that stormwater that is discharged from the Land must not cause environmental harm or nuisance or visually impact on receiving waters outside the Land; EF3 requires appropriate treatment of effluent.

The Supplement states that any disturbance of the sea bed from the return of seawater will occur within a high energy and highly mobile sand environment that generates considerable turbulence and that sediment will settle, along with other disturbed sand, when water velocity is insufficient to retain them in suspension. It is considered that the proponent should be required to ensure that water within the Land should not be visibly more turbid than that in the surrounding water (condition EF4).

2 representations raised the proponent’s past performance in relation to sedimentation. The construction of the existing causeway structure was not regulated by the EPA Division and it is the intention of the EPA Division to ensure that the proponent complies with the permit conditions imposed in the permit, if a permit is granted. It is therefore recommended that the Board, in accordance with section 24(4) of the EMPC Act, determines that the activity be treated as a Level 2 activity for the purposes of regulation.

Acid Sulphate Soils – Owing to the small amount of disturbance and the location of the site it is considered unlikely that the proposal will cause acid drainage through the oxidisation of ASS. The measures in commitment 11 are encouraged condition G8 requires that the activity be undertaken in accordance with the commitments.

Recommendations

It is recommended that relevant management commitments outlined in the Supplement and summarised above are included in the permit.

The following standard (generic) conditions are recommended for inclusion in the permit:

EF1: Perimeter Drains
EF2: Stormwater

The following site-specific conditions are recommended for inclusion in the permit:

EF3: Effluent Discharge
EF4: Prevention of scouring
G10 Allowed Material
6.2 Noise

**Description**

Noise during construction will be generated by the vibrating pile driver and by general machinery. Noise during operations will be generated by all machinery including 2 loaders, 2 generators, 2 pumps and a dump truck. Noise may cause an environmental nuisance for sensitive uses, such as residences, in the vicinity. The nearest residence in other ownership is within the mining lease, approximately 350 metres from the proposed location of the slurry pits. A noise modelling report included as Appendix B to the SEE was relevant to a previous proposal and did not accurately reflect the current proposal.

**Submissions**

A number of public submissions raised concern about the level of noise emissions from the proposal including the proposed 24 hour operations. Concern was raised regarding the validity of background noise monitoring stating that noise was measured only during a two week period and wave noise is variable throughout the year.

**Supplement**

An amended noise report by Vipac was included as Appendix B of the Supplement. The report stated that background noise measurements complied with the *Tasmanian Noise Measurement Procedure Manual* which stipulates that winds must not be above 5 metres per second during measurements. It also clarified that while the acoustic environment was dominated by the noise of wave action this was unlikely to mask the noise emitted from the activity.

Worst case scenarios modelled for construction activities predict noise levels of up to 46.2 dB(A) at the nearest residence in other ownership. Worst case scenarios modelled for operations predicted noise levels of up to 51.9 dB(A) at this same residence during periods of barge loading.

The number of days on which barge loading will occur is dependant on weather; the business plan for the project anticipates a loading time of 14-28 days per barge.

The report recommended a number of management measures to mitigate noise impacts.

**Management Measures**

- Construction activities will only be undertaken during daylight hours (Commitment 14).
- A number of noise management measures will be implemented on the site (Commitment 15).
- Daytime operations will not exceed 45dB(A) and evening/night operations will not exceed 35dB(A); this will be achieved by:
  - 20 km/hr speed limit on site;
  - Vehicles to be driven at low engine revs where possible;
- Water truck sound power level is not to exceed 102 dBA;
- Reversing alarm sound power level is not to exceed 101 dBA;
- Alternative warning systems to reversing alarms could be considered for operations at night;
- The front end loader sound power level should not exceed 101 dBA and to achieve this it is likely that a full European environmental noise control package will be required for the loader. This is likely to include a fully enclosed engine bay, quiet radiator fan, radiator fan silencer and double exhaust muffler system; and
- Speed control of the loader under … [acoustically]…worst case weather conditions when loading the barge at night may be required (Commitment 1).

- Only a single front end loader is to be used during the evening and night during non-barge loading periods (Commitment 16).
- A noise survey will be undertaken within 6 months of the commissioning of the operation (Commitment 17)
- Should there be any complaints in relation to noise generated by use of the pumps or generator then noise attenuation measures such as enclosures or mufflers will be installed by DAJB (Commitment 2).

**Evaluation**

The *Tasmanian Noise Measurement Procedure Manual* requires that background noise should be established using a noise logger to record 10 minute $L_{90}$ values over a period of about 2 weeks under acoustic conditions that are common and typical of quieter periods for the area as judged from the expected prevailing weather conditions and expected level of human activity. This was the method used for this report.

Advice from the noise specialist, EPA Division is that the noise modelling, including ambient monitoring was appropriate.

It is recognised that noise from construction may reach approximately 46 dB(A) at sensitive uses; this is not an uncommon feature of construction sites. Advice from the noise specialist, EPA Division is that given the short period of construction (approximately 10 days in total) noise from construction is most appropriately controlled by restricting the hours of construction to daytime only. This is enforced in recommended permit condition **CN1**.

While not all the mitigation measures recommended in the Noise report have been included as commitments in the Supplement the proponent has committed to undertake the activity in a manner that restricts noise emission to 45 dB(A) for daytime hours and 35 dB(A) for night-time hours at nearest sensitive receivers.

1 representation stated that the Supplement did not sufficiently address noise issues; that on a still day every nuance may be heard and that the noise generated will have a detrimental effect on their accommodation business 800 metres from the site.

Advice from the noise specialist, EPA Division is that the levels committed to by the proponent are low and are the tightest noise limits that would normally be applied to an industry. Given this and the short duration of the activity (the proponent clarified that removal of the entire stockpile will require 4 bulk carrier loads, therefore the activity will take place for approximately 4 months in total) it is considered unlikely that at these levels there would be any significant impact on sensitive uses. These levels are enforced in condition **N1**.

The Division considers that there are sufficient mitigation measures that can be implemented, including those recommended in the Vipac report, to ensure compliance with these levels. It is
recommended that the proponent be required to undertake a noise survey 6 months after the commencement of operations. Condition N2.

The requirements for Noise survey methodology and reporting are set out in recommended permit condition N3.

**Recommendations**

It is recommended that relevant management commitments outlined in the SEE and Supplement and summarised above are included in the permit.

The following non-standard noise conditions are recommended for inclusion in the permit:

- **CN1** Operating hours - construction
- **N1** Noise Emission Limits

The following non-standard noise conditions are recommended for inclusion in the permit:

- **N2** Noise Survey Requirements
- **N3** Noise Survey Methodology and Reporting Requirements
6.3 Flora and Fauna

**Description**

The proposal has the potential to impact on terrestrial and marine flora and fauna including shorebirds through physical disturbance, sedimentation and noise/vibration.

The SEE included a Marine Ecological Baseline Survey (Appendix C) undertaken in 2005 in relation to a previous proposal. It was found that:

- The subtidal environment to 500 metre offshore consisted of bare, mobile, well sorted, medium to coarse sands; no epi-benthic flora or fauna were detected. It was concluded that no major sea grass beds exist in the area.
- Reefs near the mining lease were very shallow and exposed to wave action and hence supported very limited ecological community. Reefs nearer to Naracoopa supported benthic infauna typical of shallow coastal habitats, richness was within the range for relatively pristine sites or sites exposed to low levels of anthropogenic influence in Northern Tasmania.
- No legislated Marine Protected Areas, threatened marine communities, or threatened species including *Gazameda gunni* exist in the area.

The SEE included a Flora and Fauna Report (Appendix D) undertaken in 2005 in relation to a previous proposal. It was found that:

- Vegetation is classed as Scrub complex on King Island (SSK) which is a vulnerable non-forest vegetation community.
- No threatened fauna species were recorded within the mining lease. The Fraser River contains suitable habitat for the southern red hairy snail (*Austrochloritis victoriae*) however a proposed 45 metre buffer is considered sufficient to protect this species.
- One threatened flora species the Blueberry Ash (*Elaeocarpus reticulatus*) was recorded on the edge of the Fraser River amongst the coastal vegetation. Suitable habitat exists for the orchid *Caladenia pusilla*.

**Submissions**

One public representation raised concern about impacts on natural values including the Orange bellied parrot and sea floor biota, stating that new surveys should be undertaken.

PCAB advised that the flora and fauna surveys included in the SEE, being more than 2 years old, were considered out of date.

**Supplement**

The Supplement clarified that:

- the slurry pits will be located in an area within the old dune system previously disturbed by historic mining operations.
- the total footprint of the proposal is approximately 400 m² on land for the slurry pits and approximately 300m² on the seabed but that the actual area disturbed will be less than this as the mooring structure is comprised of only six pylons.
A shorebird survey was conducted in October 2008 and approved by DPIPWE, this was included as Appendix C to the Supplement. The report concluded that the southern part of Fraser Beach was of low shorebird species diversity with low shorebird frequency. Only two species were observed during the four hour study, namely the Pacific Gull (Larus pacificus) and Silver Gull (L. novaehollandiae).

The Supplement included, as Appendix D, an assessment of the potential impacts of the proposal on the marine environment.

The main potential impact identified was acoustic disturbance of migrating cetaceans during pile driving. It concluded that this would last for only 1-2 days and would not be a significant impact.

The potential for contaminants contained within the HMS to have an impact on the marine environment and for smothering to occur from deposited suspended sediment was also noted.

The Supplement stated that during a field survey conducted by Blackall (1989), the Orange Bellied Parrot was noted to be observed roosting in stands of Tecticornia arbuscula and Melaleuca ericifolia along the southern edges of the tidal mud flats at Sea Elephant River (to the north of Fraser Beach) with most of the birds congregating at that point. The proposed pumping operation will occur in a heavily disturbed area in the Southern Portion of the mining lease and will have no impact on the Orange-bellied Parrot.

**Management measures**

A lookout for marine mammals will be maintained during pile driving operations, and will be stopped if they are observed (Commitment 18).

A marine survey using the methodology used in the 2005 marine survey will be undertaken within 6 months of the commissioning of the pumping operation (Commitment 19).

**Evaluation**

Potential impacts associated with sedimentation consequent smothering and the release of toxicants are discussed in section 6.1 above. Compliance with the permit conditions relevant to these issues will ensure that sediment from the activity does not impact on reefs in the area.

The area in which the slurry pits are to be constructed has been previously disturbed during the construction of the existing causeway. This area will be subject to the permit conditions attached to this report, if a permit is granted, and the proponent will be required to rehabilitate this area as discussed in Appendix 1.

The boundaries of the site on which this activity will be undertaken are approximately 500 metres from the Fraser River; well beyond the 45 metre buffer imposed by the EPN which is current for the mining activity.

In response to the Supplement the Policy and Conservation Assessment Branch (PCAB) advised that the likelihood of impacts on natural values is considered to be very low and therefore no new surveys are required.

In order to prevent acoustic impacts on marine mammals during construction PCAB recommended the following measures:

- Where practical piles should be ‘spun’ into the seabed in preference to impact pile driving.
- Prior to each day of Pylon installation activities the area within a 500 metre radius of the activity should be scanned for the presence of cetaceans, pinnipeds, turtles and/or penguins
- Construction activities must not conducted or must cease if any cetaceans, pinnipeds, turtles and/or penguins are present within 500 metres of construction activities.
- A ‘soft start’ technique should be used at the beginning of each pile installation day to allow any cetaceans, pinnipeds, turtles and/or penguins to exit the area prior to pile driving reaching full capacity.

- The Biodiversity Conservation Section, DPIPWE should be consulted immediately prior to construction activities to determine whether there has been any recent marine mammal sightings in the proposed work area (6233 6556).

- Occurrences of cetaceans, pinnipeds, turtles and/or penguins in monitoring zones must be reported to DPIPWE within 90 days of detection. Reference data should include species name, location GPS (grid reference GDA 94), observer name, number of individuals and area occupied.

The use of a vibrator to drive the piles is a deviation from the conditions stated in the Crown Lease; Advice from Crown Land Services (CLS), DPIPWE is that the amendment of this condition is unlikely to be problematic but that the proponent will have to apply to CLS for this change. Until this has occurred it must be assumed that ‘spinning’ method of pile driving can not be implemented; therefore this recommendation is not included in the permit. The other recommendations made by PCAB are included in non-standard permit condition CN2.

**Recommendations**

It is recommended that relevant management commitments outlined in the SEE and Supplement and summarised above are included in the permit.

The following site-specific noise conditions are recommended for inclusion in the permit:

**CN2**  Marine observations
6.4 Groundwater Impacts

**Description**

The activity has the potential to impact on groundwater through contamination and through causing salt water incursion.

The SEE stated that there are no known users of the groundwater resource in the area.

The SEE described the hydrogeology as an aquifer in Pleistocene sand of variable depth with an average thickness of 7m, containing diagenetic, carbonaceous cement horizons and peat layers which significantly reduce the permeability of the sand aquifer.

Groundwater monitoring was conducted in 2005. Assessment of the monitoring results stated that the groundwater is most suitable for irrigation and drinking water for stock; variations in water quality are considered to be consistent with that expected in areas with stratigraphic and areal variations in an unconfined coastal aquifer.

The SEE discussed the possibility of saltwater intrusion caused by drawdown and concluded that this was unlikely for reasons including the topography of the sand/clay boundary and the hydrostatic head and the location of the slurry pits above the beach.

**Submissions**

One public representation raised concern about impacts to groundwater: that the SEE did not address this specific proposal, including the placing of salt water on top of the fresh water, and that the schematic diagrams did not give sufficient detail such as height above both ground water and sea water, location of pumps and distances from the shoreline.

**Supplement**

The Supplement clarified that the pits will be located approximately 50 metres above high water mark.

In Appendix A of the Supplement, Sloane Geosciences addressed the potential impacts to groundwater of this specific proposal.

The report clarified that:

- specific soil and groundwater information is not available for the pit location but conditions may be similar to those at an existing monitoring bore approximately 100 metres to the north, where saturated sand deposits extend to a depth of at least 9 metres with a groundwater table at about 2 metres and groundwater salinity marginally in excess of 1000 mg/L TDS.
- The pits are likely to be very close to the Ghyben-Herzberg saltwater/freshwater interface
- The salinity of the seawater to be pumped into the slurry pits is likely to be approximately 35000 mg/L Total Dissolved Solids (TDS).
- The pits may be based in clay, rather than saturated sand.

The report concluded that:

- The water table in the ‘interdunal’ area is generally at approximately 2 metres depth or less, indicating that this is likely to be the maximum possible head differential when the pits are full to the ground surface level. Any period of greater head inside the pits is likely to be
short-term as slurry pumping will rapidly lower the level of slurry water inside the pits. Therefore any period of greater head inside the pit is likely to be relatively minor, resulting in only a minimal displacement of groundwater by seawater. This impact would occur near the freshwater/saltwater interface and due to the flow of groundwater towards the coast any higher salinity ‘halo’ around the pits is likely to be minimised and distorted towards the rear of the beach.

- Any period of greater head inside the pits is likely to be far outweighed by a negative head as pumping proceeds below the water table. Therefore, the net effect of the activity is likely to be a minimal flow of low salinity groundwater into the pits.

- In view of the likely differences in salinity between the groundwater and seawater there is unlikely to be any deleterious effect on groundwater in the saturated coastal sand aquifer surrounding the pits.

The report recommended that the walls of the pits should be essentially watertight to prevent saturated sand from flowing into the pit with associated subsidence around the pits and recommended the installation of 3 bores and a monitoring regime which have been included in the Supplement as a management commitment.

**Management measures**

- Slurry pits will be constructed using interlocking sheet piles to minimise the entry of saturated sand and the destabilisation of the pits (Commitment 12).

- Installation of three groundwater monitoring bores on the northern, western and southern sides of the slurry pits (noting that NC3 already exists). Each bore should be sampled on a weekly basis and tested for temperature, pH, and electrical conductivity. Each month the bore should be sampled and tested for TDS (Commitment 13)

**Evaluation**

On reviewing the Supplement, 2 submissions raised concern over impacts on groundwater. 1 submission stated that more detail was required regarding the design of pit to allow the impacts to be assessed including concern that the stated interlocking steel would not be watertight; and that the bottom is to be sacrificial sand, which by its nature is permeable to ingress or egress of water, saline or otherwise.

The proponent clarified via their consultants SEMF (John McCambridge, personal communication 27/10/2010) that the slurry pits will extend 8.5 metres down from ground level and a schematic diagram was provided (Appendix 4) to demonstrate the potential impacts of the activity on groundwater movement.

Groundwater travels from an area of higher to lower head pressure; therefore water from the pits will only enter the aquifer and displace groundwater when the head pressure inside the pits is greater than that in the surrounding aquifer. Recommended permit condition **GW1** requires that slurry pits are not filled above ground level; this will minimise any difference in head pressure and therefore minimise the movement of seawater from the pits into groundwater.

Groundwater may enter the pits when the head pressure in the aquifer is greater than inside the pits and if sufficient volume entered the pits and was subsequently pumped out with the slurry this could cause drawdown and subsequent salt water incursion.

There will be no active pumping of groundwater. It is acknowledged that there may be some exchange of water but, providing the walls are relatively impermeable this will be restricted to diffusion at the slurry pit floors. Recommended permit condition **GW1** requires that the walls of the slurry pits are designed to prevent the inflow of groundwater and that the designs are submitted to the Director for approval prior to construction.
The volume of groundwater and sea water that may be exchanged by diffusion will be small in relation to the volume of water in the aquifer and the rate of recharge, it is therefore considered unlikely to impact on the freshwater/saltwater interface either through the placing of saltwater into the pits or through creating a cone of depression. The proponent has committed to the monitoring of groundwater at 3 bores for pH, EC, temperature and TDS; recommended permit condition G8 requires that the activity is undertaken in accordance with the commitments.

Advice from the water specialist, EPA Division is that given their location the slurry pits are likely to be in very close proximity to the naturally fluctuating freshwater/saltwater interface therefore any impact that may occur as a result of this activity is expected to be spatially very limited and temporary in nature; quickly dispersing on rehabilitation of the pits. Rehabilitation is discussed in Appendix 1.

**Recommendations**

It is recommended that relevant management commitments outlined in the SEE and Supplement and summarised above are included in the permit.

The following site-specific noise conditions are recommended for inclusion in the permit:

GW1  Groundwater Protection
7 Other environmental issues

In addition to the key issues, the following environmental issues are considered relevant to the proposal and have also been evaluated:

- Waste Management
- Hazardous Substances
- Atmospheric Emissions/Dust
- Heritage
- Lighting
- Weeds, Pests and Disease
- Health
- Decommissioning and Rehabilitation

Details of this evaluation, along with recommended permit conditions, are contained in Appendix 5.

8 Conclusions

The EPA Division is of the view that:

7. the RMPS and EMPCS objectives have been duly and properly pursued in the assessment of the proposal; and
8. the assessment of the proposal has been undertaken in accordance with the Environmental Impact Assessment Principles; and
9. the recommendations set out in this report accord with the Board’s responsibilities in relation to these objectives and principles.

This assessment has been based upon the information provided by the proponent in the permit application, and Supplement.

This assessment has incorporated specialist advice provided by government agencies in relation to a number of key issues.

It is concluded that the proposal is capable of being managed in an environmentally acceptable manner such that it is unlikely that the RMPS and EMPCS objectives would be compromised, provided that the recommendations made in this report are satisfactorily implemented, including the commitments made by the proponent in the SEE and Supplement.
9 References


SEMF (September 2010) Naracoopa Mineral Sands Mine: Temporary Mineral Sands Pumping Supplementary Information for Dr Allan J Bond & Associates Pty Ltd.


10 Summary of appendices

Appendix 1 Assessment of other environmental issues
Appendix 2 Summary of issues raised by public and agency submissions
Appendix 3 Summary of issues raised in regard to the Supplement
Appendix 4 Groundwater diagrams
Appendix 5 Proposed permit conditions; includes Management Commitments at Attachment 3
## Appendix 1: Assessment of other environmental issues

<table>
<thead>
<tr>
<th>Issue 1.</th>
<th>Waste Management</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Potential Impacts</strong></td>
<td>Waste should be collected and disposed of appropriately to avoid causing environmental harm or nuisance.</td>
</tr>
<tr>
<td>SEE</td>
<td>No management measures are considered necessary in relation to waste management apart from those already committed to in the current approved operation.</td>
</tr>
<tr>
<td>Public and Agency Comments</td>
<td>No comments received</td>
</tr>
<tr>
<td>Supplement</td>
<td>The generation of construction wastes will be minimal given the limited construction activities required.</td>
</tr>
<tr>
<td>Management Measures Proposed in Documentation</td>
<td>Any waste generated during construction will be collected, stored and disposed at a licensed refuse site (Commitment 20).</td>
</tr>
<tr>
<td>Evaluation and Recommendations</td>
<td>It is recommended that the proponent be required to comply with standard permit condition <strong>WM1</strong></td>
</tr>
</tbody>
</table>
### Issue 2.

#### Hazardous Substances

#### Potential Impacts

Pollution of land and water through spilt hydrocarbons.

#### SEE

The electric pumps used for the temporary sand pumping will be powered by two generator sets. Refuelling of the generators will occur using a mobile fuel tanker.

#### Public and Agency Comments

Two representations raised concern about impacts from the release of oils/hydrocarbons.

#### Supplement

The two barges do not have engines; they will be towed to the bulk carrier by a tugboat. However, both barges have 15kVA generator sets onboard with 60 litre diesel fuel tanks.

The Supplement stated that Marine Safety Tasmania (MAST) has requested the preparation of a Risk Management Plan and an Oil Spill Contingency Plan, both of which are currently in preparation.

#### Management Measures Proposed in Documentation

All refuelling will occur within a suitably bunded area. No additional management measures are considered necessary over and above the conditions of the EPN.

A Marine Oil Spill Contingency Plan will be prepared prior to commencement of pumping operations and implemented during pumping operations as necessary.

#### Evaluation and Recommendations

MAST confirmed (Colin Finch, CEO, personal communication 24/9/2010) that MAST have had discussions with the proponent in relation to the movement of the barges to the bulk carrier. The movement of barges will occur outside the Land; it is recommended that the Oil Spill Contingency Plan also include consideration of barge loading (non−standard condition H3).

It is recommended that the proponent be required to comply with standard permit conditions:

- **H1:** Storage and Handling of hazardous substances
- **H2:** Spill kits
### Issue 3.

#### Atmospheric Emissions/Dust

#### Potential Impacts

Dust may be generated by material handling, stockpiles, vehicle movements and from disturbed areas.

Dust emissions have the potential to cause an environmental nuisance.

The nearest residence is within the mining lease approximately 350 metres from the area in which this proposal is to be undertaken.

#### SEE

The pumps will be powered by a diesel generator and this will generate some exhaust gases. However, it is expected that the quantity of these gases will be minor and they will be readily dispersed due to the meteorological conditions at Naracoopa. Accordingly, the pumping operation should not cause any reduction in local air quality.

#### Public and Agency Comments

One submission raised the issue of carbon emissions and diesel fumes.

No comments received regarding dust.

#### Supplement

No further information requested.

#### Management Measures Proposed in Documentation

No measures proposed

#### Evaluation and Recommendations

The proposal has the potential to create dust. However; there are a range of effective dust control measures which may be implemented and given the prevailing meteorological conditions in the area it is considered that dust can be managed sufficiently to prevent environmental nuisance. It is recommended that the proponent be required to control dust emissions. It is recommended that the following standard condition be included in the permit: **A1**: Control of dust emissions.

There is potential for product to spill or blow from barges: it is recommended that the following non-standard condition be included in the permit: **A2**: Covering of vehicles.

It is considered that the magnitude and extent of atmospheric emissions from the proposed mobile equipment onsite are not likely to be significant. No permit conditions are recommended in relation to atmospheric emissions other than dust.
### Issue 4.

**Heritage**

**Potential Impacts**

Loss of European and/or Aboriginal Heritage through disturbance

**SEE**

An archaeological survey was conducted across the area in 1989 by R. Sim. The archaeological report (Appendix F of the SEE) noted 3 sites:

- The campsite at the mouth of the Fraser River where a group of naturalists from the French scientific expedition led by Baudin stayed in 1802;
- An early sealers’ campsite near Cowper Point which is referred to by the French naturalists in 1802; and
- A nineteenth century snarer’s camp in the Eldorado Creek vicinity where the Field Naturalist’s Club of Victoria camped during their 1887 trip to King Island.

One Aboriginal stone artefact was located during the survey. No midden sites were located in the area and no stone artefacts were eroding from the recent beach dune faces or blowouts at that time.

**Public and Agency Comments**

Heritage Tasmania advised that there are no places entered on the Tasmanian Heritage Register near the proposed development; but there are two very significant and rare sites in the vicinity.

Aboriginal Heritage advised that no further Aboriginal heritage investigation or management are required.

**Supplement**

No further information provided.

**Management Measures Proposed in Documentation**

For the purposes of this pumping operation, DAJB will implement the recommendation from the 1989 survey (Sim 1989) which states that “in the vicinity of the 1802 French naturalists’ camp an area be excluded from future or further development. A minimum area of 200 metres of the foreshore to the north of the Fraser River mouth, and 125 metres inland from the high water mark would be required to retain the features and landforms recognisable in the historic sketch (Commitment 5).

DAJB will also ensure that, if at any time during works, workers suspect Aboriginal or European heritage, works will be ceased immediately and Aboriginal Heritage Tasmania or Heritage Tasmania will be contacted, as appropriate, for advice – as previously committed to in the current approved mining operation (Commitment 6).

DAJB will also commit to carrying out further investigations of the potential European Heritage sites prior to any disturbance that may occur due to future mining activities (Commitment 7)

**Evaluation and Recommendations**

Information on the requirements of the *Aboriginal Relics Act 1975* should be included in the Information Schedule of the permit.

On review of the Supplement Heritage Tasmania advised that the proposed management measures are appropriate.

The proposal is approximately 500 metres from the mouth of the Fraser river. **No further recommendations.**
### Issue 5.

**Lighting**

<table>
<thead>
<tr>
<th><strong>Potential Impacts</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Light emissions from the proposal have the potential to cause environment nuisance.</td>
</tr>
<tr>
<td>Night lighting will be required for 24 hour per day operations. This has the potential to cause local nuisance.</td>
</tr>
</tbody>
</table>

**SEE**

The SEE stated that the EPN current for the mining lease requires that lighting from activities on the mining lease must be shrouded and oriented to the extent necessary to prevent environmental nuisance.

**Public and Agency Comments**

A number of representations raised concern about light pollution impacting residents.

**Supplement**

The Supplement stated that the bulk carrier will be located 3.2 to 3.4 nautical miles offshore, and so any night lighting will not impact on the Naracoopa community and that the only night-time activity on the beach will be one ‘dumper truck’

**Management Measures Proposed in Documentation**

No measures proposed

**Evaluation and Recommendations**

Light emissions have the potential to cause environmental nuisance. It is recommended that the proponent be required to manage light emissions to the extent necessary to prevent causing environmental nuisance at local residences *(condition X1)*.
## Issue 6.

**Weeds, Pests and Disease**

### Potential Impacts

The spread of invasive weeds, pests and diseases via the disturbance and the movement of soil, material and machinery and the importation of weeds and diseases to and from the site, including through boat movements.

### SEE

The SEE stated that a Weed and Dieback Management Plan and Marine Pest Management Plan (MPMP) had been developed as required by an earlier EPN for the mining operation.

No other management measures are considered necessary

### Public and Agency Comments

One representation raised concern over quarantine issues and which agency had jurisdiction over these issues for such an operation.

### Supplement

It was clarified in the Supplement that a Marine Pest Management Plan (MPMP) was prepared and approved by the Director of the EPA in relation to a previous proposal and continues to provide the basis for managing quarantine issues associated with vessel movements and use of ballast water.

The objective of the MPMP is to reduce the risk of translocating marine pests between Tasmanian and Victorian state waters through the application of good bio-security practices.

### Management Measures Proposed in Documentation

A range of measures are outlined in the documents.

### Evaluation and Recommendations

In response to the Supplement, the Water and Marine Resources Division, DPIWPE (Alistair Morton, personal communication, 28/10/2010) advised that the proponent should be required to comply with the MPMP (non standard condition \(X4\)) and that the MPMP is not relevant to the proposed importing of barges from Queensland. Therefore; conditions should be included requiring the management of ballast water (non standard condition \(X3\)) and biofouling (non standard condition \(X2\)).
### Issue 7.

**Health**

**Potential Impacts**

Impacts on health of workers and local residents

**SEE**

Heavy mineral sands contain radionuclides of both the natural uranium and thorium series. The operation is subject to the *Tasmanian Radiation Protection Act 2005* and the *Radiation Protection Regulations 2006*, which require a Radiation Management Plan (RMP).

An RMP was prepared and approved in 2008; No management measures are proposed over and above those already detailed in the RMP.

**Public and Agency Comments**

One representation raised concern that the existing radiation management plan had not been adhered to. This concern has been forwarded to DHHS.

**Supplement**

The Radiation Management Plan was included as an Appendix to the Supplement which stated that the Department of Health and Human Services Senior Health Physicist has reviewed the approved Radiation Management Plan in relation to the temporary pumping operation, and has noted that the plan is still applicable with a minor change required to reflect the pumping rather than loading of material onto the barges.

**Management Measures Proposed in Documentation**

The following additional Management Measure will be implemented in relation to health:

The Radiation Management Plan will be amended and approved by DHHS prior to commencement of the pumping operation.

**Evaluation and Recommendations**

The Department of Health and Human Services (DHHS) required no further information. The handling of radiation sources are regulated by the DHHS under the *Tasmanian Radiation Protection Act 2005* and the *Radiation Protection Regulations 2006*.

No recommendations.
## Issue 8.

### Decommissioning and Rehabilitation

#### Potential Impacts

Lack of appropriate rehabilitation may cause future degradation of the natural values of the site and may cause environmental harm or nuisance.

#### SEE

The SEE stated that this is a temporary proposal; that the mooring platform, pipes and pump will be removed as soon as practicable after a permanent sea transport option is in place. Three pylons will potentially remain to assist with barge mooring.

The only area of land disturbance will be the slurry pits and these will be rehabilitated in the event that the permanent transport option is established. This will involve the removal of the sheet piles and re-contouring of the sand.

#### Public and Agency Comments

A number of representations raised concern that the proposal was not temporary and that the bond should be re-assessed.

#### Supplement

The Supplement clarified that the pumping operation is temporary and expected to operate for one year. Upon completion of the pumping operation all aspects of the operation will be removed. The pipelines, slurry pits and associated equipment will be removed within three months of the completion of the temporary pumping operation.

The land based areas disturbed during the pumping operation will then either be incorporated into areas to be used for the permanent operation, or will be rehabilitated.

#### Management Measures Proposed in Documentation

DAJB will remove all infrastructure associated with the sand pumping operation as soon as practicable after the establishment of a permanent sand transportation option. Land based infrastructure (the slurry pits) will be re-contoured and revegetated (Commitment 8)

#### Evaluation and Recommendations

Public comments in response to the Supplement raised concern over rehabilitation and the need for the bond to be reassessed. MRT advised that the current bond is adequate to cover the rehabilitation of areas within the Mining Lease. This proposal does not fulfil the criteria for an activity for which the Board may require the lodgement of a financial assurance as outlined in s35 of the EMPC Act.

The proponent should be required to rehabilitate all areas of land and sea used in the undertaking of this activity. This rehabilitation is required at the cessation of the activity, including if the activity is suspended for 2 years or more.

It is recommended that the following standard permit conditions be included in the permit:

- **DC1:** Notification of cessation
- **DC2:** Rehabilitation following cessation
- **DC3:** Suspension of activity

It is recommended that the following non-standard permit conditions be included in the permit:

- **DC4:** Decommissioning and Rehabilitation Plan
- **DC5:** Stockpiling of soil
## Appendix 2: Summary of issues raised by public submissions

<table>
<thead>
<tr>
<th>Subject</th>
<th>Issue Raised</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarantine issues</td>
<td>No controls over quarantine issues.</td>
<td>Addressed in Appendix 1 above</td>
</tr>
<tr>
<td>Siltage/</td>
<td>Concern about potential silt plumes and associated impacts. The buffer to</td>
<td>Addressed in Section 6.1 above</td>
</tr>
<tr>
<td>sedimentation</td>
<td>Blowhole Creek should be maintained.</td>
<td></td>
</tr>
<tr>
<td>Water quality/</td>
<td>Concerns about contamination.</td>
<td>Addressed in Section 6.1 above</td>
</tr>
<tr>
<td>contamination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noise</td>
<td>The loading operation will cause noise pollution for Naracoopa residents</td>
<td>Addressed in Section 6.2 above</td>
</tr>
<tr>
<td></td>
<td>including barge engines 24/7.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Concern regarding validity of background noise monitoring as the noise was</td>
<td></td>
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<tr>
<td></td>
<td>measured only during a two week period, from 22 September to 7 October</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2008 and wave noise is changeable.</td>
<td></td>
</tr>
<tr>
<td>Air quality</td>
<td>Diesel fumes and carbon emissions</td>
<td>Addressed in Appendix 1 above</td>
</tr>
<tr>
<td>Light pollution</td>
<td>light pollution/nuisance</td>
<td>Addressed in Appendix 1 above</td>
</tr>
<tr>
<td>Oil Spills</td>
<td>Impacts from release (including accidental) of pollutants eg oils,</td>
<td>Addressed in Appendix 1 above</td>
</tr>
<tr>
<td></td>
<td>hydrocarbons</td>
<td></td>
</tr>
<tr>
<td>Groundwater</td>
<td>Impacts on groundwater of salt water placed on to the top of the fresh water</td>
<td>Addressed in Appendix 1 above</td>
</tr>
<tr>
<td></td>
<td>in the vicinity of the sumps schematic diagram for the pumping and loading</td>
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</tr>
<tr>
<td></td>
<td>operation does not give sufficient detail in height above both ground water</td>
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</tr>
<tr>
<td></td>
<td>and sea water, and actual location of the pumps. There are no distances</td>
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</tr>
<tr>
<td></td>
<td>given from the shoreline to be able to comment on it objectively.</td>
<td></td>
</tr>
<tr>
<td>Flora and Fauna</td>
<td>Impact on habitat, the Orange-bellied Parrot and sea floor biota</td>
<td>Addressed in Section 6.3 above</td>
</tr>
<tr>
<td>Health</td>
<td>Concern over radiation management and that previous RMP has not been</td>
<td>Addressed in Appendix 1 above</td>
</tr>
<tr>
<td></td>
<td>adhered to.</td>
<td></td>
</tr>
<tr>
<td>Subject</td>
<td>Issue Raised</td>
<td>Comments</td>
</tr>
<tr>
<td>-----------------------------</td>
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<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Bond</td>
<td>Bond should be re-assessed.</td>
<td>Discussed above.</td>
</tr>
<tr>
<td>Amenity/visual</td>
<td>Including the visual impact of a causeway or loading facility; the proposed structure will destroy the pristine quality of the landscape of Sea Elephant Bay.</td>
<td>The causeway is not part of this assessment</td>
</tr>
<tr>
<td>Property values</td>
<td>Devaluing of property.</td>
<td>Council Issue</td>
</tr>
<tr>
<td>Nature of the project</td>
<td>Proposal constitutes establishing an industrial port. Concern over who has jurisdiction over a port activity.</td>
<td>Council Issue</td>
</tr>
<tr>
<td>Planning scheme</td>
<td>Including the goals of the Public Open Space Zone, the document discusses the question of the zone only from a legal perspective; it does not consider the planning scheme goal. The proposal is counter to the Coastal Development Policy for KI. A terminal is a ‘prohibited’ use under the planning scheme.</td>
<td>Council Issue</td>
</tr>
<tr>
<td>Economic</td>
<td>Damage to the tourism and restaurant operators in Naracoopa. Potential impacts on fishing industry.</td>
<td>Council Issue</td>
</tr>
<tr>
<td>Public access</td>
<td>Beach access for pedestrians, inadequacy of that provided to date and importance of access.</td>
<td>Council Issue</td>
</tr>
<tr>
<td>Need for the proposal</td>
<td>Lack of integration with, and support to, the workings and the infrastructure of the Port of Grassy.</td>
<td>Council Issue</td>
</tr>
<tr>
<td>Security</td>
<td>The described fencing (Barbed Wire) that is to be placed around the sumps are totally inappropriate.</td>
<td>Council Issue</td>
</tr>
<tr>
<td>Temporary status.</td>
<td>It is stated that the structure is temporary but that three pylons will potentially remain.</td>
<td>Addressed in Appendix 1 above</td>
</tr>
<tr>
<td>Subject</td>
<td>Issue Raised</td>
<td>Comments</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Existing Structure</td>
<td>The illegally built causeway, should be removed it will cause erosion the long shore drift.</td>
<td>Beyond the scope of this assessment; currently before RMPAT</td>
</tr>
<tr>
<td>Process</td>
<td>The proposal requires adequate assessment.</td>
<td>The proposal has been assessed by the Board under the EMPC Act and will be assessed by Council under the LUPA Act.</td>
</tr>
<tr>
<td>Feasibility</td>
<td>Feasibility of the pumping, sluicing and separation of the sea water and heavy mineral sands and suitability of the 2 barges that have worked previously in a protected environment, being now used in an exposed ocean situation.</td>
<td>Beyond the scope of this assessment.</td>
</tr>
<tr>
<td>Inconsistencies in documentation</td>
<td>The clearance of the loaded barges from the seabed is contradictory in the two documents supplied, in the SEE it is 0.6m, in the PR it is 1.6m. 1.6m clearance over the sea bed at low tide, fully loaded and the SEE (page 5) cites 0.6m under the same condition. Loading of the bulk carrier takes according to the SEE between 7 and 16 days, depending on the weather, in the PE it is 15 to 18 days.</td>
<td>Clarified in Supplement</td>
</tr>
<tr>
<td>State Coastal Policy</td>
<td>The proposal contravenes the State Coastal Policy as Fraser Beach is defined as an actively mobile landform, is not “sensitive to the natural and aesthetic qualities of the coastal environment” as required by the Policy (2.1.3) but an eyesore in an otherwise pristine bay.</td>
<td>The provisions of the State Coastal Policy 1996 must be considered by Crown Land Services under the Crown Lands Act and by Council under the LUPA Act</td>
</tr>
<tr>
<td>Coastal Impacts</td>
<td>There is no assessment of the effects regarding the daily movement of the loader across the beach or long shore drift.</td>
<td>Beyond the scope of this assessment.</td>
</tr>
</tbody>
</table>
Appendix 3: Issues raised by public submissions in regard to the Supplement

<table>
<thead>
<tr>
<th>Submission #</th>
<th>Subject</th>
<th>Comment</th>
<th>Council/Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2</td>
<td>Access</td>
<td>The track skirting the mine operations area takes 20 minutes to walk (for a healthy person), it’s purpose is to bypass 50 metres of Fraser Beach which is zoned as a Public Space Zone. Naracoopa Mineral Sands Community Consultative Committee had agreed to a pleasant walking track with signage referring to local flora, fauna and history. Seating was to be placed along the track and viewing platforms of the mining operations to be erected catering to tourists. The reason the track was originally agreed to was because of the salesman like tactics used at the NMSCC meeting, promising implementation of the above. Instead the track as it stands is a disgrace and a hazard that has been roughly bulldozed through and has effectually stopped tourists and locals alike from accessing, using and enjoying a most popular public beach. 15.1 The “track” put through by AB&amp;A is again typical of the operator’s failures. The track has no signage, is in a hidden and obscure setting, and has been left in a rough and perilous state. Tourist and many locals have no idea of where the track is or how to now access the beach.</td>
<td>Council Issue</td>
</tr>
<tr>
<td>1</td>
<td>Visual</td>
<td>A barbed wire fence and farm gates is hardly the way to appease locals or tourists alike, what an eyesore for a pristine public beach.</td>
<td>Council Issue</td>
</tr>
<tr>
<td>1</td>
<td>Noise</td>
<td>This has been answered by quoting a string of dba levels, all of which will cause too much disturbance. The reversing beeper was not properly addressed. We believe the noise generated by a cacophony of motors and engines will cause our business to slump if not completely fail. Taking into consideration that our tourist accommodation business advertises and attracts tourists interested in serene, tranquil, peaceful etc, and getting away from the noise of the cities. Our business is only about 800 meters from the causeway. On a still day every nuance may be heard.</td>
<td>Addressed in section 6.2 above</td>
</tr>
<tr>
<td>Submission #</td>
<td>Subject</td>
<td>Comment</td>
<td>Council/Environment</td>
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</table>
| 1,2          | Groundwater       | If the base of the pits are above the fresh ground water then given the nature of the sacrificial bottom noted in their documentation, there will be salt water incursion into the fresh water. If the bottom is below the fresh water then the fresh water will flow into the sump and be pumped out to sea. Under both of these scenarios there will likely be incursion of sea water into the fresh water aquifer. More detail required regarding design of pit to allow impacts to be assessed. 8.2 The sumps are to be constructed of interlocking sheet piling (as used on the “illegal structure”). This material is not watertight and has the potential to allow ingress or egress of water. The bottom is to be sacrificial sand, which by its nature is permeable to ingress or egress of water, saline or otherwise. DA 06/00A states in condition 6 that: *The Developer must ensure that ground water contamination must not occur* There are no conditions set for it to occur “a little bit “or otherwise. Also in the DP&EMP (1999), under details for Permit 4/96/A Attachment 4 Consolidated list of Environmental Commitments states that there was to be:  
*“no use of sea water in the operation”* as under previous operators, sea water had been used, which had led to contamination of the fresh water aquifers in the area. The Lease and DA sets the DP&EMP (1999) as the baseline rules unless otherwise noted.  
Addressed in section 6.4 above |                     |
<p>| 1,2          | Water Quality - siltation | Given the debacle over the extensive silt plumes that occurred during the construction of the &quot;illegal temporary loading facility&quot; ( occurring March through to April), any assurances here are meaningless. It cannot be demonstrated by any means, historically or otherwise, by Bond &amp; Assoc that they have the willingness or capacity to monitor and deal with the siltation risk appropriately. Plumes has not been addressed properly, J Bond and associates have not demonstrated now or at any other time that the plumes entering pristine Sea elephant Bay can be totally controlled. Do they have the ability or willingness to correctly deal with this. | Addressed in section 6.1 above |
| 1            | Rehab             | To the best of our knowledge a substantial bond has not been lodged for the rehabilitation of the total mining area. If this mining venture fails or goes bankrupt who will clean up their mess?  | Addressed in Appendix 1 above |</p>
<table>
<thead>
<tr>
<th>Submission #</th>
<th>Subject</th>
<th>Comment</th>
<th>Council/Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Planning</td>
<td>Naracoopa is predominately a residential and tourist area. Fraser Beach is a Public Space Zone and as such comes under the jurisdiction of King Island Planning Scheme Public Space Zone: 3.12.2 which specifically states:</td>
<td>Council Issue</td>
</tr>
<tr>
<td>2</td>
<td>Safety</td>
<td>25.1 B&amp;A are still specifying a 1.5m Barbed Wire fence enclosure fitted with two farm gates. This is again demonstrates an amatuerish attitude of the operators. As a minimum it should be enclosed in a 2.4m chain mesh fence appropriate for the purposes. This structure will be within 500m of the township of Naracoopa with close and easy access to children.</td>
<td>Council Issue</td>
</tr>
<tr>
<td>2</td>
<td>Feasibility</td>
<td>There are clear question marks over the safety or sanity of using the purchased barges in this situation. To suggest that Moreton Bay and Sea Elephant Bay are similar (ie “partially smooth waters”) is absurd. Moreton bay is protected water. Sea Elephant Bay is protected from the West but is fully exposed to all the fury of Bass Strait from the east and north east. Moreton Bay would not have waves higher than 1000mm. Sea Elephant Bay can have a raging sea with nowhere to hide. Clearly AB&amp;A have not been to Naracoopa with a 15 knot wind blowing from the east. There is no shelter available in the bay from an easterly blow.</td>
<td>Council Issue</td>
</tr>
</tbody>
</table>
Appendix 4: Groundwater Diagrams

Scenario 1
Sheet piling founded in clay.

Water table approx. 2.5 m
Saturated sand (approx. 30% water)
Sheet piling

Sand slurry (approx. 20-30% sand, approx. 37,000 mg/L TDS)

Groundwater approx. 1,000 mg/L TDS (assumed)

Seawater 35,000 mg/L TDS (assumed)

Beach
Saltwater interface (approx.)

Preferable scenario. No groundwater inflow or sand slurry seawater outflow expected.

Scenario 2
Sheet piling and sand slurry pit founded in sand with slurry level above groundwater table.

Water table approx. 2.0 m
Saturated sand (approx. 30% water)
Sheet piling

Sand slurry (approx. 20-30% sand, approx. 35,000 mg/L TDS)

Groundwater approx. 1,000 mg/L TDS (assumed)

Seawater 35,000 mg/L TDS (assumed)

Beach
Saltwater interface (approx.)

Some sand slurry seawater outflow may occur. Zone of influence is expected to be relatively restricted as outward flow would be controlled by the pile depth below base of pit, transmissivity of the external sand and the head differential between the external groundwater level and slurry level. Any outward flow would also reduce as the sand slurry level is lowered by pumping. The depth of the sheet piling below the pit floor will have the greatest influence on any external flow and the zone of any salinity variation.

Scenario 3
Sheet piling and sand slurry pit founded in sand. Slurry level below groundwater table.

Water table approx. 2.0 m
Saturated sand (approx. 30% water)
Sheet piling

Sand slurry (approx. 37-50% sand, approx. 35,000 mg/L TDS)

Groundwater approx. 1,000 mg/L TDS (assumed)

Seawater 35,000 mg/L TDS (assumed)

Beach
Saltwater interface (approx.)

Some groundwater inflow may occur. Zone of influence is expected to be relatively restricted as rate of any inward flow would be controlled by the pile depth below base of pit, transmissivity of the external sand and the head differential between the external groundwater level and slurry level. Any inward flow will increase as the sand slurry level is lowered by pumping. This is likely to be the dominant scenario as the depth of the pit below the water table is greater than the operating height of the pit above the water table. The depth of the sheet piling below the pit floor will have the greatest influence on any external flow and the zone of any salinity variation.
Appendix 5: Recommended Permit Conditions
PERMIT PART B
PERMIT CONDITIONS - ENVIRONMENTAL No. 8072

Issued under the Environmental Management and Pollution Control Act 1994

Applicant: DR ALLAN J BOND & ASSOCIATES PTY LTD
ACN 228 785 146
244 SMITH ST
COLLINGWOOD VIC 3066

Activity: The operation of a sand pumping facility (ACTIVITY TYPE: a referred level 1 activity)
MINING LEASE 1673P/M, NARACOOPA & COWPER POINT
KING ISLAND TAS 7256

The above activity has been assessed as a level 2 activity under the Environmental Management and Pollution Control Act 1994.

Acting under Section 25(5)(a)(i) of the EMPCA, the Board of the Environment Protection Authority has required that this Permit Part B be included in any Permit granted under the Land Use Planning and Approvals Act 1993 with respect to the above activity.

Municipality: KING ISLAND
Permit Application Reference: 021011
EPA file reference: 112027

Date conditions approved: 23 NOV 2010

Signed: CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY
DEFINITIONS

Unless the contrary appears, words and expressions used in this Permit Part B have the meaning given to them in Schedule 1 of this Permit and in the EMPCA. If there is any inconsistency between a definition in the EMPCA and a definition in this Permit Part B, the EMPCA prevails to the extent of the inconsistency.

ENVIRONMENTAL CONDITIONS

The person responsible for the activity must comply with the conditions contained in Schedule 2 of this Permit Part B.

INFORMATION

Attention is drawn to Schedule 3, which contains important additional information.
# Table Of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schedule 1: Definitions</td>
<td>5</td>
</tr>
<tr>
<td>Schedule 2: Conditions</td>
<td>7</td>
</tr>
<tr>
<td>General</td>
<td>7</td>
</tr>
<tr>
<td>G1 Regulatory Limits</td>
<td>7</td>
</tr>
<tr>
<td>G2 Incident response</td>
<td>7</td>
</tr>
<tr>
<td>G3 Access to and awareness of conditions and associated documents</td>
<td>7</td>
</tr>
<tr>
<td>G4 No changes without approval</td>
<td>7</td>
</tr>
<tr>
<td>G5 Change of responsibility</td>
<td>7</td>
</tr>
<tr>
<td>G6 Change of ownership</td>
<td>7</td>
</tr>
<tr>
<td>G7 Notification prior to commencement</td>
<td>8</td>
</tr>
<tr>
<td>G8 Commitments</td>
<td>8</td>
</tr>
<tr>
<td>G9 Complaints register</td>
<td>8</td>
</tr>
<tr>
<td>G10 Allowed material</td>
<td>8</td>
</tr>
<tr>
<td>G11 Design Plans</td>
<td>8</td>
</tr>
<tr>
<td><strong>Atmospheric</strong></td>
<td>8</td>
</tr>
<tr>
<td>A1 Control of dust emissions</td>
<td>8</td>
</tr>
<tr>
<td>A2 Covering of vehicles</td>
<td>8</td>
</tr>
<tr>
<td><strong>Construction</strong></td>
<td>9</td>
</tr>
<tr>
<td>CN1 Operating hours-Construction</td>
<td>9</td>
</tr>
<tr>
<td>CN2 Marine Observations</td>
<td>9</td>
</tr>
<tr>
<td>CN3 Retention of sediment-Construction</td>
<td>9</td>
</tr>
<tr>
<td><strong>Decommissioning And Rehabilitation</strong></td>
<td>9</td>
</tr>
<tr>
<td>DC1 Notification of cessation</td>
<td>9</td>
</tr>
<tr>
<td>DC2 Rehabilitation following cessation</td>
<td>9</td>
</tr>
<tr>
<td>DC3 Suspension of activity</td>
<td>10</td>
</tr>
<tr>
<td>DC4 Decommissioning and Rehabilitation Plan</td>
<td>10</td>
</tr>
<tr>
<td>DC5 Stockpiling of soil</td>
<td>10</td>
</tr>
<tr>
<td><strong>Effluent</strong></td>
<td>10</td>
</tr>
<tr>
<td>EF1 Perimeter drains</td>
<td>10</td>
</tr>
<tr>
<td>EF2 Stormwater</td>
<td>10</td>
</tr>
<tr>
<td>EF3 Effluent discharge</td>
<td>11</td>
</tr>
<tr>
<td>EF4 Prevention of Scouring</td>
<td>11</td>
</tr>
<tr>
<td><strong>Groundwater</strong></td>
<td>11</td>
</tr>
<tr>
<td>GW1 Groundwater Protection</td>
<td>11</td>
</tr>
<tr>
<td><strong>Hazardous Substances</strong></td>
<td>11</td>
</tr>
<tr>
<td>H1 Spill kits</td>
<td>11</td>
</tr>
<tr>
<td>H2 Storage and handling of hazardous materials</td>
<td>11</td>
</tr>
<tr>
<td>H3 Marine Oil Spill Contingency Plan</td>
<td>12</td>
</tr>
<tr>
<td><strong>Miscellaneous</strong></td>
<td>12</td>
</tr>
<tr>
<td>X1 Lighting</td>
<td>12</td>
</tr>
<tr>
<td>X2 Biofouling Mitigation</td>
<td>12</td>
</tr>
<tr>
<td>X3 Ballast Water Management</td>
<td>12</td>
</tr>
<tr>
<td>X4 Compliance with the MPMP</td>
<td>13</td>
</tr>
<tr>
<td><strong>Noise Control</strong></td>
<td>13</td>
</tr>
<tr>
<td>N1 Noise emission limits</td>
<td>13</td>
</tr>
<tr>
<td>N2 Noise survey requirements</td>
<td>13</td>
</tr>
<tr>
<td>N3 Noise survey methodology and reporting requirements</td>
<td>13</td>
</tr>
<tr>
<td><strong>Waste Management</strong></td>
<td>14</td>
</tr>
<tr>
<td>WM1 Waste management hierarchy</td>
<td>14</td>
</tr>
</tbody>
</table>
Schedule 3: Information

Legal Obligations .................................................................................................................. 15

LO1 Notification of incidents under section 32 of EMPCA.............................................. 15
LO2 EMPCA......................................................................................................................... 15
LO3 Storage and handling of Dangerous Goods and Dangerous Substances.... 15
LO4 Aboriginal relics requirements......................................................................................... 16
LO5 Change of responsibility................................................................................................. 16
LO6 Underground Storage Tanks.......................................................................................... 16

Attachments

Attachment 1: The Land (modified: 29/10/2010 10:28)................................................................. 1 page
Attachment 2: Crown Lease Details (modified: 29/10/2010 10:33)............................................... 1 page
Attachment 3: Management Commitments (modified: 29/10/2010 13:01)............................... 3 pages
Attachment 4: PLANS (modified: 03/11/2010 09:42)............................................................... 1 page
Schedule 1: Definitions

In this Permit Part B:-

Aboriginal Relic has the meaning described in section 2(3) of the Aboriginal Relics Act 1975

Activity means any environmentally relevant activity (as defined in Section 3 of EMPCA) to which this document relates, and includes more than one such activity.

Authorized Officer means an authorized officer under section 20 of EMPCA

Best Practice Environmental Management or 'BPEM' has the meaning described in Section 4 of EMPCA

Commissioning means the testing of major items of equipment and is taken to be completed when the item(s) are being used or operated in the course of normal commercial operations.

Construction means activities associated with the construction phase of the activity, including but not limited to, activities associated with the clearance of vegetation, site works to create a level site, rock breaking, installation of fences and other infrastructure whether on land or in water.

Control Location (Noise) means a location chosen to represent the general ambient sound without contribution from noise sources at the activity.

Director means the Director, Environment Protection Authority holding office under Section 18 of EMPCA and includes a person authorised in writing by the Director to exercise a power or function on the Director's behalf.

DRP means a Decommissioning and Rehabilitation Plan

Effluent means spent or used water (whether from industrial or domestic sources) discharged from The Land and includes seawater that has been mixed with product.

EMP means the Naracoopa Mineral Sands Mine: Temporary Mineral Sands Pumping Operation- Statement of Environmental Effects for Dr A J Bond & Associates Pty Ltd prepared by SEMF dated July 2010 and includes supplementary information presented in Naracoopa Mineral Sands Mine: Temporary Mineral Sands Pumping Operation- Supplementary Information for Dr A J Bond & Associates Pty Ltd prepared by SEMF dated September 2010, and includes any amendment to or substitution of these document(s), including an EMP Operations, approved in writing by the Director.

EMPCA means the Environmental Management and Pollution Control Act 1994

Environmental Harm and Material Environmental Harm and Serious Environmental Harm each have the meanings ascribed to them in Section 5 of EMPCA

Environmental Nuisance and Pollutant each have the meanings ascribed to them in Section 3 of EMPCA

Environmentally Hazardous Material means any substance or mixture of substances of a nature or held in quantities which present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment and includes fuels, oils, waste and chemicals.

CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

23 Nov 2010
Existing Ilmenite Stockpile means the stockpile of ilmenite product located on Mining Lease 1673P/M with a centrepoint at approximately E 252599.85m and N 5578458.72m (GDA 94).


Noise Sensitive Premises means residences and residential zones (whether occupied or not), schools, hospitals, caravan parks and similar land uses involving the presence of individual people for extended periods, except in the course of their employment or for recreation.

Person Responsible is any person who is or was responsible for the environmentally relevant activity to which this document relates and includes the officers, employees, contractors, joint venture partners and agents of that person, and includes a body corporate.

processed means the mixing of material with seawater to form a slurry and the pumping of this slurry onto barges.

The Biodiversity Conservation Section means the section of the Department of Primary Industries, Parks, Water and Environment of this name or their subsequent replacement.

The Land means the land on which the activity to which this document relates may be carried out, and includes: buildings and other structures permanently fixed to the land, any part of the land covered with water, and any water covering the land. The Land falls within the area defined by:

1. the Crown Lease identified as Lot 1 in the plan shown at Attachment 2; and
2. Mining Lease 1673P/M; and
3. the area identified as 'The Land' in the plan shown at Attachment 1.

Waste has the meaning ascribed to it in Section 3 of EMPCA

CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

23 NOV 2010
Schedule 2: Conditions

General

G1 Regulatory Limits
1 The activity must not exceed the following limit:
  1.1 200,000 tonnes per year of material processed.

G2 Incident response
If an incident causing or threatening environmental nuisance, serious environmental harm or material environmental harm from pollution occurs in the course of the activity, then the person responsible for the activity must immediately take all reasonable and practicable action to minimise any adverse environmental effects from the incident.

G3 Access to and awareness of conditions and associated documents
A copy of these conditions and any associated documents referred to in these conditions must always be held in a location that is known and accessible to the person responsible for the activity. The person responsible for the activity must take all reasonable steps to ensure that all persons who are responsible for undertaking work on The Land, including contractors and sub-contractors, are familiar with these conditions to the extent relevant to their work.

G4 No changes without approval
1 The following changes, if they may cause or increase the emission of a pollutant which may cause material or serious environmental harm or environmental nuisance, must only take place in relation to the activity if such changes have been approved in writing by the EPA Board following its assessment of an application for a permit under the Land Use Planning and Approvals Act 1993, or approved in writing by the Director:
  1.1 a change to a process used in the course of carrying out the activity; or
  1.2 the construction, installation, alteration or removal of any structure or equipment used in the course of carrying out the activity; or
  1.3 a change in the quantity or characteristics of materials used in the course of carrying out the activity.

G5 Change of responsibility
1 If the person who is or was responsible for the activity will cease or ceases to be responsible for the activity, then, as soon as reasonably practicable, but no later than 30 days after that cessation, that person must:
  1.1 notify the Director in writing of that fact;
  1.2 provide the Director with full particulars in writing of any person succeeding him or her as the person responsible; and
  1.3 notify any such person of the requirements of any relevant permit, environment protection notice or other environmental management obligations.

G6 Change of ownership
If the person responsible for the activity is not the owner of The Land upon which the activity is carried out and the owner of The Land changes or is to change, then, as soon as reasonably practicable but no later than 30 days after becoming aware of the change, the person responsible must notify the Director in writing of the change of ownership.

CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

23 NOV 2010
G7 Notification prior to commencement
The Director must be notified in writing of the commencement of operations at least 14 days before that occurs.

G8 Commitments
The activity must be carried out in accordance with the commitments contained in Attachment 3 unless otherwise specified in these conditions or unless otherwise approved in writing by the Director.

G9 Complaints register
1 A public complaints register must be maintained and made available for inspection by an Authorized Officer upon request. The public complaints register must, as a minimum, record the following detail in relation to each complaint received in which it is alleged that environmental harm (including an environmental nuisance) has been caused by the activity:
   1.1 the time at which the complaint was received;
   1.2 contact details for the complainant;
   1.3 the subject-matter of the complaint;
   1.4 any investigations undertaken with regard to the complaint; and
   1.5 the manner in which the complaint was resolved, including any mitigation measures implemented.
2 Complaint records must be maintained for a period of at least 3 years.

G10 Allowed material
Unless otherwise approved in writing by the Director only material from the existing ilmenite stockpile may be processed in this activity.

G11 Design Plans
1 Detailed engineering plans of the location and design of infrastructure must be submitted to the Director for approval at least 14 days prior to construction. These plans must:
   1.1 be in accordance with the plans contained in Attachment 4 unless otherwise specified in these conditions; and
   1.2 demonstrate that infrastructure will not be attached to, or reliant, upon the existing causeway which is subject to action under section 64 of the Land Use Planning and Approvals Act 1993.
2 Construction must be in accordance with the plans approved in writing by the Director, as may be amended from time with the approval in writing of the Director.

Atmospheric

A1 Control of dust emissions
Dust emissions from The Land must be controlled to the extent necessary to prevent environmental nuisance.

A2 Covering of vehicles
Vehicles, including barges, carrying loads containing material which may blow or spill must be equipped with effective control measures to prevent the escape of the materials from the vehicles when they leave The Land. Effective control measures may include tarpaulins and load dampening.
**Construction**

**CN1 Operating hours-Construction**

1. Unless otherwise approved by the Director, construction activities must not be undertaken outside the hours of 0700 hours to 1800 hours on weekdays and 0800 hours to 1600 hours on Saturdays.

2. Notwithstanding the above paragraph, construction activities must not be carried out on Sundays and public holidays that are observed Statewide (Easter Tuesday excepted).

**CN2 Marine Observations**

1. Unless otherwise approved by the Director, the following measures must be undertaken during the construction period:
   
   1.1 On each day of pile installation activities, prior to activities commencing, the area within a 500 metre radius of the activity must be observed for the presence of cetaceans, pinnipeds, turtles and/or penguins; and
   
   1.2 At the beginning of each pile installation day:
      
      1.2.1 a soft start technique must be used to allow any cetaceans, pinnipeds, turtles and/or penguins to exit the area prior to pile driving reaching full capacity; and
      
      1.2.2 the person responsible must contact the Biodiversity Conservation Section to determine whether there has been any recent marine mammal sightings in the proposed work area.

1.3 Construction activities must not be conducted or must cease if any cetaceans, pinnipeds, turtles and/or penguins are present within 500 metres of construction activities; and

1.4 The presence of cetaceans, pinnipeds, turtles and/or penguins within 500 metres of the activity must be reported to the Biodiversity Conservation Section within 90 days of detection. Reference data should include species name, location GPS (grid reference GDA 94), observer name, number of individuals and area occupied.

2. For the purposes of this condition cetacean means mammals belonging to the order Cetacea and includes whales and dolphins; pinnipeds means animals belonging to the group Pinnipedia and includes seals and walruses.

**CN3 Retention of sediment-Construction**

During construction activities all reasonable measures must be implemented to ensure that sediment does not leave The Land. Such measures may include provision of strategically located sediment fences and/or sediment curtains and appropriately sized and maintained sediment settling ponds.

**Decommissioning And Rehabilitation**

**DC1 Notification of cessation**

Within 30 days of becoming aware of any event or decision which is likely to give rise to the permanent cessation of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to cease or has ceased.

**DC2 Rehabilitation following cessation**

1. Following permanent cessation of the activity, and unless otherwise approved in writing by the Director, The Land must be rehabilitated including:
1.1 stabilisation of any land surfaces that may be subject to erosion;
1.2 removal or mitigation of all environmental hazards or land contamination, that might pose an on-going risk of causing environmental harm;
1.3 decommissioning of any equipment that has not been sold; and
1.4 removal of all structures.

2 Where a Decommissioning and Rehabilitation Plan (DRP) has been approved by the Director, rehabilitation must be carried out in accordance with that plan.

3 Unless otherwise approved in writing by the Director, The Land must be rehabilitated in accordance with these conditions by 31 December 2012.

DC3 Suspension of activity
1 During temporary suspension of the activity:
   1.1 The Land must be managed and monitored by the person responsible for the activity to ensure that emissions from The Land do not cause serious environmental harm, material environmental harm or environmental nuisance; and
   1.2 If required by the Director, the person responsible must prepare and implement a Care and Maintenance Plan to the satisfaction of the Director.

2 Unless otherwise approved in writing by the Director, if the activity on The Land has substantially ceased for 2 years or more, rehabilitation of The Land must be carried out in accordance with the requirements of these conditions as if the activity has permanently ceased.

DC4 Decommissioning and Rehabilitation Plan
Unless otherwise approved in writing by the Director, a Decommissioning and Rehabilitation Plan (DRP) must be submitted to the Director within 30 days of any decision that is likely to give rise the permanent cessation of the activity. The DRP must be prepared in accordance with any reasonable guidelines provided by the Director.

DC5 Stockpiling of soil
During construction all soils and sands removed, must be stockpiled for later use in rehabilitation of The Land, and protected from erosion or other disturbance.

Effluent

EF1 Perimeter drains
1 Perimeter cut-off drains must be constructed at strategic locations on The Land to prevent surface run-off from entering the area used or disturbed in carrying out the activity. All reasonable measures must be implemented to ensure that sediment transported along these drains remains on The Land. Such measures may include provision of strategically located sediment fences, and appropriately sized and maintained sediment settling ponds.

2 Drains must have sufficient capacity to contain run-off that could reasonably be expected to arise during a 1 in 20 year rainfall event. Maintenance activities must be undertaken regularly to ensure that this capacity does not diminish.

EF2 Stormwater
1 Polluted stormwater that will be discharged from The Land must be collected and treated prior to discharge to the extent necessary to prevent serious or material environmental harm, or environmental nuisance.
2 Notwithstanding the above, all stormwater that is discharged from The Land must not carry pollutants such as sediment, oil and grease in quantities or concentrations that are likely to degrade the visual quality of any receiving waters outside the Land.

3 All reasonable measures must be implemented to ensure that solids entrained in stormwater are retained on The Land. Such measures may include provision of strategically located sediment fences, and appropriately sized and maintained sediment settling ponds.

**EF3 Efﬂuent discharge**

1 Efﬂuent must be collected and treated prior to discharge to the extent necessary to prevent serious or material environmental harm, or environmental nuisance.

2 Notwithstanding the above, efﬂuent must not carry pollutants such as sediment, oil and grease in quantities or concentrations that are likely to degrade the visual quality of any receiving waters outside the Land.

3 All reasonable measures must be implemented to ensure that solids are not released from the barges. Such measures may include the use of appropriately sized and maintained geotextile ﬁlter on outlets.

**EF4 Prevention of Scouring**

All reasonable measures must be implemented to ensure that the discharge of efﬂuent does not cause scouring of the seabed. As a minimum the sea within the Land must not be visibly more turbid or contain visibly more sediment than the sea surrounding the Land.

**Groundwater**

**GW1 Groundwater Protection**

1 The person responsible must take all reasonable measures to ensure that contamination, including salt water incursion, of groundwater does not occur.

2 Unless otherwise approved in writing by the Director, the following measures must be implemented:

   2.1 The walls of the slurry pits must be designed and constructed in a manner that minimizes groundwater or saturated sand from entering the pits;

   2.2 The engineering design plans for the slurry pits must be submitted to the Director for approval at least 14 days prior to construction;

   2.3 Slurry pits must not be filled above the surrounding ground level; and

   2.4 A record must be kept of the strata encountered during construction of the slurry pits; this record must be taken by a suitably qualiﬁed person and must be made available to an authorized ofﬁcer on request.

**Hazardous Substances**

**H1 Spill kits**

Spill kits appropriate for the types and volumes of materials handled on The Land, and which may include relocatable (temporary) bunds, must be kept in appropriate locations to assist with the containment of spilt environmentally hazardous materials.

**H2 Storage and handling of hazardous materials**

Unless otherwise approved in writing by the Director, each environmentally hazardous material held on The Land, including chemicals, fuels and oils, must, as far as practical and to the satisfaction of the Director, be located within impervious bunded areas or spill trays which are designed to contain at least 110% of the volume of the largest container.

CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

23 NOV 2010
H3 Marine Oil Spill Contingency Plan

1 At least 30 days prior to the commencement of construction activities, or by a date specified in writing by the Director, a Marine Oil Spill Contingency Plan (MOSCP) must be submitted to the Director for approval. This requirement will be deemed to be satisfied only when the Director indicates in writing that the submitted document adequately addresses the requirements of this condition to his or her satisfaction.

2 The plan must detail methods to manage any impacts resulting from the spilling of fuel or oil that occurs in the course of undertaking the activity and, as a minimum must provide the following information:
   2.1 the quantity of fuel or oil that will be used in the activity;
   2.2 storage arrangements for fuel or oil;
   2.3 oil spill response equipment that will be kept on the Land and on vessels and the location of their storage;
   2.4 contingencies that will be employed in the event of a fuel or oil spill; and
   2.5 the person (by title) responsible for the implementation and management of the MOSCP.

3 Without limitation, the plan must include details of the following:
   3.1 a table containing all of the major commitments made in the plan;
   3.2 an implementation timetable for key aspects of the plan; and
   3.3 a reporting program to regularly advise the Director of the results of the plan.

4 Fuel or oil must not be used, handled or stored in a manner contrary to the MOSCP as amended from time to time with the written agreement of the Director, must be implemented to the satisfaction of the Director.

Miscellaneous

X1 Lighting
Lighting from activities on the Land must be shrouded and oriented to the extent necessary to prevent environmental nuisance at residences.

X2 Biofouling Mitigation

1 Unless otherwise approved in writing by the Director:
   1.1 Prior to a vessel entering the land for the first time biofouling management measures must be implemented in accordance with the risk reduction measures in section 3.2.2 of the National Biofouling Management Guidance for Non-trading Vessels; and
   1.2 Records must be kept of measures taken to demonstrate compliance with this condition; and
   1.3 Records must include the entries listed in Appendix B of the National Biofouling Management Guidance for Non-trading Vessels. These records must be made available to an authorized officer on request.

X3 Ballast Water Management

1 Unless otherwise approved in writing by the Director:
   1.1 All ballast water should be managed in accordance with the applicable Australian Quarantine Inspection Service (AQIS) procedures and the Australian Ballast Water Management Requirements March 2008, or subsequent version;
   1.2 Ballast water records must be maintained using the AQIS Ballast Water Management Summary Sheet March 2009, or subsequent version; and

CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

23 NOV 2010
1.3 Ballast water records must be made available to an authorized officer on request.

X4 Compliance with the MPMP
The Land must be developed and used, and the activity on The Land must be carried out and monitored, in accordance with the measures set down in the Marine Pest Management Plan (MPMP) as approved by the Director on 18 December 2008, or any subsequent version of this document approved in writing by the Director.

Noise Control

N1 Noise emission limits
1 Noise emissions from the activity when measured at any noise sensitive premises in other ownership and expressed as the equivalent continuous A-weighted sound pressure level must not exceed:
   1.1 45 dB(A) between 0700 hours and 1800 hours (Day time); and
   1.2 35 dB(A) between 1800 hours and 0700 hours (Night time).
2 Where the combined level of noise from the activity and the normal ambient noise exceeds the noise levels stated above, this condition will not be considered to be breached unless the noise emissions from the activity are audible and exceed the ambient noise levels by at least 5 dB(A).
3 The time interval over which noise levels are averaged must be 10 minutes or an alternative time interval specified by the Director.
4 Measured noise levels must be adjusted for tonality, impulsiveness, modulation and low frequency in accordance with the Tasmanian Noise Measurement Procedures Manual.
5 All methods of measurement must be in accordance with the Tasmanian Noise Measurement Procedures Manual, issued by the Director.

N2 Noise survey requirements
Unless otherwise approved by the Director, a noise survey must be carried out within 6 months from the date on which these conditions take effect.

N3 Noise survey methodology and reporting requirements
1 Prior to undertaking a noise survey as required by these conditions, a proposed noise survey methodology must be submitted to the Director for approval.
2 Without limitation, the survey methodology must address the following:
   2.1 measurements must be carried out at day, evening and night times (where applicable) at each location; and
   2.2 measurement locations, and the number thereof, must be specified, with one location established as a control location (noise).
3 Measurements and data recorded during the survey must include:
   3.1 subjective descriptions of the sound at each location.
   3.2 details of meteorological conditions relevant to the propagation of noise.
   3.3 the equivalent continuous ($L_\infty$) and $L_T$, $L_{10}$, $L_{50}$ and $L_{90}$ A-weighted sound pressure levels measured over a period of 10 minutes or an alternative time interval specified by the Director;
   3.4 one-third octave spectra over suitably representative periods of not less than 1 minute; and
   3.5 narrow-band spectra over suitably representative periods of not less than 1 minute.
4 A noise survey report must be forwarded to the Director within 30 days from the date on which the noise survey is completed.

CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

23 NOV 2010
5 The noise survey report must include the following:
  5.1 the results and interpretation of the measurements required by these conditions;
  5.2 a map of the area surrounding the activity with the boundary of The Land, measurement locations, and noise sensitive premises clearly marked on the map;
  5.3 any other information that will assist with interpreting the results and whether the activity is in compliance with these conditions and EMPCA; and
  5.4 recommendations of appropriate mitigation measures to manage any noise problems identified by the noise survey.

Waste Management

WM1 Waste management hierarchy

1 Wastes must be managed in accordance with the following hierarchy of waste management:

   1.1 waste must be minimised, that is, the generation of waste must be reduced to the maximum extent that is reasonable and practicable, having regard to best practice environmental management;

   1.2 waste must be re-used or recycled to the maximum extent that is practicable; and

   1.3 waste that cannot be re-used or recycled must be disposed of at a waste depot site or treatment facility that has been approved in writing by the relevant planning authority or the Director to receive such waste, or otherwise in a manner approved in writing by the Director.


CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

23 NOV 2010
Schedule 3: Information

Legal Obligations

LO1 Notification of incidents under section 32 of EMPCA

1 A person responsible for an activity that is not a level 2 activity or a level 3 activity must notify the relevant Council, as soon as reasonably practicable but not later than 24 hours, after becoming aware of the release of a pollutant occurring as the result of any incident in relation to that activity, including an emergency, accident or malfunction, if this release causes or may cause an environmental nuisance.

2 A person responsible for an activity that is a level 2 activity or a level 3 activity must notify the Director, as soon as reasonably practicable but not later than 24 hours, after becoming aware of the release of a pollutant occurring as a result of any incident in relation to that activity, including an emergency, accident or malfunction, if this release causes or may cause an environmental nuisance.

3 A person responsible for an environmentally relevant activity must notify the Director, as soon as reasonably practicable but not later than 24 hours, after becoming aware of the release of a pollutant occurring as a result of any incident in relation to that activity, including an emergency, accident or malfunction, if this release causes or may cause serious or material environmental harm.

4 The Director can be notified by telephoning 1800 005 171 (a 24-hour emergency telephone number).

5 This notification can be faxed to the Director on 62 333 800, or delivered by hand.

6 Any notification given by a person in compliance with this section is not admissible in evidence against the person in proceedings for an offence or for the imposition of a penalty (other than proceedings in respect of the making of a false or misleading statement).

7 A person is required to notify the relevant Council or the Director of an incident despite the fact that to do so might incriminate the person or make the person liable to a penalty.

8 Any notification referred to in subsection (1), (2) or (3) must include details of the incident, its nature, the circumstances in which it occurred and any action that has been taken to deal with it.

9 For the purposes of subsections (1), (2) and (3):

9.1 a person is not required to notify the relevant Council of an incident if the person has reasonable grounds for believing that the incident has already come to the notice of the Council

9.2 a person is not required to notify the Director of an incident if the person has reasonable grounds for believing that the incident has already come to the notice of the Director;

LO2 EMPCA

The activity must be conducted in accordance with the requirements of the Environmental Management and Pollution Control Act 1994 and Regulations thereunder. The conditions of this document must not be construed as an exemption from any of those requirements.

LO3 Storage and handling of Dangerous Goods and Dangerous Substances

1 The storage, handling and transport of dangerous goods and dangerous substances must comply with the requirements of relevant State Acts any regulations thereunder, including:

CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

23 Nov 2010
1.1 Dangerous Goods (Safe Transport) Act 1998;
1.2 Dangerous Substances (Safe Handling) Act 2005;
1.3 Dangerous Goods (Road and Rail Transport) Regulations 1998;
1.4 Workplace Health and Safety Act 1995; and
1.5 Workplace Health and Safety Regulations 1998

LO4 Aboriginal relics requirements

1 The Aboriginal Relics Act 1975, provides legislative protection to Aboriginal heritage sites in Tasmania regardless of site type, condition, size or land tenure. Section 14(1) of the Act states that; Except as otherwise provided in this Act, no person shall, otherwise than in accordance with the terms of a permit granted by the Minister on the recommendation of the Director:

1.1 destroy, damage, deface, conceal or otherwise interfere with a relic;
1.2 make a copy or replica of a carving or engraving that is a relic by rubbing, tracing, casting or other means that involve direct contact with the carving or engraving;
1.3 remove a relic from the place where it is found or abandoned;
1.4 sell or offer or expose for sale, exchange, or otherwise dispose of a relic or any other object that so nearly resembles a relic as to be likely to deceive or be capable of being mistaken for a relic;
1.5 take a relic, or permit a relic to be taken, out of this State; or
1.6 cause an excavation to be made or any other work to be carried out on Crown land for the purpose of searching for a relic.

2 If a relic is suspected and/or identified during works then works must cease immediately and the Tasmanian Aboriginal Land and Sea Council and the Aboriginal Heritage Office be contacted for advice before work can continue. In the event that damage to an Aboriginal heritage site is unavoidable a permit under section 14 of the Aboriginal Relics Act 1975 must be applied for. The Minister may refuse an application for a permit, where the characteristics of the relics are considered to warrant their preservation.

3 Anyone finding an Aboriginal relic is required under section 10 of the Act to report that finding as soon as practicable to the Director of National Parks and Wildlife or an authorized officer under the Aboriginal Relics Act 1975. It is sufficient to report the finding of a relic to the Aboriginal Heritage Office to fulfil the requirements of section 10 of the Act.

LO5 Change of responsibility

If the person who is or was responsible for the activity ceases to be responsible for the activity, they must notify the Director in accordance with Section 45 of the EMPCA.

LO6 Underground Storage Tanks

The operation and management of underground petroleum storage system must be in accordance with Environmental Management and Pollution Control (Underground Petroleum Storage Systems) Regulations 2010.
Attachment 2: Crown Lease Details

PLAN OF SURVEY

LOCALITY PLAN

KING ISLAND

Lot 1

PUBLIC RESERVE

CROWN LAND (L&I)

EAGLE STREET (Unsealed)

PUBLIC RESERVE

CROWN LAND (L&I)

Lot 1

1,000ha

SCALE 1:2000

INFORMATION AND LAND SERVICES - DEPARTMENT OF PRIMARY INDUSTRIES, PARKS, WATER & ENVIRONMENT

Locality NARACOOPA

Municipality KING ISLAND

LAND DISTRICT OF KING ISLAND

PARISH OF NARACOOPA

CROWN LEASE PURPOSES

SURVEY REFERENCE

Instruction No. 39932

Survey Commenced 24/06/2009

Survey Completed 22/06/2010

File No. 39932

AutelAD No. 2000009

Scan No. 39932

Dropped by P.A.H. Authority: D.R. A.H. Date: 24/06/2009

Drawn by Authority: M.A.H. Date: 22/06/2010

PLAN AMENDED

The plan of survey is correct for the purpose requested and may be acted upon.

CPR No. 9230

F.R. No. 9180

Surveyor General

Tasmania

CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

23 NOV 2010
## Attachment 3: Management Commitments

<table>
<thead>
<tr>
<th>No.</th>
<th>Commitment</th>
<th>Responsible Party</th>
<th>Page No. in SEE</th>
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<tbody>
<tr>
<td>1</td>
<td>DAJB will implement the following measures in relation to mobile equipment:- 20 km/hr speed limit on site; Vehicles to be driven at low engine revs where possible; Water truck sound power level is not to exceed 102 dBA; Reversing alarm sound power level is not to exceed 101 dBA; Alternative warning systems to reversing alarms could be considered for operations at night; The front end loader sound power level should not exceed 101 dBA and to achieve this it is likely that a full European environmental noise control package will be required for the loader. This is likely to include a fully enclosed engine bay, quiet radiator fan, radiator fan silencer and double exhaust muffler system; and Speed control of the loader under worst case weather conditions when loading the barge at night may be required.</td>
<td>DAJB</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>Should there be any complaints in relation to noise generated by use of the pumps or generator then noise attenuation measures such as enclosures or mufflers will be installed by DAJB.</td>
<td>DAJB</td>
<td>17</td>
</tr>
<tr>
<td>3</td>
<td>DAJB will ensure that on-site personnel monitor the occurrence of sediment plumes during operations and, in the event of a sediment plume occurring, cease operations until the cause of the plume is rectified.</td>
<td>DAJB</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>DAJB will ensure that the pumping operation operates with an emergency cut-off system, able to be implemented by barge, tug or pump operators, such that no HMS is discharged into the marine environment.</td>
<td>DAJB</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>For the purposes of this pumping operation, DAJB will implement the recommendation from the 1989 survey (Sim 1989) which states that &quot;in the vicinity of the 1802 French naturalists' camp an area be excluded from future or further development. A minimum area of 200 metres of the foreshore to the north of the Fraser River mouth, and 125 metres inland from the high water mark would be required to retain the features and landforms recognisable in the historic sketch.&quot;</td>
<td>DAJB</td>
<td>23</td>
</tr>
</tbody>
</table>

23 Nov 2010
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<tr>
<td>6</td>
<td>DAJB will also ensure that, if at any time during works, workers suspect Aboriginal or European heritage, works will be ceased immediately and Aboriginal Heritage Tasmania or Heritage Tasmania will be contacted, as appropriate, for advice – as previously committed to in the current approved mining operation.</td>
<td>DAJB</td>
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<td>7</td>
<td>DAJB will also commit to carrying out further investigations of the potential European Heritage sites prior to any disturbance that may occur due to future mining activities</td>
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<td>8</td>
<td>DAJB will remove all infrastructure associated with the sand pumping operation as soon as practicable after the establishment of a permanent sand transportation option. Land based infrastructure (the slurry pits) will be recontoured and revegetated.</td>
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<td>9</td>
<td>Sediment control measures such as silt curtains will be used to control sediment run off as required.</td>
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<td>10</td>
<td>Visual monitoring will be conducted and recorded for turbidity twice per day during pumping operations. If waters more than 20 metres from the barge are noticeably discoloured by discharge from the barges then pumping will cease and sediment control measures reviewed.</td>
<td>DAJB</td>
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<td>11</td>
<td>Seawater in the immediate vicinity of the barges will be monitored (using a field meter such as the one described in 5.1.1) twice daily for pH to determine the impact of discharge from the barges on the marine environment. Discharge will only be permitted while pH in the immediate vicinity of the barges remains &gt;6.0.</td>
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<td>Slurry pits be constructed using interlocking sheet piles to minimise the entry of saturated sand and destabilisation of the pits.</td>
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<td>13</td>
<td>Installation of three groundwater monitoring bores on the northern, western and southern sides of the slurry pits. Each bore should be sampled on a weekly basis and tested for temperature, pH, and electrical conductivity. Each month the bore should be sampled and tested for TDS</td>
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<td>Construction activities will only be undertaken during daylight hours.</td>
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<td>A number of noise management measures will be implemented on the site.</td>
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<td>Only a single front end loader is to be used during the evening and night during non-barge loading periods.</td>
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<td>A noise survey will be undertaken within 6 month of commissioning.</td>
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<td>A lookout for marine mammals will be maintained during pile driving operations, and will be stopped if they are observed.</td>
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<td>19</td>
<td>A marine survey using the methodology used in the 2005 marine</td>
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<td>survey will be undertaken within 6 months of the commissioning</td>
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<td>of the pumping operation.</td>
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<td>Any waste generated during construction will be collected,</td>
<td>DAJB</td>
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<td>stored and disposed at a licensed refuse site.</td>
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<td>21</td>
<td>Surface water drains will be constructed to divert runoff</td>
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<td>into existing disturbed areas, and silt curtains will be used</td>
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<td>if required.</td>
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