Cape Lambert Port upgrade – increase in throughput to 85 Mtpa

Robe River Iron Associates

Report and recommendations of the Environmental Protection Authority

Environmental Protection Authority
Perth, Western Australia
Bulletin 1246
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Environmental Impact Assessment Process Timelines

Date	Progress stages	Time (weeks)
17/05/06	**Referral received**	
19/06/06	**Intention to set EPS Level of Assessment advertised (no appeals)**	**5**
30/11/06	**Proponent's Final EPS document received by EPA**	**23**
08/01/07	**EPA report to the Minister for the Environment**	**6**

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1. Introduction and background

This report provides the Environmental Protection Authority's (EPA's) advice and recommendations to the Minister for the Environment on the environmental factors relevant to a proposal by Robe River Iron Associates (Robe) to increase the throughput of ore from 55 million tonnes per annum (Mtpa) to 85 Mtpa at it's Cape Lambert Port operations.

Section 44 of the *Environmental Protection Act 1986* (EP Act) requires the EPA to report to the Minister for the Environment on the outcome of its assessment of a proposal. The report must set out:

- The key environmental factors identified in the course of the assessment; and
- The EPA's recommendations as to whether or not the proposal may be implemented, and, if the EPA recommends that implementation be allowed, the conditions and procedures to which implementation should be subject.

The EPA may include in the report any other advice and recommendations as it sees fit.

The EPA was advised of the proposal in May 2006. Based on the information provided, the EPA considered that while the proposal had the potential to have an effect on the environment, the proposal, as described, could be managed to meet the EPA's environmental objectives. Consequently it was notified in *The West Australian* newspaper on 19 June 2006 that, subject to preparation of a suitable Environmental Protection Statement (EPS) document, the EPA intended to set the level of assessment at EPS.

The proponent has prepared the EPS document which accompanies this report: *Cape Lambert Port Upgrade to 85 Mtpa – Environmental Protection Statement* (SKM, 2006). The EPS document sets out the details of the proposal, potential environmental impacts and appropriate commitments to manage those impacts. The EPA notes that the proponent has consulted with relevant stakeholders.

The EPA considers that the proposal can be managed to meet the EPA's environmental objectives, subject to the EPA's recommended conditions being made legally binding.

The EPA therefore has determined, under Section 40 of the EP Act, that the level of assessment for the proposal is EPS, and this report provides the EPA advice and recommendations in accordance with Section 44 of the EP Act.

2. The proposal

The proposal is described in detail in Sections 2 and 3 of the proponent's EPS document (SKM, 2006).

The proposal involves the upgrading of existing infrastructure at the port (car dumper and conveyor system), extension of the wharf, new berth pockets to accommodate additional vessels, additional new facilities (reclaimer and out-loading conveyor), modification of the rail yard and minor road re-alignments.

The Cape Lambert Port operations are licensed under Part V of the *Environmental Protection Act 1986* (Licence 5278/9) for a throughput of 55 Mtpa. The port was upgraded as part of the

West Angelas Iron Ore Project (Bulletin 924) and has ongoing reporting requirements associated with Ministerial Statement 514.

The key components of the proposal are summarised in Table 1 below:

Table 1: Summary of key proposal characteristics

Element	Existing Operations	Proposed Changes
Project Life	50 years	N/A
Port capacity	55 Mtpa	**85 Mtpa**
Facility footprint	186 ha	**194 ha**
Borrow Pit	N/A	**As delineated in Figure 2**
Wharf length	2 881 m	**Up to 3 140 m**
No. of ship loading berths	2	**4**
Live stockpile capacity	4.7 Mtpa	4.7 Mtpa
Bulk storage capacity	2.5 Mtpa	**Approx. 1.0 Mtpa**
No. of train arrivals	8 – 9 /day	**Approx. 10 – 11 /day**
Major Plant components	2 Car Dumpers 2 Screenhouses 5 Sample Stations 4 Stackers 3 Reclaimers 2 Shiploaders 5 Live Stockpile rows	2 Car Dumpers **1 Screenhouse** 5 Sample Stations 4 Stackers **4 Reclaimers** 2 Shiploaders 5 Live Stockpile rows
Plant Operation	24 hrs, 7 days/week	N/A
Water Requirements	1 260 ML/year	**Approx. 1 695 ML /year**
Shipping Movements	360 – 400 ships/year	**Approx. 450 – 500 ships/year**
Workforce	Operations approx. 440 personnel	**Operations approx. 490 personnel**

Abbreviations:

ha – hectares
m – metres
ML/year – mega litres per year
Mtpa – mega tonnes per annum

The potential impacts of the proposal are discussed by the proponent in the EPS document (SKM, 2006).

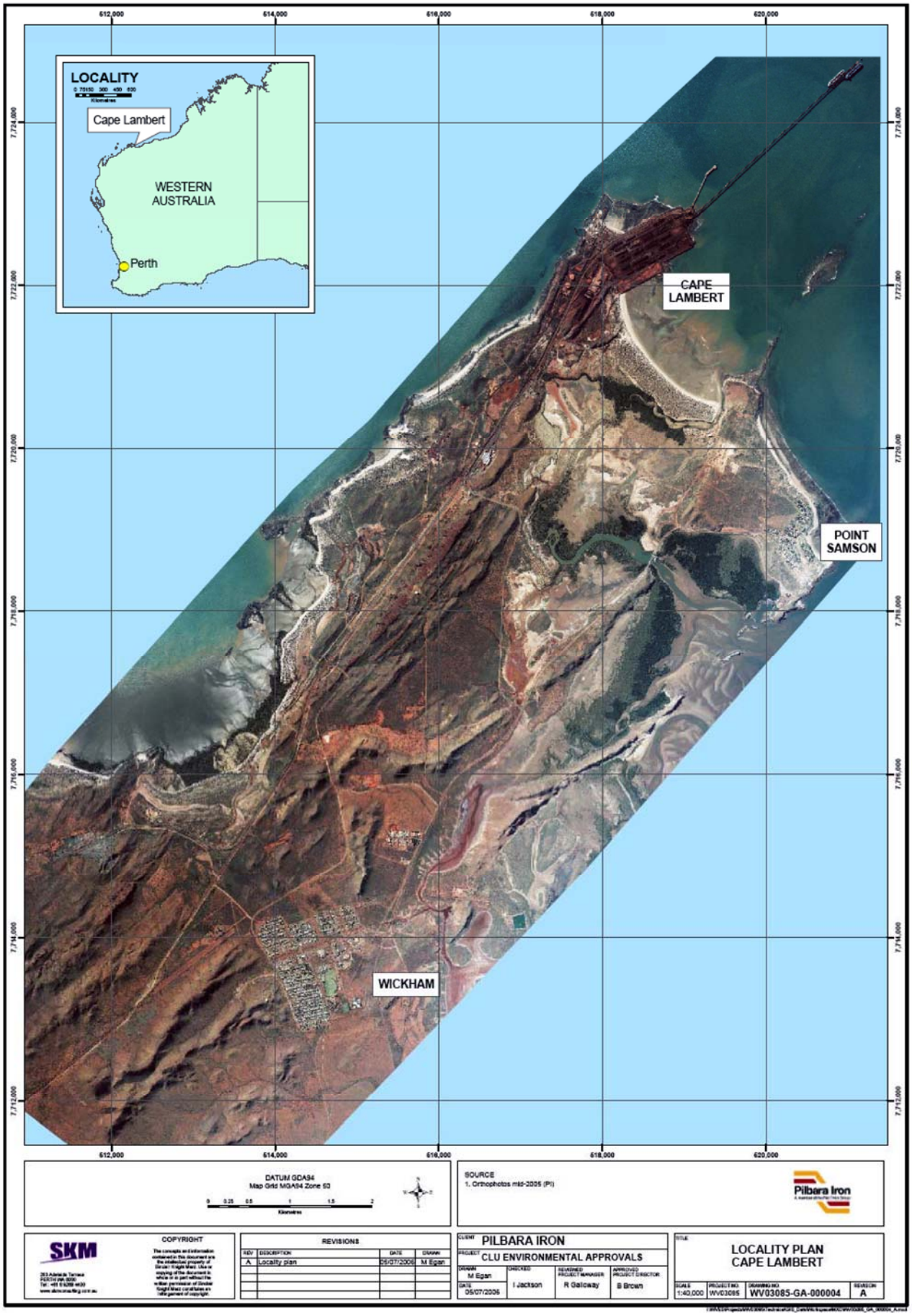

Figure 1: Project location map

Figure 2: Site Layout

Figure 2: Site Layout

3. Consultation

Robe has been engaged in public consultation since 2004 regarding the Cape Lambert Port upgrade to 85 Mtpa. A Community Consultation Program was developed to engage the community and give consideration to concerns and issues related to the proposal.

Robe also consulted with relevant stakeholders such as government agencies, local community groups and individuals about the proposed. The consultation programme focussed on delivering detailed information and seeking feedback from those key stakeholders either participating in the environmental approval process or likely to be affected by the project. Key elements of the consultation programme included the following:

- briefings with government departments and/or agencies;
- information handout and questionnaire;
- community meeting held in the Wickham Community Hall;
- meetings with the Cape Lambert Community Advisory group;
- meetings with the Coastal Community Environmental Forum;
- meeting with the Point Samson Community Association;
- information brochure mail out to the residents of Wickham, Point Samson, Cossack and Roebourne;
- site tours; and
- visits to affected residents.

The main environmental issues raised were as follows:

- availability of water;
- minimising water use;
- dust levels within Cape Lambert;
- dust modelling methodology;
- dust suppression measures;
- marine impacts including spills and dredging; and
- waste management.

The agencies, groups and organisations consulted, the comments received and the proponent's response are detailed in Appendix G of the EPS document (SKM, 2006).

Robe commissioned an independent Dust and Noise Community Survey for the towns of Point Samson, Wickham, Dampier, Karratha and Roebourne, which was undertaken in May 2006. The survey was created with input from the Coastal Community Environmental Forum and was similar to a survey previously conducted in the coastal towns of Dampier and Karratha in 2001. The overall outcomes from the survey are as follows:

- 6,115 surveys were distributed, with 616 completed and returned (121 from Point Samson/Wickham, 127 from Dampier, 357 from Karratha and 9 from Roebourne);
- 54% of Point Samson respondents and 4% of Wickham respondents indicated dust "upsets them a lot of the time"; and
- 3% of Point Samson respondents and 2% of Wickham respondents indicated noise "upsets them a lot of the time".

Based on the information provided, the EPA considers that the consultation process has been appropriate and that reasonable steps have been taken to inform the community and stakeholders on the proposed upgrade.

4. Key environmental factors

It is the EPA's opinion that the following key environmental factors relevant to the proposal require evaluation in this report:

(a) Dust;

(b) Noise; and

(c) Water Resources.

The key environmental factors are discussed in Sections 4.1 – 4.3. The description of each factor shows why it is relevant to the proposal and how it will be affected by the proposal. The assessment of each factor is where the EPA decides whether or not a proposal meets the environmental objective set for that factor.

4.1 Dust

Description

Robe's Cape Lambert Port operation is located approximately 3.5 km from the townsite of Point Samson. Dust is produced from two main activities: port operations and construction activities.

Robe has undertaken dust monitoring at Cape Lambert since 1999. Currently, air quality monitoring consists of continuous PM_{10} measurements with a Tapered Element Oscillating Microbalance (TEOM) instrument in the townships of Point Samson and Wickham and at Rocky Ridge, which is located between Cape Lambert and Wickham. Dust monitoring at Point Samson indicates that the National Environmental Protection Measure (NEPM) goal of no more than five exceedences per year of the NEPM 24-hour PM_{10} Standard (50 µg/m^3) was exceeded for four of the last six years. Robe attributes only one exceedence of the NEPM Standard to dust emissions from its Cape Lambert Port operations.

Port operations

Robe engaged Sinclair Knight Merz (SKM) to model dust emissions for the existing and proposed upgraded operations in order to predict dust impacts on the town of Point Samson. The model was validated in 2004 by comparing modelled results for the existing operations with data from the Point Samson monitoring station. Since the model does not account for background sources of PM_{10} particulates, the comparison was restricted to those times when the winds were from the operations (arc of 280 – 10°) with the assumption that all particulates monitored within this arc are derived solely from the Cape Lambert Port operations. Below 75 µg/m^3 the model consistently under predicts measured dust levels by about 10 µg/m^3 which is likely to represent background concentrations of dust.

The proposed upgrade at Cape Lambert has the potential to significantly increase dust emissions from the site as a result of:

- increasing the throughput of iron ore by up to approximately 55%;
- increasing the size of the dust sources (ie. stockpiles); and
- changes to the ore mix handled at the facility.

The major sources of dust emissions at the Cape Lambert Port operations were identified as follows:

- front end loader movements;
- haul truck movements;

- crushing/screening plant;
- conveyor belts; and
- ore stockpiles.

Robe is proposing to implement the following dust suppression measures as part of the upgrade:

- installation of a baghouse at car dumpers 1 and 2;
- installation of a baghouse at the crushing/screening and sinter fines building;
- installation of dry fogging systems at major transfer stations;
- removal of the lump re-screening plant; and
- overhead belt sprays on the ship loader.

A more complete list of dust sources, along with existing and proposed controls is provided in Table 5.4 of the EPS document (SKM, 2006).

Robe proposes to reduce the bulk stockpile capacity from 2.5 Mt to approximately 1.0 Mt following the upgrade, as the number of products will be reduced from five (West Angelas lump and fines, Mesa J lump and fines, and Yandi) to three (Mesa J or A lump and fines, and Yandi), simplifying the operation of the stockyard. This is expected to significantly reduce dust emissions from bulking operations. The live stockpile capacity is expected to remain unchanged at approximately 4.7 Mt following the proposed upgrade.

Robe modelled a range of ore types and volumes to determine the worst case scenario that could reasonably be expected to occur for a throughput of 85 Mtpa at the Cape Lambert Port operations. A product mix of 32.6 Mtpa of Mesa A and J, 48 Mtpa of Yandi fines and 5.8 Mtpa of Pilbara Blend was considered by Robe to represent a practicable worst case scenario and was used for the dust dispersion modelling. Although West Angelas ore is recognised as being dustier than the new Mesa A ore (currently being assessed by the EPA), dust emissions were predicted to be less as West Angelas ore does not require crushing at Cape Lambert.

The revised dust emissions inventory predicts that there will be an overall slight reduction in PM_{10} emissions following the proposed upgrade at the port facility as a result of full implementation of the proposed upgrade works and reduced bulking, as shown in Table 2.

Table 2 - Summary of predicted PM_{10} emission rates for existing and proposed operations.

Source Group	Existing PM_{10} Emission (g/s)	Proposed PM_{10} Emission (g/s)
Yard operations	17.5	16.9
Ship loading	5.6	4.7
Wind erosion	2.1	2.1
Total	25.2	23.7

Dust dispersion modelling predicts a small decrease in both the 24-hour average and annual average PM_{10} levels at Point Samson following the proposed upgrade to 85 Mtpa, as shown in Table 3:

Table 3 - Summary of predicted changes in PM_{10} levels at Point Samson

Emission Source	Particulate Type	Concentration Statistic	Current Operations ($\mu g/m^3$)	Proposed Operations ($\mu g/m^3$)
Point Samson	PM_{10}	99 percentile of 24-hour averages	14	13
		Annual average	3.6	3.3

Note: 99 percentile of 24-hour average concentrations over a year, background PM_{10} concentrations are not included.

Construction

The proposed operations have the potential to generate dust from several sources during construction activities at the port. The major sources are associated with:

- land clearing and site levelling;
- earth moving;
- material bulking;
- vehicular movement on unsealed roads;
- wind action across cleared areas and stockpiles; and
- blasting.

The frequency and quantity of dust emissions are largely affected by local weather conditions at the time ie. wind direction and velocity, and frequency and duration of rainfall. To manage dust emissions from construction activities Robe proposes to implement a range of measures to reduce ambient dust levels including:

- watering of unsealed roads, exposed surfaces, stockpiles;
- sealing permanent access roads;
- revegetation of disturbed areas as soon as practicable;

- use of vehicle washdown areas; and
- inclusion of dust management in the staff induction program.

Assessment

The area for assessment is the town of Point Samson.

The EPA's environmental objective for this factor is to ensure:

- that dust emissions do not cause adverse health impacts;
- that dust emissions are reduced as far as practicable; and
- that the amenity at Point Samson improves in the short to medium term.

The EPA notes that the NEPM 24-hour PM_{10} Standard is exceeded at Point Samson on occasions due to dust emissions from Robe's operations and from background sources. The EPA also notes that the proponent rarely attributes the exceedence to its operations. Based on advice from the DEC, the EPA has concerns regarding the adequacy of the procedure used by the proponent to determine its contribution to exceedences of the NEPM Standard at Point Samson. The wind direction arc of between 310 – 10° is considered to be inadequate and should be widened to between 290 – 20° to account for turbulent fluctuations and wind shift. The 50% criterion used to determine if Robe has significantly contributed to exceedences, as outlined in Figure 5.2 of the EPS (SKM, 2006), is also considered to be unsatisfactory. The EPA recommends that the proponent's procedure to estimate the contribution of its operations to ambient dust levels be reviewed by the DEC, to ensure an approved methodology is adopted and that acceptable data return rates are achieved.

Robe examines the shape of the PM_{10} trace to determine whether regional dust levels are high and can be attributed to NEPM exceedences recorded at Point Samson. This procedure uses arbitrary criteria and depends on the skill and experience of the operator. A more robust technique is required to estimate regional contributions. Using a baseline monitoring station, which is as far as practicable located away from local sources, such as the new Wickham station may be more appropriate. The EPA recommends that the proponent's contribution to dust levels at Point Samson be considered to be significant when wind direction is between 290 – 20° unless the proponent demonstrates through speciation or another approved scientific method that a significant proportion of the particulates are from other sources, such as salt from the ocean or dust from adjacent extractive industries.

The EPA notes that 54% of Point Samson and 4% of Wickham respondents to the Dust and Noise Community Survey stated that dust "upsets them a lot of the time". The EPA considers that this indicates significant dissatisfaction within the local Point Samson community over dust management at the port operations. The DEC advised that community concerns with dust appear to be related to short term dust (Total Suspended Particulates- TSP) events which are not currently measured. The EPA recommends that the dust monitoring program be expanded to include monitoring and analysis of short term TSP events at Point Samson in order to better understand impacts on the local community. The EPA endorses the proponent's commitment to an elevated dust level early warning system that is linked to a range of dust control actions being undertaken at the port operations.

The EPA notes that the proponent considered the range of product mixes and throughputs that may occur at Cape Lambert following the upgrade and modelled what it considered to be the worst case scenario with respect to dust emissions. The EPA notes that in spite of a 55% increase in throughput, a slight reduction in dust emissions from the site is predicted following full implementation of the proposed dust suppression measures and reduction in bulking activities. Dust dispersion modelling predicts there will be a slight reduction in PM_{10} levels at Point Samson following the upgrade. Based on advice from the DEC, the EPA is

satisfied that the model has been appropriately used to investigate relative changes in the impacts of dust emissions from Cape Lambert for the existing and upgrade scenarios. However, given the uncertainty in quantifying fugitive dust emissions and that background sources have not been included in the emissions inventory, it is not considered appropriate to use the model to estimate absolute PM_{10} concentrations at Point Samson or the number of times that the NEPM Standard is likely to be exceeded in a year. The EPA considers the proponent's commitment to upgrade its monitoring program and to continuously improve dust management control systems across the site to be more important, with ambient monitoring being the main measure of success.

The EPA is cognisant of the Department of Health (DoH) investigation into dust levels and their health effects on Port Hedland residents. The EPA understands that the final part of the study is a review of the health effects of Port Hedland dust compared with urban particulates, and that results are expected to be available in 2007. A study into the health effects of Port Hedland residents has shown a small, but increased risk of hospitalisation due to respiratory ailments. However, the size of the increase in hospital admissions was small and could not convincingly be attributed to the dust levels. The DoH has recommended that there be further reductions in dust levels at Port Hedland.

Although dust levels at Point Samson are significantly lower than at Port Hedland, the EPA considers the level of concern for the community means ongoing dust remediation measures should be undertaken at Cape Lambert to address dust amenity issues and potential health concerns. It is anticipated that appropriate air quality standards for regional population centres that are protective of health may be set following finalisation of the Port Hedland dust study. The EPA notes that the proponent has committed to revise the Dust Management Plan to ensure commitments made in the EPS are incorporated into the Plan. The EPA recommends that the Plan be reviewed prior to commissioning the upgraded facility. The EPA expects the proponent and the DEC to consider the health study findings in determining whether all reasonable and practicable measures are proposed in the revised Plan to ensure dust impacts are reduced to acceptable levels at Point Samson in the short to medium term.

Summary

Having particular regard to the:

- dust modelling results that predict a small decrease in dust levels at Point Samson following implementation of the proposal;
- recommended changes to the dust monitoring program to better define the proponent's contribution to PM_{10} and TSP dust levels at Point Samson; and
- recommended review of the Dust Management Plan to ensure ongoing reductions in dust emissions from the Cape Lambert Port operations,

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective for this factor.

4.2 Noise

Description

Robe's Cape Lambert Port operation is located approximately 3.5 km from the townsite of Point Samson and approximately 14 km from the townsite of Wickham. The townsites are predominately noise sensitive areas. Noise emissions from the port facility have been considered as two separate components: noise from the fixed plant (including construction) and noise from rail transport.

Fixed Plant

Noise emissions from the fixed plant are regulated under the *Environmental Protection (Noise) Regulations 1997* (Noise Regulations). The Noise Regulations specify maximum noise levels that can be received at noise sensitive premises. Robe contracted SVT Engineering Consultants (SVT) to model environmental noise emissions from the fixed plant operations. The model was used to predict worst-case scenario noise levels at noise sensitive locations at Point Samson and Wickham, for both the existing and upgraded operations.

The major noise sources at the port were identified as the:

- wharf conveyor;
- conveyor drive/transfer stations;
- crushing and re-screening plant;
- car dumpers; and
- power station.

A more complete list of noise sources, along with their individual noise contribution at Point Samson is provided in Appendix B of the EPS document (SKM, 2006).

Noise modelling indicated that the current operations are in full compliance at the town of Wickham. For the town of Point Samson, the modelling indicated that noise emissions from the existing operations may exceed regulatory noise limits in the evening and at night as shown in Table 4:

Table 4 - Point Samson compliance status

Time of Day	**Worst case noise exceedence**	**Likely occurrence**
Day (07:00 to 19:00)	In compliance	All the time
Evening (19:00 to 22:00)	2 dB	Only for light north westerly winds
Night (22:00 to 07:00)	7 dB	Only for light north westerly winds

North-westerly and north-easterly winds result in the highest levels received at Point Samson and Wickham respectively. Analysis of historical wind data and correlation with predicted noise levels suggests monthly evening exceedences could range between 12% - 32% of the time, and night exceedences range between 32% - 69% of the time.

The proposed port upgrade includes the following changes to the existing operations including:

- new reclaimer and conveyor;
- empty rail car line extension;
- extension of the wharf;
- upgrade to car dumper 2; and
- removal of the lump re-screener.

Modelling predicts that the proposed upgrade will result in an overall slight decrease in noise levels at Point Samson and Wickham as shown in Table 5:

Table 5 - Predicted worst case noise levels for the existing and upgraded plant

Location	Noise levels before upgrade (dB)	Noise levels after upgrade (dB)	Difference (dB)
Pt Samson	42.1	41.8	-0.3
Wickham	26.9	26.3	-0.6

Robe has committed to undertake annual noise monitoring within the township of Point Samson to confirm modelling predictions and to assess compliance of the port operations with the Noise Regulations.

In the event that monitoring confirms that the noise regulations are exceeded at Point Samson, Robe advised that it will consider implementing a Noise Management Program. The objectives of the program would be to:

- comply with the requirements of the Noise Regulations (including seeking exemptions where necessary);
- ensure new equipment planned to be used for the port facilities do not significantly contribute to existing noise levels (e.g. low noise idlers will be fitted to selected conveyors considered to have potential impact on noise levels in Point Samson);
- examine the opportunity to reduce noise emission from its port facility by applying noise control measures to existing noisy equipment and by purchasing quieter equipment in the future where it is practicable to do so; and
- maintaining existing noise control treatments.

Construction

Noise from construction activities is managed under Regulation 13 of the Noise Regulations. The regulation states that for construction work carried out between 07:00 to 19:00 hours Monday to Saturday excluding public holidays, the following criteria applies:

- construction works must be carried out in accordance with the Australian Standard 2436-1981 "*Guide to Noise Control on Construction, Maintenance and Demolition Sites*";
- equipment used must be the quietest reasonably available; and
- the DEC may require a Noise Management Plan to be submitted.

The majority of high noise construction activities at the port are associated with pile driving to extend the port, erection of a new ship loader, erection of a new stockyard conveyor and reclaimer, extension of the rail line and decommissioning of the lump re-screening facility. Pile driving for the wharf extension is expected to be the nosiest activity and take 6 months to complete. A preliminary assessment of expected noise levels from the pile driving has been based on noise monitoring results taken from equipment used for the Dampier wharf extension. Based on this assessment the highest noise levels (L_{ASmax}) at the towns of Point Samson and Wickham are predicted to be 53.6 dB (A) and 35.2 dB (A) respectively.

Rail transport

At present, there are no fixed limits applied to rail noise in Western Australia. However, the Western Australian Planning Commission has issued a *Draft Statement of Planning Policy: Road and Rail Transport Noise*. This draft policy sets out a recommendation for L_{Aeq} (equivalent continuous sound level which has the same energy content of the varying sound) and L_{ASmax} (assigned noise level which can not be exceeded at any time) exposure levels for various noise sensitive land uses near rail and road transport corridors.

The proposed increase in throughput at the port facility will result in an increase in trains per day from 8 - 9 for 55 Mtpa, to 10 - 11 for 85 Mtpa. A noise impact assessment was undertaken at Wickham, where the closest noise sensitive premises is 750 m from the rail line. Rail noise is not considered to be a significant issue at the town of Point Samson as the rail corridor is approximately 3.5 km to the west.

Noise measurements from passing trains were taken at the town of Wickham, along with background noise levels, as shown in Table 6.

Table 6 - Measured noise levels in dB(A) from passing trains at the town of Wickham

Train Activity	**L_{Aeq} level over the train pass by**	**$L_{AS\ max}$ for train pass by**	**Time taken for L_{Aeq} measurement**
Train arriving at the port (full)	50.8	61.7	262 seconds
Background	36.6	-	-

Predicted noise levels were calculated using the *Draft Statement of Planning Policy: Road and Rail Transport Noise* based on the assumption that trains arrive and depart the port regularly throughout the day and night as shown in Table 7.

Table 7 - Assessment of exposure level in dB(A)

Time Period	**Number of trains**		**L_{Aeq} (includes background noise)**		**$L_{A\ max}$**	**Exposure level**
	Existing	**Upgraded**	**Existing**	**Upgraded**		
Day (06:00 – 22:00)	6	7.3	40.4	40.9	61.7	Level 1
Night (22:00 – 06:00)	3	3.7	40.4	40.9	61.7	Level 1

Although the port upgrade is predicted to lead to a small increase in the day and night L_{Aeq} it is well within levels recommended for Exposure Level 1 category for noise sensitive premises.

Assessment

The area for assessment is the townships of Point Samson and Wickham.

The EPA's environmental objective for this factor is to ensure that:

- noise emissions can be managed so as to comply with statutory requirements and acceptable standards;
- noise emissions from the proposed upgrade at Cape Lambert Port operations and the associated rail activities do not significantly contribute to noise levels at Point Samson; and
- noise impacts on the townsites of Point Samson and Wickham are as low as practicable.

Fixed Plant

The EPA notes that modelling predicts that noise emissions from the upgraded plant will be slightly lower than those from the existing plant, as a result of certain items of equipment being decommissioned. The EPA also notes that the noise level contribution at Point Samson from the new plant and equipment in isolation is predicted to be 23.0 dB (A), and therefore will not significantly contribute to noise levels at Point Samson.

Modelling also predicts that noise emissions are likely to exceed the assigned noise levels at Point Samson by up to 7 dB(A), under worst case meteorological conditions. However, the default meteorological conditions for night time as specified in EPA Draft Guidance Statement No. 8: *Environmental Noise* (3 m/s wind and 2° C/100m) have been used in the model. In reality, these conditions are only likely to occur together when the wind is from the east; and while this may be representative for propagation towards Wickham, it is likely to result in a slight over prediction for propagation towards Point Samson (situated to the east of the site). This is supported by the site noise measurements which suggested a small over prediction in Point Samson.

The EPA is aware that the Dust and Noise Community Survey commissioned by the proponent revealed that only 3% of Point Samson respondents indicated that noise "upsets them a lot of the time". However, the EPA expects the proponent to undertake all reasonable and practicable measures to reduce noise emissions from the port operations, unless monitoring demonstrates that the assigned noise levels are met at Point Samson. Given that the noise model may be overly conservative, the EPA considers that compliance with the Noise Regulations may not be an unrealistic target for the proponent to achieve in the medium term.

The EPA notes that the proponent's objective is to work towards compliance with the noise regulations. The EPA supports the proponent's approach to initially undertake monitoring to confirm modelling predictions, and considers that the Noise Monitoring Program should be incorporated into a Ministerial Condition (condition 7-1). The EPA considers that a condition that requires the proponent to prepare and implement a Noise Management Program which includes timelines for completion of each stage of works will ensure that noise levels are further reduced.

The EPA notes that the proponent has foreshadowed it may need to seek an exemption under Regulation 17 of the Noise Regulations if the proposed mitigation measures do not meet required noise levels. It is therefore essential that the Noise Management Program clearly demonstrates that all reasonable and practicable measures have been undertaken to reduce noise emissions from the port operations as required under the Regulation 17 process.

Construction

The EPA notes that construction works will be carried out in accordance with Australian Standard 2436 - 1981, "*Guide to Noise Control on Construction, Maintenance and Demolition Sites*". The EPA notes that pile driving will cause the highest noise levels during construction and will occur for approximately 6 months. The EPA expects pile driving to be undertaken during standard hours. However, in exceptional circumstances, some work outside standard hours may be acceptable subject to the approval of a Noise Management Plan as required under Regulation 13 of the Noise Regulations.

Rail transport

The EPA notes that the noise levels from rail transport are predicted to increase slightly (approximately 0.5 dB (A) in the L_{Aeq} levels) due to an increase in rail traffic. The predicted day time and night time L_{Aeq} and L_{Amax} noise levels are expected to comply with the *Draft Statement of Planning Policy: Road and Rail Transport Noise* (SPP). Compliance with Exposure Level 1 category of the draft SPP is consistent with current criteria for avoidance of long term sleep disturbance impacts due to noise. Predicted increase in noise levels meets the criteria in EPA Preliminary Draft Guidance Statement No. 14: *Road and Rail Transport Noise*. The EPA therefore considers the slight increase in noise levels associated with the increase in rail traffic to be acceptable.

Summary

Having particular regard to the:

- noise emissions from the proposed new plant in isolation not significantly contributing to noise levels at Point Samson;
- prediction of a slight reduction in noise levels at Point Samson from the port operations; and
- the recommended Ministerial Condition that requires a Noise Management Program to demonstrate all reasonable and practicable measures are undertaken to comply with the Noise Regulations,

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective for this factor.

4.3 Water Resources

Description

Robe requires water mainly for the suppression of dust at the Port facility. The water is purchased from the Water Corporation and sourced from the Millstream Aquifer and Harding Dam since the quality needs to be high to prevent product contamination.

The proposed upgrade is expected to increase water consumption by approximately 435 ML per annum to a total of approximately 1695 ML per annum, as shown in Table 8.

Table 8 - Water Consumption for Cape Lambert Operations

Water Usage	2002	2003	2004	2005	Proposed 85 Mtpa
Water Use ML/year	589	886	1,026	1,265	**1,695**
Water Use Efficiency L/t shipped	16.4	19.6	19.5	21.5	**19.94**

Robe proposes to undertake the following measures in order to achieve an improvement in water use efficiency prior to commissioning the upgraded facility:

- installation of a bag house on car dumpers 1 and 2 to reduce water requirements;
- modification of conveyors in the stockyard to reduce spillage and washdown requirements;
- sealing of recycling pond/sediment basin to reduce seepage loss; and
- implementation of a water balance for the site including metering to monitor performance.

Robe has established a Dust Management Team who's role is to assess opportunities for reducing water consumption and manage the implementation of new initiatives to improve water efficiency. Additional measures that will be undertaken include:

- additional road sealing to reduce dust from vehicular movement;
- establish equipment to allow chemical suppressants to assist in dust suppression on stockpiles should trials demonstrate effectiveness;
- assess recommendations from external feasibility studies into recycling process water.

Assessment

The area for assessment is the Robe Cape Lambert Port operations.

The EPA's environmental objective for this factor is to:

- conserve water resources in the Pilbara Region by minimising water usage.

The EPA notes that there is limited available water within the Central Pilbara region and therefore any increase in consumption has the potential to adversely impact on water resources in the area. However, the EPA also recognises that significant volumes of water are used in dust suppression and that an increase in water consumption is likely to be required in the short term to ensure that the increased throughput at the port does not result in increased dust levels at Point Samson.

The EPA recommends that a Ministerial Condition be set requiring the proponent to develop a Water Management Improvement Plan which includes a detailed Water Balance for the site. The objective of the Plan is to decrease the intensity of water use at the port by increasing efficiency in water use.

The EPA expects the proponent to implement all reasonable measures to improve water use efficiency and reduce water consumption to as low as practicable. The EPA considers the water balance to be a fundamental tool for water use management in the Pilbara Region as it:

- requires measurement of water use and water consumption patterns (primarily through metering);

- clearly defines where and for what purposes water is used; and
- provides a framework for achieving water reduction targets.

The EPA notes that the proponent is proposing to:

- establish a Dust Management Team;
- improve monitoring through a program that will include additional water meters at key points within the water system (ie. waterlines for stockpile cannons, conveyor sprays) to better understand water use in the various areas of the facility; and
- Undertake a range of initiatives to minimise water consumption.

The EPA expects to see ongoing improvement in water use efficiency as new initiatives are identified and implemented by the Dust Management Team.

Summary

Having particular regard to the:

- increased efficiencies in water use Robe will develop and implemented; and
- the recommended Ministerial Condition,

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective for this factor.

5. Conditions

Having considered the proponent's commitments and the information provided in the proponent's EPS document (SKM, 2006), the EPA has developed a set of conditions that the EPA recommends be imposed if the proposal by Robe to increase the throughput of ore from 55 Mtpa to 85 Mtpa at the Cape Lambert Port operations is approved for implementation. These conditions are presented in Appendix 2.

6. Conclusions

The EPA has considered the proposal by Robe to increase the throughput of ore from 55 Mtpa to 85 Mtpa at the Cape Lambert Port operations.

The EPA is satisfied that the proposed dust suppression measures will ensure that dust levels will not increase significantly in Point Samson following the upgrade. The EPA considers that implementation of the recommended Ministerial Conditions will ensure that a more robust procedure is adopted to estimate the proponents contribution to dust impacts on Point Samson. The EPA expects ongoing dust suppression measures to be implemented in order to achieve significant reductions in impacts on the Point Samson community in the medium to long term.

The EPA considers the predicted noise emissions from the new plant and increased rail traffic to be acceptable. The EPA notes that noise modelling predicts that noise emissions from the port operations are currently unlikely to comply with the Noise Regulations. The EPA recommends a Noise Management Program be implemented to reduce noise emissions as low as reasonably practicable, should noise monitoring confirm that the port assigned noise levels are being exceeded at Point Samson.

The EPA notes that the proponent has committed to undertake a number of water efficiency measures and improve metering to identify further areas for improvement. The EPA expects the proponent to continue to implement new initiatives to reduce water consumption while also achieving ongoing reductions in dust emissions from the port operations. A Ministerial Condition requiring the proponent to prepare a Water Improvement Management Plan has been recommended to ensure water resources are managed at the site.

The EPA has therefore concluded that the proposal can be managed to meet the EPA's environmental objectives, provided there is satisfactory implementation by the proponent of their commitments and the recommended conditions set out in Appendix 2.

7. Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister notes that the proposal being assessed is for the increase in throughput of ore from 55 Mtpa to 85 Mtpa at the Cape Lambert Port operations;
2. That the Minister considers the report on the key environmental factors as set out in Section 4;
3. That the Minister notes that the EPA has concluded that the proposal can be managed to meet the EPA's environmental objectives, provided there is satisfactory implementation by the proponent of the recommended conditions set out in Appendix 2, including the proponent's commitments as shown in table 7.1 of the proponent's EPS document (SKM, 2006); and
4. That the Minister imposes the conditions and procedures recommended in Appendix 2 of this report.

Appendix 1

References

Australian Standard (AS) 2436-1981. *Guide to Noise Control on Construction, Maintenance and Demolition Sites*. Standards Australia, 1981.

Cymod Systems (2006). *Estimated Water use for Scenario 14 – Cape Lambert 80/85 Mtpa Upgrade*. Prepared for Robe River Iron Associates, 2006.

EPA (1998). Guidance Statement No. 8: *Environmental Noise* (Draft). Environmental Protection Authority, June 1998.

EPA (2000). Guidance Statement No. 14: *Road and Rail Transport Noise* (Preliminary Draft). Environmental Protection Authority, May 2000.

ERM (2006). *Dust Management Review - Pilbara Iron Port Operations*. Report prepared for Pilbara Iron, July 2006.

GEM (1998). *Environmental Site Assessment Report Cape Lambert Site*, Cape Lambert, Western Australia. Project No. 97026.

NEPC (1998). *National Environmental Protection Measure for Ambient Air Quality*. National Environmental Protection Council, June 1998.

SKM (2006). *Cape Lambert Port Upgrade to 85 Mtpa – Environmental Protection Statement*. Report prepared for Robe River Iron Associates, November 2006, Perth, Western Australia.

SKM (2005). *Cape Lambert Dust Modelling*. Report prepared for Pilbara Iron Pty Ltd, July 2005.

SVT (2006). *Environmental Noise Impact Assessment of RioTinto's proposed Cape Lambert Port Upgrade*. Report prepared for Pilbara Iron Pty Ltd, May 2006

WAPC (2005). *Statement of Planning Policy: Road and Rail Transport Noise* (Draft). Western Australian Planning Commission, May 2005.

Appendix 2

Recommended Environmental Conditions

Statement No.

RECOMMENDED ENVIRONMENTAL CONDITIONS

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED (PURSUANT TO THE PROVISIONS OF THE ENVIRONMENTAL PROTECTION ACT 1986)

CAPE LAMBERT PORT UPGRADE – INCREASE IN THROUGHPUT TO 85 MEGATONNES PER ANNUM
SHIRE OF ROEBOURNE

Proposal: The proposal is to increase the throughput of iron ore to 85 Megatonnes per annum at the Cape Lambert Port operations.

Proponent: Robe River Iron Associates

Proponent Address: Level 22, Central Park, 152 – 158 St George's Terrace, PERTH WA 6000

Assessment Number: 1663

Report of the Environmental Protection Authority: Bulletin 1246

The proposal referred to in the above report of the Environmental Protection Authority may be implemented. The implementation of that proposal is subject to the following conditions and procedures:

1 Proposal Implementation

1-1 The proponent shall implement the proposal as documented and described in schedule 1 of this statement subject to the conditions and procedures of this statement.

2 Proponent Nomination and Contact Details

2-1 The proponent for the time being nominated by the Minister for the Environment under sections 38(6) or 38(7) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal.

2-2 The proponent shall notify the Chief Executive Officer of the Department of Environment and Conservation (CEO) of any change of the name and address of the proponent for the serving of a notice or other correspondence within 30 days of such change.

3 Time Limit of Authorisation

3-1 The authorisation to implement the proposal provided for in this statement shall lapse and be void within five years after the date of this statement if the proposal to which this statement relates is not substantially commenced.

3-2 The proponent shall provide the CEO with written evidence which demonstrates that the proposal has substantially commenced on or before the expiration of five years from the date of this statement.

4 Compliance Reporting

4-1 The proponent shall submit to the CEO environmental compliance reports annually reporting on the previous twelve-month period, unless required by the CEO to report more frequently.

4-2 The environmental compliance reports shall address each element of an audit program approved by the CEO and shall be prepared and submitted in a format acceptable to the CEO.

4-3 The environmental compliance reports shall:

1. be endorsed by signature of the proponent's managing director or a person, approved in writing by the CEO, delegated to sign on behalf of the proponent's managing director;

2. state whether the proponent has complied with each condition and procedure contained in this statement;

3. provide verifiable evidence of compliance with each condition and procedure contained in this statement;

4. state whether the proponent has complied with each key action contained in any environmental management plan or program required by this statement;

5. provide verifiable evidence of conformance with each key action contained in any environmental management plan or program required by this statement;

6. identify all non-compliances and non-conformances and describe the corrective and preventative actions taken in relation to each non-compliance or non-conformance;

7. provide an assessment of the effectiveness of all corrective and preventative actions taken; and

8. describe the state of implementation of the proposal.

4-4 The proponent shall make the environmental compliance reports required by condition 4-1 publicly available in a manner approved by the CEO.

5 Performance Review

5-1 The proponent shall submit a Performance Review report every five years after the start of production to the Environmental Protection Authority, which addresses:

1. the major environmental issues associated with implementing the project; the environmental objectives for those issues; the methodologies used to achieve these; and the key indicators of environmental performance measured against those objectives;

2. the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best available technology where practicable;

3. significant improvements gained in environmental management, including the use of external peer reviews;

4. stakeholder and community consultation about environmental performance and the outcomes of that consultation, including a report of any on-going concerns being expressed; and

5. the proposed environmental objectives over the next five years, including improvements in technology and management processes.

5-2 The proponent shall make the Performance Review reports required by condition 5-1 publicly available in a manner approved by the CEO.

6 Dust Monitoring

6-1 The proponent shall revise the Dust Monitoring Program to better determine its contribution to dust impacts on Point Samson and to better determine short term dust impacts from the port operations on Point Samson in consultation with the Department of Environment and Conservation.

The revised Dust Monitoring Program shall include the following:

1. the arc of influence to be adopted as a trigger for dust management actions, mitigation measures and for dust event investigations to be at least 290° – 20°;

2. the proponent's contribution to ambient dust levels at Point Samson to be considered significant when the wind direction is between 290° – 20° unless the proponent demonstrates by dust sample speciation or a method approved by the CEO of the DEC that the dust has been generated predominately at other sources. Consideration should be given to utilising high volume air samplers as a secondary means of sampling PM_{10} dust levels and for sample speciation following National Environmental Protection Measure (NEPM) exceedences;

3. conformity with Australian Standard AS 2923 (1987). "*Ambient Air - Guide for Measurement of Horizontal Wind for Air Quality Applications*" at a 90% return rate over the calendar year;

4. real time monitoring of Total Suspended Particulates (TSP) and PM_{10} ambient dust levels, wind speed and direction;

5. 10 minute sampling of short term TSP impacts at Point Samson;

6. a summary of hourly averages to be submitted to the DEC in a quarterly report, and 10 minute data to be provided to the DEC upon request. Consideration should also be given to reporting the annual frequency which TSP dust levels (as per agreed sampling method in Point 3) at Point Samson exceed 200 micrograms per cubic metre ($\mu g/m^3$), when the wind direction is between 290° – 20°; and

7. posting of real-time monitoring results of TSP and PM_{10} dust levels on the proponent's web site.

6-2 Within 12 months following the formal authority issued to the decision-making authorities under section 45(7) of the *Environmental Protection Act 1986*, the proponent shall implement the approved revised Dust Monitoring Program as required by condition 6-1.

6-3 The proponent shall make the revised Dust Monitoring Program required by condition 6-1 publicly available in a manner approved by the CEO of the DEC.

6-4 Prior to commissioning and in consultation with the Department of Environment and Conservation, the proponent shall revise the Dust Management Plan to incorporate a program of works and to outline operational procedures to be implemented in order to achieve a significant reduction in dust impacts on the town of Point Samson from the port operations.

The Plan shall be developed in consultation with the DEC and include:

1. identification of potential dust remediation works;

2. timelines to implement practicable dust remediation works;

3. a review of operational and maintenance procedures to ensure that dust emissions are minimised using all 'reasonable and practicable' measures, including optimising the performance of dust suppression equipment, and where practicable, restricting potentially dusty operations during adverse weather conditions;

4. investigation, recording and reporting of all exceedences of the NEPM 24-hour PM_{10} Standard in the town of Point Samson. Exceedences to be reported to the CEO of the DEC within five days of being recorded, and the report shall:

   - identify (as far as practicable) the sources of the dust; and

   - where the exceedences are attributed to dust from the proponent's operations, include a description of the management actions taken, or proposed to be taken, by the proponent to reduce its emissions to below the trigger level;

   Note: Although the action trigger level is to initially be based on the NEPM 24-hour PM_{10} Standard, it should be reviewed, and if necessary changed, by the Department of Environment and Conservation following completion of the Department of Health's Port Hedland Dust Study.

5. recording and investigating community complaints; and

6. annual reporting summary which provides a trend analysis of TSP and PM_{10} dust levels compared with benchmarked performance, dust monitoring performance, exceedences of dust amenity targets and health criteria, community complaints and progress on dust remediation works. The report is to be publicly available and forwarded to the relevant agencies.

6-5 The proponent shall implement the revised Dust Management Plan required by condition 6-4.

6-6 The proponent shall make the revised Dust Management Plan required by condition 6-4 publicly available in a manner approved by the CEO of the DEC.

6-7 Within 12 months of processing Mesa A ore at Cape Lambert, the proponent shall undertake field measurements to validate emissions and dustiness characteristics of the new ore type that were used to model dust impacts on Point Samson.

6-8 Within 18 months of processing Mesa A ore at Cape Lambert, the proponent shall provide a report to the DEC on the findings of the ore validation required by condition 6-7.

7 Noise Management

7-1 In consultation with the Department of Environment and Conservation, the proponent shall undertake a Noise Monitoring Program to confirm noise modelling results reported in *Cape Lambert Port Upgrade to 85 Mtpa – Environmental Protection Statement (SKM, 2006)* and also in Appendix B of that document.

7-2 Within 12 months following the formal authority issued to the decision-making authorities under section 45(7) of the *Environmental Protection Act 1986*, the proponent shall report on the accuracy of the acoustic model required by condition 7-1 and on the compliance of the port operations with the *Environmental Protection (Noise) Regulations 1997*.

7-3 The proponent shall determine and report on compliance of the port operations with the *Environmental Protection (Noise) Regulations 1997* annually until the operations are compliant.

7-4 In the event that the Noise Monitoring Program confirms that the port operations do not comply with the *Environmental Protection (Noise) Regulations 1997*, the proponent shall prepare a Noise Management Program which identifies key areas of operations requiring noise remediation works to achieve compliance or to reduce noise emissions to as low as practicable levels.

This Program shall include dates for completion of noise reduction measures.

7-5 Within 18 months following the formal authority issued to the decision-making authorities under section 45(7) of the *Environmental Protection Act 1986*, the proponent shall implement the Noise Management Program required by condition 7-4.

7-6 The proponent shall make the Noise Management Program required by condition 7-4 publicly available in a manner approved by the CEO.

8 Water Use

8-1 Within 12 months following the formal authority issued to the decision-making authorities under section 45(7) of the *Environmental Protection Act 1986*, the proponent shall prepare a Water Management Improvement Plan in consultation with the Department of Water.

The objective of this Plan is to decrease the intensity of water use at the Port by increasing efficiency in water use.

This Plan shall include a detailed Water Balance which describes the water minimisation and re-use practices to be employed to achieve the minimum practicable water use, including:

1. a metering program describing meter placement, monitoring regime and performance targets; and

2. strategies and technologies to minimise water use at the site.

8-2 The proponent shall implement the Water Management Improvement Plan required by condition 8-1.

8-3 The proponent shall make the Water Management Improvement Plan required by condition 8-1 publicly available in a manner approved by the CEO of the DEC.

Notes

1. Where a condition states "on advice of the Environmental Protection Authority", the Environmental Protection Authority will provide that advice to the Department of Environment and Conservation for the preparation of written notice to the proponent.

2. The Environmental Protection Authority may seek advice from other agencies or organisations, as required, in order to provide its advice to the Department of Environment and Conservation.

3. The Minister for the Environment will determine any dispute between the proponent and the Environmental Protection Authority or the Department of Environment and Conservation over the fulfilment of the requirements of the conditions.

Schedule 1

The Proposal (Assessment No. 1663)

General Description
The proposal involves the upgrading of existing infrastructure at the port (car dumper and conveyor system), extension of the wharf, new berth pockets to accommodate additional vessels, additional new facilities (reclaimer and out-loading conveyor), modification of the rail yard and minor road re-alignments.

The upgrade works are described in the following document:

SKM (2006). *Cape Lambert Port Upgrade to 85 Mtpa – Environmental Protection Statement.* Prepared for Robe River Iron Associates. November 2006.

Summary Description
A summary of the key proposal characteristics is presented in Table 1.

Table 1 – Summary of the Key Proposal Characteristics

Element	Description etc
Project Life	Approximately 50 years
Port capacity	85 Megatonnes per annum
Facility footprint	Not more than 195 hectares
Borrow pit	As delineated in Figure 2 of schedule 1
Wharf length	Up to 3 140 metres
Number of ship-loading berths	4
Live stockpile capacity	Up to 4.7 Megatonnes per annum
Bulk storage capacity	Approximately 1.0 Megatonnes per annum
Number of train arrivals	Approximately 11 per day
Major Plant components	2 Car dumpers 1 Screenhouse 5 Sample stations 4 Stackers 4 Reclaimers 2 Shiploaders 5 Live stockpile rows
Water Requirements	Not more than 1 700 Megalitres per year

Figures

Figure 1 - Site location (See p2 in main text).
Figure 2 - Site layout (See p3 in main text).