Esperance Port upgrade of marine facilities, incorporating change to existing Environmental Conditions and technical advice in support of Environmental Protection Noise Regulation 17 Approval Notice.

Esperance Port Authority

Report and Recommendations of the Environmental Protection Authority

Environmental Protection Authority
Perth, Western Australia
Bulletin 989
August 2000

Summary and recommendations

Esperance Port Authority proposes to upgrade facilities at Esperance Port to increase iron-ore handling from two million tonnes per annum to four million tonnes per annum. 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 the proposal.

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and on the Environmental Conditions and procedures to which the proposal should be subject, if implemented. In addition, the EPA may make recommendations as it sees fit.

This report also provides a technical assessment of a Regulation 17 request to vary from assigned noise levels stipulated under the Environmental Protection (Noise) Regulations (EPNR) for port operations. The drafting instructions contained within this report would form the basis of the Noise Regulation 17 Approval Notice by the Minister for the Environment for the approval under Regulation 17 of the Noise Regulations.

To ensure consistency between Environmental Conditions stipulated under Regulation 17 and existing Environmental Conditions covering iron-ore operations contained in Ministerial Statement 325, this report also provides the EPA's advice and recommendations to the Minister for the Environment under Section 46 of the Act.

Relevant environmental factors

In the EPA's opinion, the following are the environmental factors relevant to the proposal, which require detailed evaluation in the report:

- Coastal processes and littoral drift – exacerbation of existing beach erosion problems;
- Operational noise – impact on adjacent land uses;
- Particulates and dust – control of dust from expanded operations; and
- Visual amenity – intrusion on vistas across Esperance Bay.

In addition, the EPA has provided recommendations under Other Advice in relation to the factor of Public Health and Safety (Traffic Management).

Conclusion

The EPA has considered the proposal by Esperance Port Authority to upgrade facilities at Esperance Port to increase iron-ore handling from two million tonnes per annum to four million tonnes per annum.

The EPA notes that:

- the proposal is within the port boundaries and on land zoned for port uses;
- the impact on coastal processes is likely to be small compared with effects associated with construction of the existing port facility infrastructure;
- the port has implemented noise reduction measures in the past but to date has failed to meet statutory requirements despite these efforts;
- the Regulation 17 Approval Notice provides an opportunity to implement additional noise control measures and achieve some level of increased performance in respect of noise in the longer term;
- the port continues to achieve best practice with regard to iron-ore dust management;
- the proposal will result in some visual impairment of views across Esperance Harbour;

- although issues associated with increased train movements to the port are beyond the jurisdiction of the Port Authority, advice is provided with regard to the involvement of Westrail to ensure that these matters are addressed adequately.

The EPA has concluded that the proposal is capable of being managed in an environmentally acceptable manner to meet EPA's objectives with the exception of noise (which is being dealt with under a Regulation 17 application), provided there is satisfactory implementation by the proponent of the recommended Environmental Conditions set out in Section 4, including the proponent's commitments.

Recommendations

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

1. That the Minister notes that the project being assessed is for the upgrade of marine facilities at Esperance Port, consisting of deepening berths 1 and 2, dredging of the harbour basin, construction of a new deepwater berth, reclamation of approximately 15 hectares of land, construction of a new iron ore shed and installation of associated shiploading and conveyor systems ;
2. That the Minister considers the report on the relevant environmental factors as set out in Section 3;
3. That the Minister notes that the EPA has concluded that the proposal is capable of being managed in an environmentally acceptable manner to meet EPA objectives, provided there is satisfactory implementation by the proponent of the recommended Environmental Conditions set out in Appendix 5, including the proponent's commitments, and conditions in relation to the Regulation 17 application;
4. That the Minister imposes the Environmental Conditions and procedures recommended in Appendix 5 of this report;
5. That the Minister grant approval of the Regulation 17 application, in accordance with the Preliminary Drafting Instructions set out in Appendix 9 and subject to the Environmental Conditions set out therein;
6. That the Minister implement the Change to Condition 4-1 of Ministerial Statement 325 as outlined in Appendix 7;
7. That the Minister notes the Other Advice and recommendations provided in Section 5 of this report in relation to rail traffic management, and refer that advice to the Minister for Transport.

Environmental Conditions

Having considered the proponent's commitments and the information provided in this report, the EPA has developed a set of Environmental Conditions which the EPA recommends be imposed if the proposal by Esperance Port Authority to upgrade facilities at Esperance Port to increase iron-ore handling from two million tonnes per annum to four million tonnes per annum is approved for implementation.

These Environmental Conditions are presented in Appendix 5. Matters addressed in the Environmental Conditions include the following:

1. that the proponent be required to fulfil the commitments in the Consolidated Commitments statement set out as an attachment to the recommended Environmental Conditions in Appendix 5;
2. that the proponent participate in matters to address issues related to coastal processes, rail traffic management and noise reduction.

Contents

1. Introduction and background

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for the Environment on the environmental factors relevant to the proposal by Esperance Port Authority to upgrade marine facilities at Esperance Port.

Initiated originally as a result of a decision by Cooperative Bulk Handling (CBH) to install new silos and new ship loader facilities, the proposed upgrade of marine facilities will also facilitate an increased throughput of iron ore from 2 to 4 million tonnes per annum.

The proposal forms Stage 1 of the long term development strategy for Esperance Port. In addition to the direct impacts of the proposal, environmental management of increases in shipping and rail operations and associated port operations have also been considered in this assessment. Stage 2, comprising the construction of sulphur storage and handling infrastructure, is not considered in this report and will be subject to separate environmental assessment . However, the cumulative impacts associated with noise expected to be generated by this future expansion have been addressed.

In compiling this report, the EPA has considered the relevant environmental factors associated with the proposal, issues raised in public submissions, specialist advice from the Department of Environmental Protection (DEP) and other government agencies, the proponent's response to submissions and the EPA's own research and experience.

Further details of the proposal are presented in Section 2 of this report. Section 3 discusses environmental factors relevant to the proposal. The Environmental Conditions and commitments to which the proposal should be subject, if the Minister determines that it may be implemented, are set out in Section 4. Section 5 provides Other Advice by the EPA, Section 6 presents the EPA's conclusions and Section 7, the EPA's Recommendations.

Appendix 1 provides a list of individuals and organisations that submitted comment during the public review period. Appendix 2 provides a listing of reference material used in the preparation of this report. Appendix 3 details the identification of the relevant factors considered and Appendix 4 summarises the EPA's assessment of these relevant factors. Recommended Environmental Conditions, and proponent commitments, are provided in Appendix 5. The existing Ministerial Statement covering port iron-ore operations is included in Appendix 6, with the recommended changes to that statement provided in Appendix 7. Appendix 8 contains a summary of submissions received during the public review period and the proponent's response to those submissions. This is included as a matter of information only and does not form part of the EPA's report and recommendations. Issues arising from this process and which have been taken into account by the EPA appear in the report itself. Appendix 9 comprises the drafting instructions for the Regulation 17 approval notice.

2. The proposal

The Port is situated within the Town of Esperance (Figure 1).

The upgrade of marine facilities consists of deepening berths 1 and 2, dredging of the harbour basin and shipping channel, construction of a new deepwater berth, reclamation of approximately 15 hectares of land, construction of a new iron ore shed and installation of associated shiploading and conveyor infrastructure (refer Figure 2 and Key Characteristics Table). The proposal is totally within the Esperance Port Authority boundary and port-controlled waters.

The upgrade of marine facilities is primarily intended to facilitate an increased throughput of iron ore from 2 to 4 million tonnes per annum (as outlined in the Key Characteristics Table).

The main characteristics of the proposal are summarised in Table 1. A detailed description of the proposal is provided in Section 2 of the PER (Esperance Port Authority, January 2000).

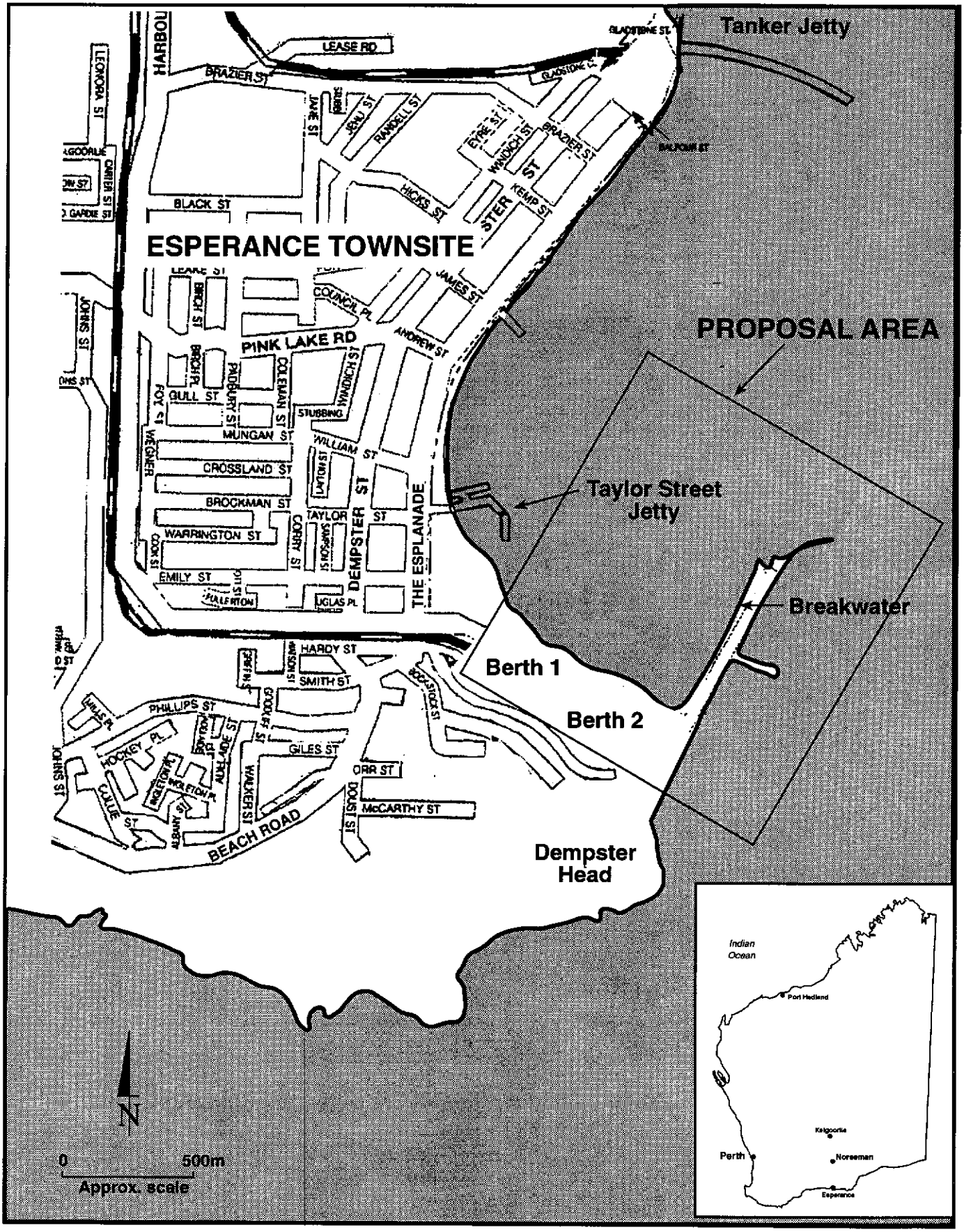


Figure 1. Proposal location, showing proximity of port to townsite.

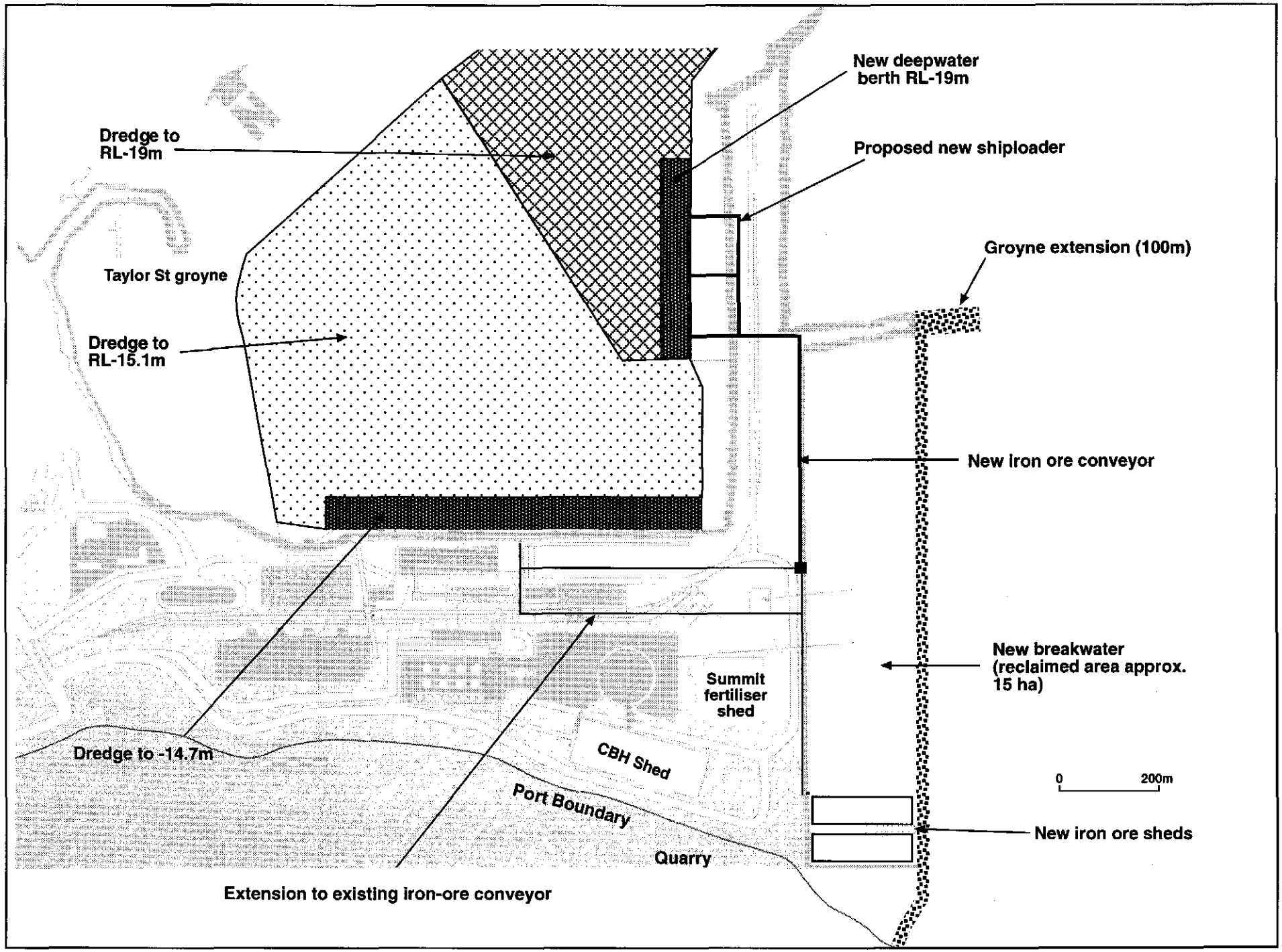


Figure 2. Esperance Port Upgrade — key proposal characteristics.

Since release of the PER, the proponent has modified the location of the new iron ore shed to further reduce visual impairment resulting from the new infrastructure. In addition, the proponent has acknowledged a requirement to investigate and implement means to reduce noise from existing operations, and install best available technology in the upgrade to minimise cumulative noise impacts associated with day to day operations

The process of identifying relevant environmental factors, including a summary of potential impacts of the proposal initially predicted by the proponent in the PER document (Esperance Port Authority, January 2000) is provided in Appendix 3. Details on the relevant factors and their assessment is contained in Sections 3.1 – 3.4, and summarised in Appendix 4.

3. Relevant environmental factors

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and the Environmental Conditions and procedures, if any, to which the proposal should be subject. In addition, the EPA may make recommendations as it sees fit.

The identification process for the relevant factors is summarised in Appendix 3.

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

- Coastal processes and littoral drift – exacerbation of existing beach erosion problems;
- Operational noise – impact on adjacent land uses;
- Particulates and dust – control of dust from expanded operations; and
- Visual amenity – intrusion on vistas across Esperance Bay.

In addition, the EPA has provided recommendations under Other Advice in relation to the factor of Public Health and Safety (Traffic Management).

The above relevant factors were identified from the EPA's consideration and review of all environmental factors (preliminary factors) generated from the PER document and the submissions received, in conjunction with the proposal characteristics.

Details on the relevant environmental factors and their assessment is contained in Sections 3.1 - 3.4. 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.

A summary of the assessment of the environmental factors is presented in Appendix 4.

3.1 Coastal processes and littoral drift

Description

The proposal involves relocation of the existing breakwater (increasing the width by 200 metres), disposal of the dredge spoil behind this breakwater and an extension to the existing breakwater groyne.

Submissions

The Shire of Esperance submitted that the proponent commit to ensuring that the existing problems of beach erosion are not exacerbated by the upgrade. Furthermore, the Shire expects the proponent to mitigate existing impacts in areas under its jurisdiction and implement contingency measures should it become apparent that the upgrade works create additional problems in Esperance Bay.

Table 1 - Summary of key proposal characteristics

Element	Description
Dredge the harbour basin and Berths 1 & 2.	• Deepen Berths 1 & 2 from -12.5 metres (reduced level) to -14.7 metres (reduced level). • Deepen harbour basin from approximately -12.8 metres (reduced level) to -15.1 metres (reduced level). • Dredge an area of approximately 50 hectares. • Generate approximately 1,500,000 cubic metres of dredged material.
Extend the existing groyne, relocate the existing breakwater and construct a new breakwater.	• Extend existing 170 metre groyne by an additional 100 metres. • Widen the base of the existing breakwater by approximately 200 metres. • Build a new breakwater, approximately 700 metres long. • Construct a sand apron seaward of the breakwater as a protective measure against erosion.
Reclaim land on the south easterly side of the Port.	• Pump dredged material to behind the new breakwater. • Reclaim approximately 15 hectares.
Construct third berth.	• Construct new deep draft berth and shipping channel along the shoreward side of the existing harbour breakwater. • Deepen new berth and shipping channel to -19 metres (reduced level).
Construct iron ore ship outloading and handling equipment.	• Construct an iron ore shiploader designed to suit Cape Class vessels. • Construct new iron ore conveyor and handling equipment.
Construct an additional iron ore storage shed.	• Construct shed with a capacity of 200,000 tonnes (nominally 300 metres x 60 metres, and 22 metres high).
Timing of construction activities.	• The proposal will commence as soon as all approvals are granted and will take approximately 20 – 24 months to complete. • Dredging and breakwater relocation is expected to take 9 months. • Construction of the third berth and the iron ore shiploader is expected to take 15 months. • Construction of additional iron ore storage and handling facilities is expected to take 12 months.
Ongoing Operation.	• Iron ore delivered to the Port by rail will increase from 2 to 4 million tonnes per annum. • The number of trains from the mine will increase from 7 to 14 trains per week. Train movements in and out of the Port will increase from 26 to 46 movements per week. • Iron ore export will increase from 2 to 4 million tonnes per annum. • An additional 15 – 25 iron ore ships will be added to the current 35 – 40 iron ore ships per year. Note, total number of ships entering the port is currently approximately 120. An additional 15 - 25 ships will thus increase annual shipping by approximately 20%.

The public raised concern as to what plans the Port Authority had to mitigate problems of beach erosion that currently exist at Esperance. In particular (and given that the Port Authority has stated in the PER that the existing breakwater and breakwater groyne have effectively interrupted littoral drift processes into Esperance Bay) it has been suggested that the Port Authority should be taking full responsibility for maintaining a beach for use by residents.

The on-going maintenance of beaches under the control of the Port Authority, ie the beaches south of the Tanker Jetty, is another source of concern expressed by the community. Debris from collapse of the revetment is often left for sometime before being cleaned up and has fuelled frustration of local residents to the point that they are dubious about other commitments to address beach losses.

Assessment

The area considered for assessment of this factor is the Esperance foreshore located between Dempster Head and Bandy Creek Harbour. The EPA objective for the factor is to minimise and effectively manage the impact of foreshore erosion resulting from the port facilities.

It appears that beach erosion at Esperance has been an ongoing problem since at least 1914 when the first recorded beach protection works, consisting a timber revetment, was installed. However, the construction of the existing breakwater and dredged channel in 1962 - 1963, together with the subsequent breakwater extension in 1973 - 1975, have further interrupted the natural north eastward longshore movement of sand (Connell Wagner, 1997). Monitoring surveys have indicated that the Esperance Harbour breakwater intercepts approximately 25,000 to 28,000 m^3 per annum (GHD, 1999). The Esperance town beaches are experiencing similar rates of erosion and approximately 20,000 – 30,000 m3 of sediment is trapped per annum in the vicinity of Bandy Creek.

Since 1975, extensive studies on shoreline erosion have been undertaken by the Public Works Department (PWD), Transport WA , and the Centre for Water Research, University of Western Australia (Connell Wagner, 1997). As a result, various works have been implemented by PWD, the Port Authority and the Esperance Shire Council, including groynes and beach renourishment. A beach monitoring programme, nominally covering the area from Taylor Street to Bandy Creek was initiated in 1975 (Connell Wagner, 1997).

The existing breakwater groyne was constructed in 1988 – 1989 to intercept north eastward longshore sand transport and thereby reduce the extent of siltation in the harbour entrance (Connell Wagner, 1998). At present there is a minimal infilling of this channel. There is some sand deposition on the south eastern side of the breakwater groyne (Connell Wagner, 1998). A survey undertaken in 1997 showed that the shoreline south west of the breakwater groyne had built up significantly since 1989, to the extent that sand was bypassing the groyne. With the Port's current configuration, bypassing of sand around the end of the breakwater groyne will increase in future years and eventually increase the volume of sand moving into the harbour channel entrance (Connell Wagner, 1998).

In summary, it appears that the existing configuration of the Port Authority breakwater, finger groyne and dredged channel have effectively interrupted the longshore sediment transport from west of Dempster Head into Esperance Bay and the proposed widening of the breakwater and extension to the finger groyne is unlikely to further affect this process.

The Port Authority has committed to reviewing and updating its coastal monitoring programme, which will identify:

- a monitoring plan to measure the changes associated with the proposed upgrade;
- a framework of management actions to address the existing and possible future problems; and
- an agreed beach amenity value with all relevant stakeholders.

The EPA acknowledges that on-going discussions are being held between the Port Authority, Shire of Esperance and Residents for Esperance Development (RED) to progress this matter.

Summary

Having particular regard to the:

- the existing and historical context of beach erosion issues at Esperance;
- the small scale of impact of proposed upgrade in the context of the effect of existing infrastructure;
- the proponent's commitment with regard to coastal processes and littoral drift; and
- the on-going discussions on the matter,

it is the EPA's opinion that the proposal is capable of being managed to meet the EPA's objective for this factor.

3.2 Operational Noise

Description

Existing port operations exceed noise levels stipulated under both existing environmental approvals for iron-ore operations and those provided in the Environmental Protection (Noise) Regulations. The upgrade will also exceed these assigned levels under certain conditions.

Submissions

The public and local authority raised concern in regard to the lack of action taken over the existing non-compliance of port operations. In particular, submissions took exception to the Port Authority's view that noise was accepted by the community, particularly in the light of the proposed doubling of iron-ore throughput.

A commitment was sought that any variation to assigned noise levels would be accompanied by a full consultation process and independent survey of residents to determine the acceptability, or otherwise, of an increase in noise levels.

Assessment

The area considered for assessment of this factor is Esperance Townsite.

The EPA's environmental objective for this factor is to ensure that noise impacts emanating from operational activities comply with statutory requirements and acceptable limits.

Noise monitoring undertaken by consultants Esperance Safety and Health (ESH) on behalf of the Port Authority during the assessment has shown that the existing levels of operational noise exceed those required by Environmental Condition 4-1 in Ministerial Statement 325 (daytime L_{A10} levels of 50 dB(A) and nightime L_{A10} levels of 40 dB(A)), and prescribed levels under the Environmental Protection (Noise) Regulations 1997 (EPNR, 1997).For existing operations the typical L_{A10} levels are 53 dB(A) daytime and 43 dB(A) nightime at nearest residences (See Section 3.2.1 below).

The Port Authority has implemented, and continues to try to achieve, best practice with regard to noise control. A noise study summary presented to DEP in 1995 as part of a compliance and audit report indicated that there had been some success in reducing noise levels, although exceedances were detected even at this time. However, due to the proximity of housing and the equipment required to handle ores, noise reduction is difficult to achieve. In recognition of the difficulties in reducing noise levels and its desire to meet the Noise Regulations 1997, the proponent has acquired a number of the residences in close proximity to their operations with

the intent of creating a buffer zone around the Port. Other noise control measures implemented by the Port Authority include:

- enclosure of ore handling equipment;
- installation of sound attenuation measures, including exhaust fan silencers and use of low sound power equipment; and
- acoustic lining of equipment housing.

Additional operational noise resulting from the proposal will be due to dust collectors and front end loaders used in the new iron ore storage shed, shiploading, inloading and outloading conveyors. Work undertaken by the proponent has indicated that whilst the new iron ore facilities will operate at lower noise levels than the existing noise levels from the Port, the noise emission from existing operations will remain at current levels (see Figure 3).

The work has also identified that in order to allow the proposed upgrade to proceed, and to address existing port operation noise levels, a Regulation 17 variation to the assigned noise levels is required. This is being sought by the Port Authority in parallel with this assessment. Furthermore, to ensure consistency between any new approval issued covering iron-ore operations and the existing Environmental Conditions covering port operations for this activity, a Section 46 change to Environmental Conditions is being processed with this assessment.

The results of the noise studies and consultation through the Regulation 17 process are summarised in Sections 3.2.1 and 3.2.2 below, which constitute the report of the EPA on the Regulation 17 approval to vary assigned noise levels (Section 3.2.1) and recommendation for a Section 46 change to Environmental Conditions on Ministerial Statement 325 (Section 3.2.2).

3.2.1 Environmental Protection (Noise) Regulations 1997

The provisions of regulation 17

Regulation 17 of the *Environmental Protection (Noise) Regulations 1997* provides that

"where a person is of the opinion that he or she cannot reasonably or practicably comply with a standard prescribed under these regulations, or that a proposal of that person will not be reasonably or practicably capable of complying with that standard, that person may apply to the Minister for approval to allow the emission of noise to exceed or vary from that standard."

The proponent has made such application to the Minister and the application has been referred to the EPA for assessment as required under subregulation 17 (2). The EPA considers that the emission of noise in this case will exceed or vary from the prescribed standard and has therefore

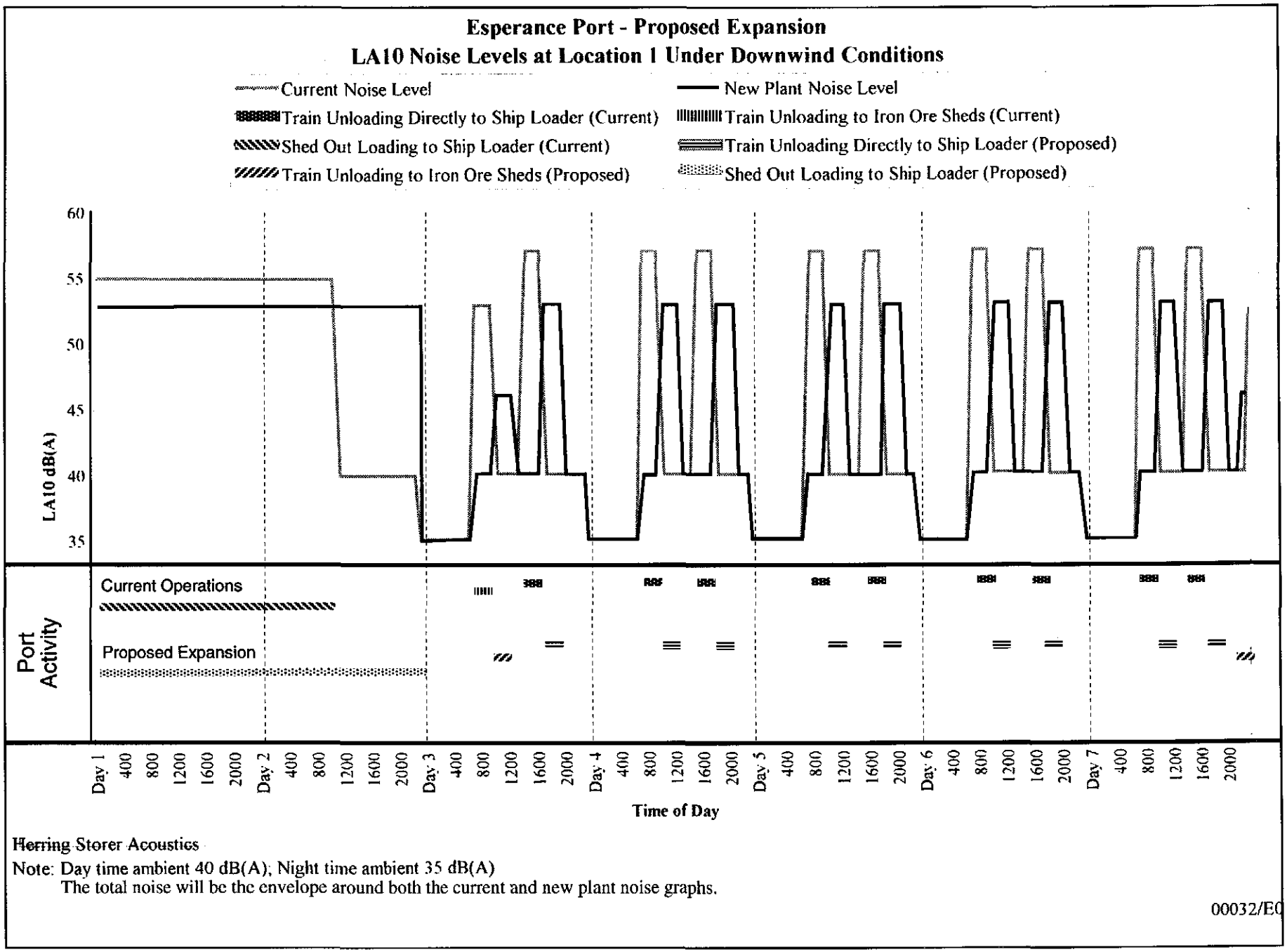
- so informed the Minister and the applicant; and
- assessed the application,

as required under subregulation 17 (3) (b).

This section of this Bulletin forms the report of the EPA to the Minister as required under subregulation 17 (3) (b) (ii).

The application

The proponent applied on 2 March 2000 for approval under regulation 17 to vary the assigned noise levels applicable to Port operations within the boundary of lands under jurisdiction of the Port Authority. From the detailed noise modelling documented in the PER and the supplementary noise report the Port Authority acknowledges that it appears that, in spite of extensive noise reduction measures, they may not be able to achieve total compliance with the regulations at all times in a reasonable and practicable manner.



Herring Storer Acoustics

Note: Day time ambient 40 dB(A); Night time ambient 35 dB(A)
The total noise will be the envelope around both the current and new plant noise graphs.

00032/EC1

Figure 3. Esperance Port — Proposed Expansion. LA10 Noise Levels at Location 1 under Downwind Conditions.

The proponent noted that there is a current regulation 17 application by CBH being assessed by the EPA in relation to their facility at the Port of Esperance.

This application was referred to the EPA on 11 April 2000.

Operations not covered by the application

In relation to the operations covered by the Esperance Port Authority application, the EPA notes that an approval, if granted, would only apply to those operations which would come under the *Environmental Protection (Noise) Regulations 1997* and would not include rail movements. These are specifically excluded from the regulations under regulation 3.

Additionally, construction noise is not required to meet the prescribed standard provided it meets the conditions set down under regulation 13 for construction work on construction sites.

Assigned noise levels

The assigned noise levels which form the prescribed standard for noise emissions, as specified in regulation 8, are given in Table 2.

The influencing factor referred to in Table 2 is determined by taking into account the area of Industrial and Utilities land and the area of Commercial land, plus the influence of any significant roads within circles of 100m and 450m radius centred on the point where the noise is received.

The influencing factor for the nearest residence not owned by the Port of Esperance, Lot 11 Bostock Street, is calculated to be 8 dB, due entirely to the presence of the port facility within close proximity to the receiving point. This lot is near to Monitoring Location 1 (the verge of No. 34 Bostock Street, opposite the pedestrian accessway) identified in the ESH study of existing noise levels and in the supplementary acoustical report prepared for the Port Authority by Environmental Risk Solutions and Herring Storer Acoustics (ESH, 1999 and Esperance Port Authority, 2000). Thus, the $L_{A\,10}$ assigned level for the period 2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays would be 35 + 8 = 43 dB(A) for this point.

The influencing factor decreases as one moves north-west along Bostock Street, to a level of 6 dB at Monitoring Location 4 (corner of Smith Street at the CBH entrance/exit), as identified in the supplementary acoustical reports. The night time $L_{A\,10}$ assigned level for this point would be 41 dB(A).

The influencing factor would reduce to zero in areas more than 450m from the Port and from Commercial areas. Of these areas, those typically nearest to the Port would be the corner of Giles Street and Beach Road, and the corner of Emily and Corry Streets, where the night time L_{A10} assigned level would be 35 dB(A).

Table 2: Assigned Noise Levels

Type of premises receiving noise	Time of day	Assigned level (dB)		
		$L_{A\ 10}$	$L_{A\ 1}$	$L_{A\ max}$
Noise sensitive premises at locations within 15 metres of a building directly associated with a noise sensitive use	0700 to 1900 hours Monday to Saturday	45 + influencing factor	55 + influencing factor	65 + influencing factor
	0900 to 1900 hours Sunday and public holidays	40 + influencing factor	50 + influencing factor	65 + influencing factor
	1900 to 2200 hours all days	40 + influencing factor	50 + influencing factor	55 + influencing factor
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays	35 + influencing factor	45 + influencing factor	55 + influencing factor
Noise sensitive premises at locations further than 15 metres from a building directly associated with a noise sensitive use	All hours	60	75	80
Commercial premises	All hours	60	75	80
Industrial and utility premises	All hours	65	80	90

Existing noise levels

Existing noise levels for Port operations were documented in the 1999 report by Esperance Safety & Health (ESH, 1999). That report presented the results of a comprehensive series of noise measurements at six locations around Esperance. The results of relevance to this application are summarised in Table 3. The operations included were ship loading and train unloading, the latter including the noise of the wagon roller used to unload the iron ore.

A comparison of noise levels in Table 2 and 3 indicate that the $L_{A\ 10}$ noise emissions from the existing Port operations would exceed the assigned levels along Bostock Street for the period after 2200 hours by typically 7 dB(A). The noise emissions would exceed the $L_{A\ 10}$ assigned levels in the periods 1900 – 2200 hours any day and 0900 to 1900 hours Sunday and public holidays by 2 dB(A), and would comply during daytime Monday to Saturday. The indicated L_{A1} and $L_{A\ max}$ noise emissions (excluding train noise, which is not covered by the regulations) would comply with the assigned levels at all times.

Table 3: Existing Port Operation Noise Levels

Measurement location	Description of operations	Measured noise level – dB(A)		
		$L_{A\,10}$	$L_{A\,1}$	$L_{A\,max}$
1 – 34 Bostock St (vacant)[3]	Ship loading	49 – 50	50 - 51	50 - 52
	Train unloading	47 – 49	53 – 61[1]	61[1]
2 – Near Taylor St jetty walkway	Ship loading[2]	46	47	47
	Train unloading	-	-	-
3 – Vacant land opposite 23 Bostock St	Ship loading	46 – 48	47 - 49	48 - 50
	Train unloading	44 – 46	48 - 52	52 - 63[1]

Notes:

1. The $L_{A\,1}$ and $L_{A\,max}$ levels in the range 61 – 63 dB(A) were observed to be due to the train moving wagons, and not the wagon roller.
2. The noise levels for ship loading at Location 2 were influenced by noise of waves, and the noise levels of Port operations may have been lower than the levels given.
3. The EPA understands that the Port has purchased the properties nearest to Location 1, and Location 3 now represents the nearest residence not owned by the Port.

In relation to the Giles St/Beach Road area (which has lower assigned levels), the existing $L_{A\,10}$ noise levels can be estimated from the predicted noise levels in the supplementary acoustical report (Esperance Port Authority, 2000). Such analysis indicates that the existing noise levels may exceed the $L_{A\,10}$ assigned level for night time (22.00 – 07.00hrs) by up to 8 dB(A) under worst case meteorological conditions.

The EPA notes that the ESH report did not contain detailed analyses to assess noise characteristics such as tonality. However, the Calculation Sheet in Appendix 5.2 of that report indicated that no adjustments for noise characteristics were considered necessary.

Predicted noise levels

Predicted noise levels for the upgraded Port operations were documented in the supplementary acoustical report prepared by the Port Authority. That report presented acoustic models for three operational scenarios of relevance to this application, as follows:

- Train unloading to ship loader at Berth 3 via outloading conveyors;
- Train unloading to new iron ore shed via inloading conveyors; and
- Outloading from new shed to ship loader at Berth 3 via outloading conveyors.

The models were based on 3m/s winds from the south-east and a 2°C/100m temperature inversion to depict worst case sound propagation conditions likely to occur at night, in line with current practice. The PER indicates that the worst case combination of Port operations coinciding with the above meteorological conditions would only occur over 7% of the night time period.

The results are presented in Table 4 for six locations (illustrated in Figure 4) within the townsite, based on the findings in the supplementary report.

Table 4: Predicted Noise Levels for Port Upgrade

Receiving location	Assigned level - $L_{A\,10}$ – dB(A) for night time	Predicted noise level – $L_{A\,10}$ – dB(A)		
		Train unloading to ship loader	Train unloading to new shed	Outloading from shed to ship loader
1 – 34 Bostock St (vacant)	43	48	41	48
3 – Vacant land opposite 23 Bostock St	43	47	41	47
4 – Corner Smith St near CBH entry	41	45	33	45
5 – Inside Esperance Bay Caravan Park	37	45	40	45
7 – Corner Giles St and Beach Rd	35	42	<30	42
8 – Corner Emily/Corry Sts	35	42	35	41

The predicted noise levels for the upgraded Port operations would exceed the night time assigned $L_{A\,10}$ noise levels by 4 – 5 dB(A) along Bostock Street, and by up to 7 dB(A) at Giles St/Beach Road and Emily/Corry Streets. Exceedances of 5 dB(A) or more may therefore extend over a wide area under the most favourable sound propagation conditions. When compared with the existing noise levels, the results indicate slightly lower noise levels, occurring for a greater percentage of the time, with the worst case noise levels only occurring for a small percentage of the time.

Position	Noise Criteria under Reg 17 L_{A10} - dB(A) at night time	
	Year 1	Year 2/3
1	51	48
3	51	48
4	49	46
5	45	42
7	43	40
8	43	40

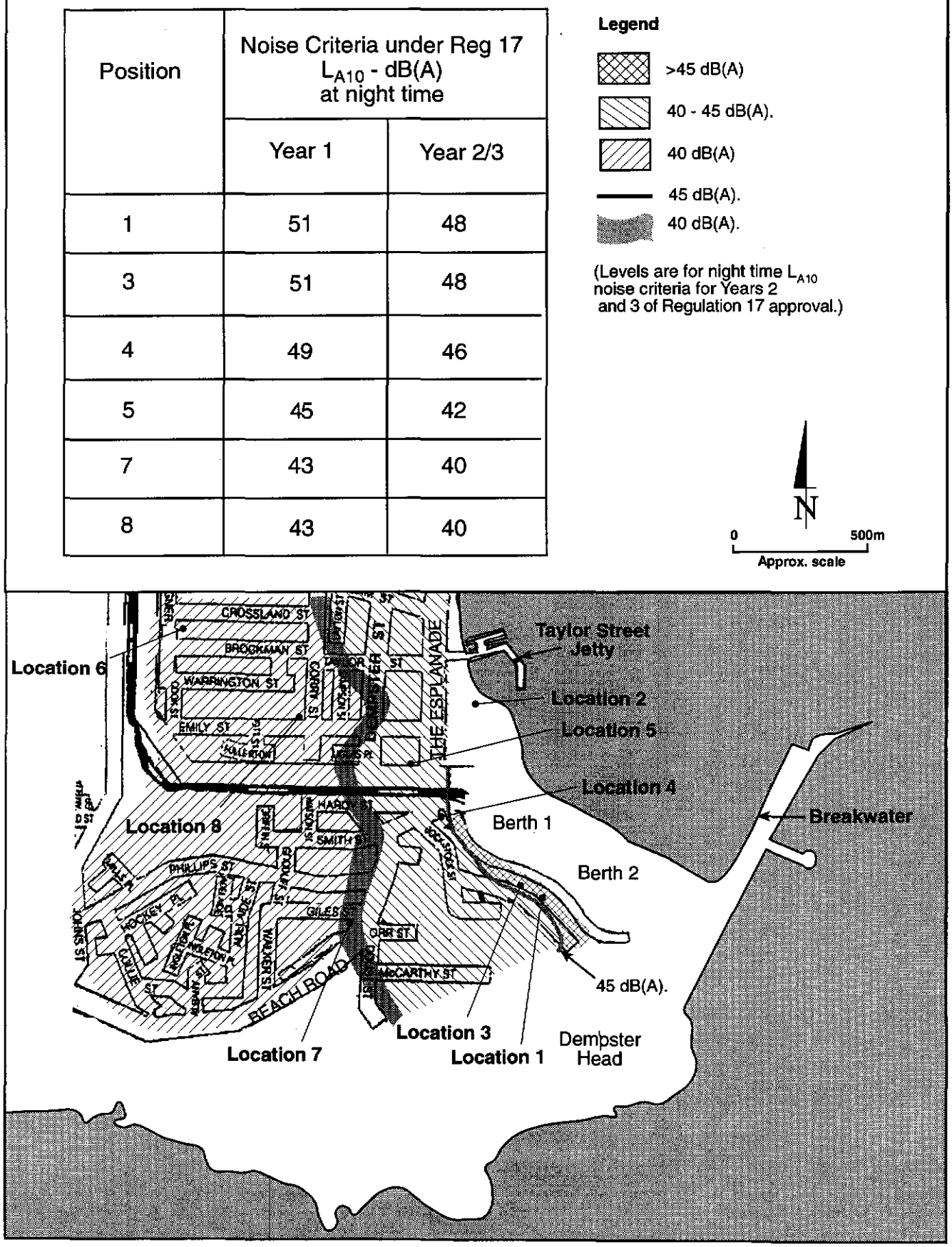


Figure 4. Selected locations for predictive noise modelling and noise criteria under proposed Noise Regulation 17 approval.

Noise control measures

The Esperance Port Authority has recognised that its noise emissions have exceeded Environmental Conditions in the past and has taken a range of noise control measures to reduce the operational noise emissions. These are summarised below:

- Use of low sound power equipment where possible;
- Use of sound attenuation measures where feasible, for example, silencers fitted to the front end loaders, elimination of reversing beepers, silencers on exhaust fans and acoustic chambers for fans and motors;
- Extensive vibration and engineering analysis of conveyor gearboxes to reduce noise;
- Reduction in conveyor system noise levels by enclosing transfer towers, gravity take-up towers, particularly GT12 and GT15 (nearest to residences), and conveyors, particularly CV11, CV12 and CV 15 (nearest to residences);
- Noise attenuation lining at conveyor transfer points;
- Sacrificial rubber lining of conveyor chutes (for lump ore);
- Replacing transfer chute impact bars with impact idlers;
- Training Port employees to maintain all systems so that noise is at a minimum and areas for improvement are assessed.

In addition to the above measures, the Port has acquired nearby properties to form a buffer zone.

The Port has also taken a range of measures to reduce the noise impact of train movements, which does not come under this regulation 17 application.

The EPA considers that it is not practicable for existing operations of the Port to comply with either the existing Environmental Conditions or the *Environmental Protection (Noise) Regulations 1997* in the immediate future. The EPA notes that the Port Authority's noise reduction programme is ongoing. The Port has committed to conducting a detailed noise control study with the purpose of further identifying and ranking the residual noise sources, in order to develop a structured programme for further reductions. This would become one of the conditions of the regulation 17 approval if granted.

In relation to new plant to be installed as part of the proposed upgrade, the noise emission levels on which the noise modelling has been based have been derived from measurements made on similar items of existing plant. The specification for procurement of the proposed major plant items is therefore a matter of relevance in the conditions for any regulation 17 approval. Clearly, the Port should be required to procure the quietest equipment practicable.

The first question to be considered is whether it would be practicable to achieve compliance for new plant by reducing the noise emission levels to the lowest practicable levels. The source breakdown data in the supplementary acoustical report (Esperance Port Authority, 2000) identifies the three main contributors to the noise received at Location 1 as follows:

- Ship Loader at Berth 3 46.1 dB(A)
- Outloading Conveyor 2 (Perpendicular to rail) 42.2 dB(A)
- Outloading Conveyor 2 (Near ship loader) 36.9 dB(A)

The total contribution of the other sources is approximately 33 dB(A).

In order to achieve a combined total of 43 dB(A) to meet the night time $L_{A\,10}$ assigned level on Bostock Street, the two main sources would need to be reduced by 8 dB(A) and 4 dB(A), respectively. While the latter may be achievable, the former is likely to be difficult to achieve.

The EPA also recognises that the CBH facility may generate noise that exceeds the assigned levels at times, and this would contribute to the overall received noise. For the Port to comply when both facilities are operating, regulation 7 would require that the Port reduce its emission level by a further 5 dB(A), to 38 dB(A), in order not to be "significantly contributing" to an exceedance. In this case, the three main sources would each need to be reduced to 31 dB(A). The required reduction of 15 dB(A) needed for the ship loader could therefore be considered impracticable.

The EPA accepts that it will not be practicable for the Port to meet the prescribed standard at all times. A regulation 17 approval, if granted, should be structured so as to ensure that the new shiploader and conveyors are designed and constructed using the quietest reasonably available equipment so as to achieve the lowest practicable noise emission.

The question as to what is or is not practicable in terms of noise reduction comes down to whether a given level of noise reduction is technically achievable and sustainable and is not unreasonably costly. This can only be determined on a case-by-case basis. As an example, if the procurement of an item at an additional cost of 15% were to result in a noise reduction of greater than 3 dB when compared with the standard item, then the achievement of that noise reduction could perhaps be regarded as "practicable". The regulation approval could address this issue by including a condition that established a process for ensuring the best practicable outcome.

Public consultation

A brochure outlining the regulation 17 application was developed by the Port and sent to all persons who had indicated an interest in the issue at the public consultation stage of the PER. A total of seven submissions were received specifically in relation to the regulation 17 consultation brochure.

One of these was from the Department of Resources Development, supporting granting of the approval. A second submission was from a local business also supporting the approval. Five submissions, comprising three from individuals or households, a representative of a resident group and the local authority, were opposed to the granting of an approval.

The main issue raised in the submissions from individuals was the unfairness of granting an approval to generate more noise when the current port operations were exceeding existing Environmental Conditions. One submission raised specific noise issues relating to the use of front end loaders on site.

The submission from the Shire of Esperance did not support the removal of the existing Environmental Conditions covering port operations, to be replaced by Regulation 17 conditions, until a better understanding of the future development intentions of the port were known. The particular concerns related to:

- The introduction of new equipment into the Port and CBH facilities when the full environmental impacts are unsure; and
- The increased freight movement both on road and rail.

These issues are addressed in the Preliminary Drafting Instructions (Appendix 9).

Regulation 17 Assessment

Noting all of the above, the EPA considers that a regulation 17 approval could be granted in this case. The features of the approval would need to include the following considerations:

1. The approval would address both the existing Port operations and the proposed upgrade. It would not address construction noise (which is dealt with under regulation 13) and train noise, which is outside the regulations.

2. The approval should not allow any increase in noise levels above those of the existing operations. The proposed operations should be approved at a lower noise level than the existing operations.

3. For proposed operations within the upgrade, the approval should allow for a 5 dB(A) increase in the night time $L_{A\,10}$ assigned level above that set in regulation 8. This would ensure an equivalent level of amenity to that provided in the Environmental Conditions for all residences further than 450m from the Port, and would ensure levels which were lower than existing levels for all locations (new noise criteria allowed under the proposed Regulation 17 approval notice are shown in Figure 4, along with specific criteria at each of the six locations used in the predictive modelling).

4. An additional variation of +3dB(A) should be made, for the first year only of the approval, to provide time for further reduction of existing plant noise levels. This provision would allow the existing noise levels to continue for up to one year before being reduced to the level set above for the upgraded plant.

5. The approval should apply to noise emissions from the Port of Esperance in isolation from any other noise emissions that may be received at a premises. The EPA notes that CBH has also applied under regulation 17 in relation to its noise emissions, and expects that, if a regulation 17 approval is to be recommended for CBH, that approval would also apply to CBH in isolation from the Port. This approach is intended to ensure that both premises contain noise emissions to within lowest practicable levels, and that overall noise emissions do not rise above existing levels. It is considered to be an enforceable approach, since both premises will operate alone for much of the time, enabling their emissions to be separately assessed.

6. In relation to noise characteristics, the EPA notes that the most likely characteristic, tonality, was not considered to be present in the existing noise emissions. The Port Authority has considered that there was some possibility that the noise emissions resulting from the proposed upgrade may be tonal. Regulations 7 and 9 require that the noise emission should be free of tonality. Where the tonality can only be practicably removed by reducing the overall level of the emission, the noise is taken to be free of tonality if it complies with the assigned levels when a +5dB(A) adjustment is applied to the measured level. The EPA considers that the approval should not allow an additional variation in case of tonality appearing in the noise emission. Where tonality is present, the EPA considers that no adjustment should be applied to the measured noise level and the Port Authority be required to remove tonality as far as is practicable.

7. The approval should have a three year life with a requirement for review before expiry. This measure is intended to ensure that the Port effectively reduces noise from existing plant, and procures the equipment for the proposed upgrade at the lowest practicable levels, within the context of any further possible upgrades.

8. The approval should require the Port to prepare and implement comprehensive ongoing noise control programs for the existing plant and for the upgrade. A plan for noise monitoring and complaint response should also be prepared. The plans should be prepared to the satisfaction of the DEP and be made public.

These features of the approval are incorporated in the Preliminary Drafting Instructions in Appendix 9 of this Bulletin.

3.2.2 Section 46 Change to Environmental Conditions

Existing Environmental Conditions

The EPA notes that the prescribed standards under the *Environmental Protection (Noise) Regulations 1997* are at variance with the Environmental Conditions set down in Ministerial Statement 325 (Appendix 6) when the Port was given approval to export iron ore in 1993. The $L_{A\,10}$ levels set in the Environmental Conditions (40 dB(A) at night, 45 dB(A) during evenings and weekends and 50 dB(A) during the day) are 3 dB(A) below the $L_{A\,10}$ assigned levels set under the regulations for Bostock Street, and up to 5 dB(A) above the $L_{A\,10}$ assigned levels in areas such as Giles St/Beach Road.

There are approximately 30 residential lots in the area along Bostock Street and nearby where the $L_{A\,10}$ assigned levels under the regulations are greater than the levels set in the Environmental Conditions. The EPA notes that the Port has purchased some of these lots and has an ongoing programme of purchases.

The EPA notes that this regulation 17 application is assessed in the context of a section 46 application to remove the Environmental Conditions in Ministerial Statement 325.

Table 5 provides a comparison of existing night time noise levels and noise criteria around Esperance Port, with the proposed new criteria rated against previous levels stipulated.

Table 5: Comparison of existing night time Noise Levels and Noise Criteria around Esperance Port.

Parameter	Noise Level, $L_{A\,10}$ – dB(A)					
	Location 1 – Bostock Street			Location 7 – Giles St/Beach Rd		
	Night	Evening/ Sunday	Day	Night	Evening/ Sunday	Day
Existing noise	50	50	50	43	43	43
Ministerial Conditions	40	45	50	40	45	50
Assigned levels under Noise Regulations	43	48	53	35	40	45
Regulation 17 recommendations – Year 1	51	51	53	43	43	45
Years 2/3	48	48	53	40	40	45

Section 46 Assessment

The EPA notes that the Environmental Conditions stipulated in Ministerial Statement 325 were drafted prior to 1997, and hence prior to the gazettal of the Environmental Protection (Noise) Regulations. Condition 4-1 is not consistent with either the Environmental Protection (Noise) Regulations 1997 or previous Noise Abatement (Neighbourhood Annoyance) Regulations 1979 It is appropriate to remove this condition and replace noise limits with those provided under a Regulation 17 approval to vary assigned noise levels.

In doing so, the EPA notes that the recommended conditions of the Regulation 17 approval require the proponent to reduce noise emissions from existing port operations over the three year duration of the Regulation, and commit to a comprehensive on-going noise control programme for existing port operations and the upgrade.

Noise Summary

Having particular regard to the:

- conditions stipulated under the regulation 17 variation;
- justification for amendments to Environmental Conditions under Section 46 of the EP Act;
- implementation of previous noise reduction measures;
- locational constraints; and
- mechanisms for control under Works Approval and Licence under Part V of the EP Act,

it is the EPA's opinion that the issue of noise can be adequately managed under the Regulation 17 application, with particular regard to taking all practical and necessary action to reduce noise emission in the long term.

3.3 Particulates and Dust

Description

The increase in iron-ore throughput and handling at the port (increasing from 2-4 million tonnes per annum) has the potential to generate significant amounts of dust.

Submissions

DEP raised a number of issues relating to dust management and contingency measures, including clarification of the need to review existing monitoring and visual inspection programs.

The Shire of Esperance encouraged the proponent to develop dust control and measurement criteria and maintain and improve best management practice for dust control, in recognition of the high performance to date.

The public wanted assurances that a doubling of iron-ore throughput would be managed to ensure that current dust management and control was maintained or improved and would not result in compromising the environmental values in the vicinity of the port. The failure to develop a threshold level for iron-ore that may indicate a potential for discolouration of beaches (as stipulated under existing Environmental Conditions) was also raised as a concern.

Assessment

The areas considered for assessment of this factor are Esperance Townsite and nearby recreational areas.

The EPA's environmental objective for this factor is to protect surrounding land users and environmental values.

The control of iron ore dust was identified as the most significant issue confronting the proponent in the EPA's assessment of iron-ore operations at Esperance undertaken in 1993. At the time the EPA concluded that installation of best available technology and the small scale of operations would ensure that dust control could be managed to protect all areas outside the port boundary and the areas of public amenity and other port uses within the port boundary from iron ore dust impacts.

Monitoring of on-going operations over the last 5 years has demonstrated the efficacy of the dust control measures installed at the port. A dust control management plan remains effective today and includes:

- an EMP which lists dust control methods, responsibilities, maintenance details and procedures for compliance auditing; and
- a dust monitoring program which provides an assessment of the success of dust control measures.

Licence conditions imposed on iron ore operations in the port specify requirements for dust control and are administered under Part V of the *Environmental Protection Act* 1986. Development of threshold criteria for visual discolouration was investigated and found to be too subjective. Management was considered best effected through installation of best practice technology and on-going inspection, including feedback from the community.

The proposed upgrade, facilitating an increase in iron-ore throughput of 2 Mtpa (an increase from 2-4Mtpa) has the potential to increase the risk of iron-ore dust deposition. To maintain dust control at pre-upgrade levels, or better, the proponent has committed to the installation of similar, or better, dust control measures to those already in place, including best available technology conveyors, dust extractors and ship-loaders.

This will be administered through Works Approval and Licence under Part V of the Environmental Protection Act.

A dust monitoring report submitted to the DEP in January 2000 suggested a trend towards elevated iron-ore deposition levels with increased throughput tonnage. The Port Authority acknowledged that this was due to poor housekeeping and addressed the issue through its on-going maintenance schedule for the dust extraction system. Esperance Port Authority and the DEP continue to work together to ensure that best practice management is maintained.

Summary

Having regard for:

- current best practice management for existing iron-ore operations and historical environmental performance in this regard;
- proponent commitments to install similar, or better, dust control measures to those already in place; and
- specification of dust control, monitoring and management mechanisms required under Works Approval and Licence,

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

3.4 Visual Amenity

Description

Dredging operations will cause temporary discolouration of the sea in the vicinity of this activity. The new conveyor and ship loading infrastructure will disrupt existing views from the Esperance foreshore to the islands, as will increased shipping activity at Berth 3.

However, in response to submissions received from the community, the Port Authority will align the new iron-ore shed behind existing port structures which will assist in reducing impacts on visual amenity.

Submissions

The Shire of Esperance commented that no management measures were proposed for the anticipated temporary discolouration of the sea during construction activities.

The Shire also questioned to what extent the proponent had considered future development, ie the sulphur storage shed, which will be highly visible if ultimately installed in the current port configuration.

The public (including representatives of the local tourist organisation) were of the opinion that the upgrade could only have a negative impact on visual amenity. This not only related to the infrastructure but also the increased visual obstruction of new and larger ships that would use Berth 3.

Assessment

The area considered for assessment of this factor is Esperance Bay and foreshore, the waters within the inner harbour and nearby beaches.

The EPA's environmental objective for this factor is to minimise the visual impacts resulting from the construction of storage and product handling facilities.

The port is a key feature of the townsite. However, the impacts of infrastructure associated with the upgrade on visual amenity, with particular regard to views across Esperance Bay from the townfront beaches adjacent to the port, is an issue of concern to the Esperance community.

Expansion of the port can only occur with some impact on visual amenity. This was acknowledged by the Port Authority which identified the most obvious intrusion as being interrupting vistas across Esperance Bay, eastwards to the islands.

To minimise the visual impacts, the Port Authority has indicated that a dual quadrant shiploader will be constructed, approximately 30 metres high and allowing the iron ore handling equipment to run along the ground. Traditional shiploaders, like those already present at the port, are 40-50 metres high and require the conveyor system to be up in the air, further adding to the visual intrusion.

The proposed new iron ore shed will be located behind existing port infrastructure, thereby reducing any further impairment on vistas by this structure.

Increased shipping movements, particularly at the newly constructed Berth 3, will contribute to the visual impairment of the coastal vistas. This is unavoidable, especially as the upgrade is intended to specifically cater for larger vessels.

Visual discolouration of the sea resulting from turbidity generated by dredging operations will be temporary. The proponent has committed to developing a Dredging and Dredge Spoil Management Plan to address issues associated with this activity.

Summary

Having regard for:

- use of alternative infrastructure to minimise visual impairment;
- locational constraints on the port for expansion;
- configuration of infrastructure to avoid impacts where possible; and
- availability of extensive recreational areas not affected by the upgrade,

it is the EPA's opinion that the proposal will not unacceptably compromise the EPA's objective for this factor. However, the EPA recognises that visual amenity across the harbour from the Esplanade will be impaired by the proposed upgrade.

4. Conditions and commitments

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and on the Environmental Conditions and procedures to which the proposal should be subject, if implemented. In addition, the EPA may make recommendations as it sees fit.

In developing recommended Environmental Conditions for each project, the EPA's preferred course of action is to have the proponent provide an array of commitments to ameliorate the impacts of the proposal on the environment. The commitments are considered by the EPA as part of its assessment of the proposal and, following discussion with the proponent, the EPA may seek additional commitments.

The EPA recognises that not all of the commitments are written in a form which makes them readily enforceable, but they do provide a clear statement of the action to be taken as part of the proponent's responsibility for, and commitment to, continuous improvement in environmental performance. The commitments, modified if necessary to ensure enforceability, then form part of the Environmental Conditions to which the proposal should be subject, if it is to be implemented.

4.1 Proponent's commitments

The proponent's commitments as set in the PER and subsequently modified, as shown in Appendix 5, should be made enforceable.

4.2 Recommended Conditions

Having considered the proponent's commitments and the information provided in this report, the EPA has developed a set of Environmental Conditions which the EPA recommends be imposed if the proposal by Esperance Port Authority to upgrade facilities at Esperance Port to increase iron-ore handling from two million tonnes per annum to four million tonnes per annum is approved for implementation.

These Environmental Conditions are presented in Appendix 5. Matters addressed in the Environmental Conditions include the following:

1. that the proponent be required to fulfil the commitments in the Consolidated Commitments statement set out as an attachment to the recommended Environmental Conditions in Appendix 5;
2. that the proponent will participate fully in matters to address issues related to coastal processes, rail traffic management and noise reduction.

It should be noted that other regulatory mechanisms relevant to the proposal are:

- Part V of the Environmental Protection Act (1986);
- The Port Authorities Act (1999).

5. Other Advice

5.1 Public Health and Safety (Traffic Management)

Increased iron ore throughput will increase train movements through the Town of Esperance which will impact on local residences and road junctions along the rail corridor. More frequent movements of longer trains may increase disruption at road-rail junctions and may increase risks of accidents at these locations.

As rail operations outside of the port boundary are not under the control of the Port Authority, the recommendations in this regard are provided as Other Advice. In providing this advice, the

EPA acknowledges the existing Westrail EMP controlling rail operations at Esperance, considering this an opportune time for review and update of this program to take in to account the future increase in iron-ore throughput.

The submissions received with regard to the port upgrade highlighted rail movements as a key concern for the community of Esperance. The Shire of Esperance requested that the proponent take a lead role in managing traffic issues associated with existing and increased train movements into the port, including traffic management studies and treatment designs, in consultation with other relevant stakeholders. The Shire commented that train movements have been the subject of several complaints and requested clarification of how any increases in train activity could be managed so as not to exacerbate existing problems. Management of construction traffic was also raised as a concern. The Shire requested that details on volumes of rock and routes of traffic be provided to manage any potential impacts.

The public raised concerns with regard to the implications for increased risk of accidents and disruption to local traffic as a result of increased train movements associated with an increase in iron-ore throughput and also wanted assurances that night time train movements would not increase.

The issues associated with increased rail traffic are noise, dust and traffic management. Of particular interest to the EPA is the management of increased iron-ore train movements into and out of the port.

Noise

The noise modelling undertaken for the PER considered issues associated with train movements. Whilst the proposed upgrade will not affect truck movements, which are generally associated with the grain industry, train movements will increase.

Existing trains operate on a 36 hour cycle, scheduled to arrive at 6 am and 6 pm at Esperance marshalling yards where the train is split prior to moving into the port. Due to the 36 hour cycle, every fourth time slot is vacant. Current iron-ore throughout carried by 7 trains per week equates to 26 train movements per week. The proposed upgrade to 4Mtpa is expected to increase train movements to 46 per week, equating to a total of 14 trains per week.

The majority of trains used in existing iron-ore operations are Q-class locomotives, quieter than the previously used L-class locomotives. However, maintenance schedules require the use of L-class locomotives for 1 or 2 trains per week.

The upgrade will increase the number of trains running between Koolyanobbing Mine site and Esperance Port to 14, consisting of 9 trains with 84 wagons and 5 trains with 50 wagons. These 5 "smaller" trains will be serviced by L-class locomotives, thereby increasing the occurrence of these locomotives to potentially 7 per week, as opposed to the 1 or 2 the community currently experiences.

Table 6 below provide a summary of L_{Aeq} calculations which provide a comparison of current and proposed noise emissions from train operations experienced by the community. The table provides a summary of information provided by the proponent and that provided by Westrail directly to the DEP. It is clear that there are some discrepancies between these sources, due largely to an apparent incorrect assumption made by the proponent. The Port Authority has assumed that all locomotives servicing the Esperance-Koolyanobbing route are Q-class. Existing movements are already serviced by some L-class locomotives. Additional trains will further increase the frequency of use of these older style locomotives as detailed above.

Table 6: L_{Aeq} calculations for existing and proposed rail traffic movements

Data source	Train Type	L_{Amax} dB(A)	Existing		Proposed	
			$L_{Aeq,15h}$ Day dB(A)	$L_{Aeq,9h}$ Day dB(A)	$L_{Aeq,15h}$ Day dB(A)	$L_{Aeq,9h}$ Day dB(A)
Port Authority	Q class	79	46	46	49	46
Westrail	Q and L class combinations	*79-85	51	52	53	52

Assumptions: Port Authority – all locomotives are Q class
Westrail – 1-2 trains per week include one L class engine. 50 wagon trains in upgrade have 2L class engines.

Noise predictions based on worst case day or night.
* Dependent on mix of Q and L class

In summary, based on information provided by the proponent, increased train movements to service the additional 2 million tonnes per annum of iron-ore will increase predicted L_{Aeq} levels by 4dB(A) during the day and 6dB(A) at night.

The EPA considers that this demonstrates that Westrail should investigate and implement means to reduce impacts on the community and to clarify the magnitude of impact associated with increased rail movements.

Dust

Previous studies on dust generation indicated that there is no detectable dust arising from iron-ore rail transportation (ERM Mitchell McCotter, 1997).

Any requirements to initiate additional dust monitoring for the proposed increased throughput will be addressed in the revised EMP for rail operations.

Traffic Management

An increased number of long trains may impact on road rail junctions and increase risk of accidents associated with these junctions. The Port Authority has committed to preparing and implementing a traffic management plan in consultation with all relevant stakeholders, including Westrail, Shire of Esperance, MRWA and Transport WA.

Westrail has advised that all rail road junctions are examined by the Rail Crossing Protection Committee, a national committee that ensures that road-rail junctions are afforded the necessary level of safety measures (eg flashing stop signs, barriers etc.) dependent on the volume of traffic crossing that junction.

The EPA has examined existing and proposed noise generated in the port very closely, and has made recommendations. Furthermore, the EPA provides the following additional recommendations to ensure that impacts associated with increased rail operations are identified and managed appropriately.

1. As part of the approval of the port upgrade proposal, a review should be undertaken by Westrail of current rail management practices to ensure that increased movements do not cause undue detrimental impacts. Westrail should submit a revised Environmental Management Program for rail operations to the EPA, detailing how increased train movements will be managed to ensure that this is the case.

2. Westrail should investigate scheduling options with a view to avoiding arrival of trains at the Port during noise sensitive hours, ie between 22.00 and 07.00 hrs. It is noted that

there are no plans to change the current scheduling of 6 am and 6 pm arrivals. Options for changing the morning arrival slot to 7 am should be considered.

3. The increase in use of L-class locomotives is of concern to the EPA. This increase in train movements will result in approximately 7 L-class trains per week, a marked increase from the estimated 1 or 2 that currently visit Esperance. It is noted that part of the rail noise reduction strategy in the past involved a switch to the Q-class locomotives. An increase in L-class engines would not be perceived by the local community as improved environmental performance. The EPA therefore recommends that Westrail considers noise attenuation on these older style engines, particularly given their predicted long-term use, to mitigate anticipated noise level increases.

4. Previous dust monitoring has indicated that dust generation from rail wagon transport is not detectable above background. It would be appropriate to initiate some additional short term investigations to ensure no risk of increased dust emissions from an increase in iron-ore movements.

5. Management of road-rail junctions is a matter to be resolved at the local level. It is noted that the existing rail operations Environmental Management Program considers this aspect of rail operations and highlights the safety requirements associated with rail crossings. The EPA will expect Westrail to participate fully in traffic management committees and studies to resolve outstanding traffic management and safety issues.

6. Conclusions

The EPA has considered the proposal by Esperance Port Authority to upgrade facilities at Esperance Port to increase iron-ore handling from two million tonnes per annum to four million tonnes per annum.

The EPA notes that:

- the proposal is within the port boundaries and on land zoned for port uses;
- the impact on coastal process is likely to be small compared with effects associated with construction of the existing port facility infrastructure;
- the port has implemented noise reduction measures in the past but to date has failed to meet statutory requirements despite these efforts;
- the Regulation 17 Approval Notice provides an opportunity to implement additional noise control measures and achieve some level of increased performance in respect of noise in the longer term;
- the port continues to achieve best practice with regard to iron-ore dust management;
- the proposal will result in some visual impairment of views across Esperance Harbour;
- although issues associated with increased train movements to the port are beyond the jurisdiction of the Port Authority, advice is provided with regard to the involvement of Westrail to ensure that these matters are addressed adequately.

The EPA has concluded that the proposal is capable of being managed in an environmentally acceptable manner to meet the EPA's objectives with the exception of noise (which is being dealt with under a Regulation 17 application), provided there is satisfactory implementation by the proponent of the recommended Environmental Conditions set out in Section 4, including the proponent's commitments

7. Recommendations

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

1. That the Minister notes that the project being assessed is for the upgrade of marine facilities at Esperance Port, consisting of deepening berths 1 and 2, dredging of the harbour basin and shipping channel, construction of a new deepwater berth, reclamation of approximately 15 hectares of land, construction of a new iron ore shed and installation of associated shiploading and conveyor infrastructure;

2. That the Minister considers the report on the relevant environmental factors as set out in Section 3;

3. That the Minister notes that the EPA has concluded that the proposal is capable of being managed in an environmentally acceptable manner to meet EPA objectives, provided there is satisfactory implementation by the proponent of the recommended Environmental Conditions set out in Appendix 5, including the proponent's commitments, and conditions in relation to the Regulation 17 Approval Notice;

4. That the Minister imposes the Environmental Conditions and procedures recommended in Appendix 5 of this report;

5. That the Minister grant approval of the Regulation 17 application, in accordance with the Preliminary Drafting Instructions set out in Appendix 9 and subject to the Environmental Conditions set out therein;

6. That the Minister implement the Change to Condition 4-1 of Ministerial Statement 325 as outlined in Appendix 7;

7. That the Minister notes the Other Advice and recommendations provided in Section 5 of this report in relation to rail traffic management, and refer that advice to the Minister for Transport.

Organisations:

Goldfields Land Council
Shire of Esperance
Residents for Esperance Development
Local Environment Action Forum (Esperance)
Conservation Council of WA
Australian Marine Conservation Society WA
Kalgoorlie-Boulder Department of Commerce and Industry
Recherche Advisory Group
Esperance Sailboard Association
South East Premium Wheat Growers Association

Individual:

Mr D & Mrs L Keizer
Mr P Hudson
Mr M Rogers
Mr I Hay
Mr R Ainworth, M.L.A
Ms S Hatch
Ms J Fitzpatrick
Mr J Layman
Mr I Mickel
V A Cook
Mr A J Ross
Mr David Price
Ms H McCarthy
V R Fels
Ms S Proudfoot
Mr M Spragg
Ms S Starr
C & E Siemer
Mr D Johnson
A V Proudfoot
Ms J Chambers
Mr and Mrs G Calnon

1 anonymous submitter
2 members of the public (in confidence)

ANZECC (1998). Interim Ocean Disposal Guidelines. ANZECC Secretariat, Canberra.

Connell Wagner Pty Ltd, 1997, *Port Study - Phase 1 for the Esperance Port Authority,* Spring Hill, Queensland, Australia.

Connell Wagner Pty Ltd, 1998, *Port Study - Phase 2 for the Esperance Port Authority*, Spring Hill, Queensland, Australia.

ERM Mitchell McCotter, 1997, *Esperance Service Corridor Town Planning Scheme and Industrial Park Location Study*, Perth, Western Australia.

ESH (1999). *Esperance Port Authority- Noise Study*. Esperance Safety and Health. October 1999.

Esperance Port Authority (2000). *Esperance Port Upgrade of Facilities.* Public Environmental Review. Environmental Risk Solutions. January 2000.

Esperance Port Authority (2000). *Esperance Port Upgrade of Facilities – Community Consultation Noise Information.* Environmental Risk Solutions. March 2000.

GHD (1999). *Esperance Foreshore Coastal Protection Works: Coastal Management Options.* Report prepared for the Shire of Esperance. Report Number 14533. May 1999.

Appendix 3

Summary of identification of relevant environmental factors

Appendix 3: Summary of Identification of Relevant Environmental Factors

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Relevant Environmental Factors
BIOPHYSICAL			
Marine Flora and Fauna	Dredging of the port inner harbour and reclamation works east of the existing breakwater will result in localised losses of benthic habitat and marine communities. Extension of the breakwater groyne, east of the existing location, may transfer seagrass wrack material accumulation offshore. If material persists in this area this may cause light limitation and seagrass loss immediately offshore of the proposed reclamation area. Increased port operations may cause localised disturbance/loss of benthic communities.	**Government:** DEP raised the following issues: • Seagrass impacts to be considered in light of the draft DEP guidance on protection of seagrass communities and benthic primary producer habitat; • Proponent should commit to managing dredge plumes and reclamation activities to minimise impacts away from the immediate vicinity of these activities. **Public:** • The survey work undertaken to date is inadequate as a baseline survey upon which to assess impacts and effectiveness of proposed management. • The proponent claims that the areas to be dredged are bare sand. However, seagrass communities are adjacent to these areas. How will the proponent monitor impacts and what mitigation is proposed? Will turbidity or increased turbulence from increased shipping movements result in any losses of seagrass? • Will the port authority commit to supporting the community based marine habitat mapping program? • Will the proponent commit to establishing and implementing its own biological monitoring program to assess impacts and effectiveness of proposed management	A benthic habitat survey revealed that, while the majority of area to be dredged is bare sand, with some seagrass seedling establishment recorded in previously dredged areas, an area of seagrass (estimated at a maximum of 10ha) could potentially be lost due to the widening of the existing breakwater and extension of the breakwater groyne. In accordance with Draft EPA Guidance No.29, *Benthic Primary Producer Habitat Protection*, the proponent defined a preliminary management unit (Figure 4, Appendix 8) of 54km^2 (or 5400 ha) of which the majority is considered either seagrass, or potential seagrass, benthic habitat. Cumulative losses of seagrass in this unit total 50ha (including the estimated losses from the proposal) which is equivalent to approximately 1% of the potential habitat. This is within the criteria stipulated and is environmentally acceptable. The proponent will be required to define a management unit through a more thorough evaluation of seagrass habitat for future development proposals and establishing the extent of impact resulting from reclamation activities (Condition 7). The proponent has also committed to implementing appropriate monitoring and management programs to address potential impacts on marine flora and fauna associated with dredge plumes, other construction activities and on-going port operations (commitments 2 and 8). The Port Authority already supports the community based Habitat Mapping Program. It is not anticipated that there will be any further impact on inter-tidal communities at Dempster Head. The existing breakwater already abuts this area and the widening will occur directly east and out to sea. **Not considered a relevant environmental factor.**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Relevant Environmental Factors
		strategies? • Will the proposal impact on inter-tidal communities on Dempster Head?	
Coastal Processes and Littoral Drift	The current configuration of the existing breakwater, breakwater groyne and dredged channel have effectively interrupted the longshore sediment transport from west of Dempster Head to Esperance Bay. Extension of the existing breakwater and breakwater groyne may contribute in part to this existing issue. There is a small chance that the proposed works will slightly reduce the prevailing inshore wave energy and currents within the southern corner of Esperance Bay.	**Government:** The Shire of Esperance insisted that the proponent commit to ensuring that the existing problems of beach erosion are not exacerbated by the upgrade. Furthermore, the Shire expects the proponent to mitigate existing impacts in areas under its jurisdiction and implement contingency measures should it become apparent that the upgrade works create additional problems in Esperance Bay. **Public:** The public raised concern as to what plans the Port Authority had to mitigate problems of beach erosion that currently exist at Esperance. In particular, and given that the Port Authority has stated in the PER that the existing breakwater and breakwater groyne have effectively interrupted littoral drift processes into Esperance Bay, it has been suggested that the Port Authority should be taking full responsibility for maintaining a beach for use by residents. Concern was also expressed regarding potential impacts of the proposed extension/widening and what likelihood there was for exacerbating the existing problem. The on-going maintenance of beaches under the control of the Port Authority, ie the beaches south of the Tanker Jetty, is another source of concern for the community. Debris form collapse of the revetment wall is often left for	**Considered to be a relevant environmental factor**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Relevant Environmental Factors
		sometime before being cleaned up and has fuelled frustration of local residents to the point that they are dubious about other commitments to address beach losses.	
Introduction of Exotic Organisms	An increase in ship movements resulting from the upgrade of marine facilities will increase the risk of introduction of exotic species.	**Public:** Perceptions in regard of previous environmental performance appear to be negative and the proponent's real commitment to actively pursuing a research program in collaboration with a government initiative is questioned. Concern was also raised that the proponent made no attempt to assess the magnitude of increased risk in the PER.	Control of ballast water is primarily a Federal issue under the control of the Australian Quarantine Inspection Service (AQIS). The proponent estimates that the upgrade will increase shipping movements by up to 20%, which may increase the risk of foreign species introduction. In co-operation with the Commonwealth Government, the proponent aims to control introduction of foreign species and ensure no detectable change in local marine flora and fauna. Whilst it is not possible to control the ports of origin of vessels entering Port Authority controlled waters, the proponent will minimise the level of risk by: • Continued enforcement of the IMO Ballast Water Protocols; • Implementation of AQIS ballast water guidelines; and • Prohibiting in-water hull cleaning of ships in Port Authority controlled waters. Measures will be incorporated into the Port Authority's Environmental Management Program. The effectiveness of these measures will be assessed through a marine survey to be undertaken within the next 5 years with the CSIRO Centre for Research on Marine Pests (CRIMP). The proponent has committed to participating in this National initiative (Commitment 10.1). **Not considered to be a relevant environmental factor.**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Relevant Environmental Factors
POLLUTION			
Marine water and sediment quality – dredging and reclamation	Dredging and reclamation activities may result in the release of nutrients, and other contaminants, and increase turbidity in the vicinity of the activities leading to reduced marine water quality.	**Public:** Issues of turbidity resulting from dredging operations do not appear to have been adequately addressed, in particular likely impacts from settlement of fine material.	The proponent investigated issues associated with the proposed dredging activities on water quality (Esperance Port Authority, 2000) and identified three main impacts: • turbidity; • release of nutrients; and • release of contaminants. The study concluded that a very low proportion of the dredged particles will be sufficiently small to stay in suspension for long periods. Previous dredging in 1988 resulted in dredge plumes drifting over seagrass meadows to the north of the harbour basin, but healthy meadows still occur in this area today. Analysis of contaminants revealed both TBT and nickel to be above screening levels for these contaminants as per ANZECC *Interim Ocean Disposal Guidelines*. Nickel was found to be largely in the from of sulphides and oxides and not therefore available for uptake. TBT binds strongly to sediments and does not dissolve in water. All other contaminants were found to be below screening levels. It is therefore considered that dredging operations will not pose a significant risk to water quality. The proponent has committed to developing and implementing a Dredging and Dredge Disposal Management Plan which will ensure that water quality is maintained at pre-construction levels in the long term (commitment 2). Turbidity generated from reclamation activities is anticipated to impact upto 100 metres offshore from the new breakwater, contributing to the estimated 10ha loss of seagrass calculated earlier. The proponent will be required to monitor this impact (Condition 7). **Not considered to be a relevant environmental factor**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Relevant Environmental Factors
Marine water and sediment quality – port operations	Increased product handling associated with the upgrade will increase the risk of product spillage and the accumulation of contaminants in marine sediments. Increased shipping movements may increase accumulation rates of TBT.	**Government:** The Shire of Esperance questioned what mechanisms would be implemented to reduce spillage of product and levels of TBT in the marine sediments in the vicinity of the shipping berths. **Public:** Concern has been raised with regard to potential for increased resuspension of contaminated sediment resulting from increased shipping operations.	Product handling practices at the port are managed under licence, issued under Part V of the *Environmental Protection Act* 1986. Increased shipping movements will potentially increase the rate of TBT accumulation in harbour sediments. The proponent has committed to banning in-water hull cleaning within waters under its jurisdiction (commitment 10.3). Increased propeller scour is not considered likely given that the shipping berths will be deepened, along with an overall increase in depth in the harbour to accommodate large vessels. The proponent will be required to develop and implement an appropriate monitoring and management plan to ensure that sediment quality in the harbour is maintained at pre-upgrade levels (Condition 8). **Not considered to be a relevant environmental factor**
Contamination – dredge spoil	Dredging operations associated with the port upgrade will include the removal of sediments contaminated with nickel and TBT above screening levels recommended in the ANZECC 1998 *Interim Ocean Disposal Guidelines.*	**Government:** DEP questioned whether the proponent intended to establish and implement a sediment monitoring program to monitor levels of pollutants in sediments, with particular regard to disposal of dredge spoil in the future. **Public:** Lack of detail about the proponent's long term management of sediment quality in the port area was of concern, in particular details pertaining to maintenance dredging. The assessment of TBT levels was also questioned and the appropriateness of dredge material for beach renourishment was questioned.	Samples taken from sediments during the harbour sediment survey indicated that all contaminant levels, apart from nickel and TBT, were below screening levels recommended in ANZECC *Interim Ocean Disposal Guidelines*, The proposed mixing of more highly contaminated dredge spoil with cleaner material and using as reclamation fill will ensure that nickel levels fall below the screening level. TBT is likely to be marginally above the recommended screening level and may not be suitable for unconfined disposal at sea but likely to be adequately confined behind rock wall and lining as is proposed. Further sampling and testing of sediments is proposed as part of the Dredging and Dredge Spoil Management Plan included as commitment 2.1 and condition 8. Only clean spoil (ie levels consistent with "standard" health investigation levels as stipulated under the *Guidelines on Investigation Levels for Soil and Groundwater* NEPM) will be considered for beach renourishment. **Not considered a relevant environmental factor**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Relevant Environmental Factors
Contamination – oil spill	Increased shipping operations may lead to an increased risk of fuel spillage, resulting either form ship collisions or refuelling activities.	**Public:** Will the proponent have sufficient resources to implement an adequate response to any shipping/spill incidents that pose a threat to the environment?	The Port Authority already has in place an oil spill management plan, having adopted the *National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances,* supplemented by the *Australian Industry Cooperative Oil Spill Arrangements* which make available expertise, supplies and equipment to combat fuel and oil spills. The current oil spill management plan will be reviewed in accordance with the upgrade (commitment 11.2). **Not considered a relevant environmental factor**
Noise – construction	Construction activities, which will include pile driving, dredging, reclamation and associated traffic, may adversely affect recreational users in Esperance Harbour and residential areas adjacent to the port.	**Public:** Construction activities will continue for two years and include pile driving, earthmoving and dredging operations. How will noise from these activities be managed so as not to affect nearby residences.	Construction activities are to be carried out in accordance with Section 6 of AS2436-1981 *Guide to Noise Control on Construction, Maintenance and Demolition Sites* using equipment which is the quietest reasonable achievable. Construction noise is also controlled under the *Environmental Protection (Noise) Regulations* 1997 (EPNR). Regulation 13 requires construction activities (including pile driving) to be carried out to reasonable standards between the hours of 7am and 7pm Monday to Saturday (excluding Sundays and Public Holidays). **Not considered a relevant environmental factor.**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Relevant Environmental Factors
Noise – operational	Current port operational noise levels exceed both Environmental Conditions and the Environmental Protection Noise Regulations (EPNR). The upgrade of marine facilities will increase the frequency of exceedances although the levels of these exceedances may well be less than those currently experienced by the community.	**Government:** DEP advised that the current port operations do not comply with either existing Environmental Conditions or the Environmental Protection Noise Regulations and identified that the upgrade proposal would increase the current frequency of exceedances but not increase the actual level of exceedance. The Shire of Esperance opposed any changes to existing Environmental Conditions pertaining to iron ore operations at the port. **Public:** The statement by the proponent that existing noise levels associated with iron ore activities appear to be accepted by the community was strongly rejected by a sector of the community. A commitment was sought that prior to any variation to current assigned levels that the proponent would undertake an independent survey of residents as to the acceptability or otherwise of increase in noise levels. Concern was also raised that the existing non-compliance appears to have been ignored by the relevant regulatory authorities.	**Considered to be a relevant environmental factor**
Particulates and Dust – construction	Dust generated from reclamation and other, land based, construction activities may impact on nearby residences in proximity of port.	**Government:** DEP requested details of contingency measures for management of dust generated from construction activities if this became an issue.	The proponent has included a commitment to prepare a Dust Management Plan prior to the commencement of reclamation and other land-based construction works that will adequately address this factor (commitment 5). **Not considered a relevant environmental factor**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Relevant Environmental Factors
Particulates and Dust – port operations	The increase in iron-ore throughout and handling at the port (increasing from 2-4 million tonnes per annum) has the potential to generate significant amounts of dust. It is not expected that this increased handling will impact on the surrounding land-uses due to the provision of additional dust extraction equipment, to be specified through a Works Approval Application.	**Government:** DEP raised the following issues: • Will all iron ore conveyor systems be fully enclosed and extractor/dust collection systems installed where appropriate? • What contingency measures are proposed should dust control prove inadequate? • What will the visual inspection program consist of? What remedial action is proposed should a problem be identified? • Is dust generation from trains en route from Koolyanobbing a problem? • Increased throughput of nickel and iron-ore has at times been associated with increased deposition being recorded, thereby raising concern of the adequacy of dust extraction with increased tonnage. Has this issue been resolved? • It will be appropriate to review the existing dust monitoring and management program in light of the proposed increase in iron-ore throughput. The Shire of Esperance encouraged the proponent to develop dust control and measurement criteria and maintain and improve best management practice for dust control. **Public:** Assurances were requested that a doubling of iron-ore throughput would be managed to ensure that current dust management and control was maintained or improved and would not result in compromising the environmental values in the vicinity of the port. Contingency	**Considered to be a relevant environmental factor**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Relevant Environmental Factors
		measures in the event that a problem was detected were also requested. The failure to develop a threshold level for haematite that may indicate a potential for discolouration of beaches (as stipulated under existing Environmental Conditions) was also raised as a concern.	
Light	Additional lighting required for the expanded port facilities may increase light spill offsite.	**Public:** Consideration of design to reduce light overspill was requested.	Light spillage will be minimised due to the inherent design considerations required to maximise light levels in the areas where it is required. Should light spill affect residences, shrouding of specific sources can be provided. **Not considered a relevant environmental factor.**
Traffic noise	Increased iron ore throughput will increase train movements through the Town of Esperance which will impact on local residences and road junctions along the rail corridor.	**Government:** The Shire of Esperance commented that train movements have been the subject of several complaints and requested clarification of how any increases in train activity could be managed so as not to exacerbate existing problems. **Public:** Train movements (in particular wheel screech) was also identified by the public as a particular issue, mirroring concerns raised by the local authority as to how the proponent will ensure that the increased throughput of iron-ore would be managed so as not to exacerbate existing problems of noise. The public also wanted assurances that night time train movements would not increase.	**Considered to be a relevant environmental factor – addressed as part of Public Health and Safety – traffic management.**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Relevant Environmental Factors
SOCIAL SURROUNDINGS			
Visual amenity	Dredging operations will cause temporary discolouration of the sea in the vicinity of this activity. New dust extraction systems should ensure that there is no additional dust generation offsite which has the potential to discolour local beaches. The new infrastructure for shiploading and iron ore storage will impact on coastline views. The new shed will be aligned behind existing port structures which will reduce impacts on visual amenity. The new conveyor and ship loading infrastructure will however disrupt existing views to the islands, as will increased shipping activity at Berth 3.	**Government:** The Shire of Esperance commented that no management measures were proposed for the anticipated temporary discolouration of the sea during construction activities. The Shire also questioned to what extent the proponent had considered future development, ie the sulphur storage shed, which will be highly visible if ultimately installed in the current port configuration. **Public:** The public (including representatives of the local tourist board) were of the opinion that the upgrade could only have a negative impact on visual amenity. This not only related to the infrastructure but also the increased visual obstruction of new and larger ships that would use berth 3. Other less prominent issues included management of dredging plumes and also on-going monitoring of beaches to ensure that the increased iron-ore handling did not pose a risk of visual degradation of these areas.	**Considered to be a relevant environmental factor**
Recreation	Dredging operations may temporarily interfere with small boat operations in the harbour.	**Public:** Concern was expressed with regard to what the proponent was considering in terms of mitigating the beach erosion problems and	Issues associated with recreational beach amenity are addressed under Coastal Process and Littoral Drift and are considered relevant environmental factor. Recreational boat use should not be affected by the upgrade or

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Relevant Environmental Factors
	Other recreational activities in the harbour, including sports diving and fishing, may also be temporally affected by dredging operations.	what was being proposed to compensate the community for the loss of amenity on certain sections of the Esperance Bay beaches. Assurances were requested that would guarantee that existing recreational boating operations would not be compromised by the upgrade and increased shipping.	associated increase in shipping operations. **Not considered to be a relevant environmental factor.**
Public Health and Safety – traffic management	Increased train movements associated with the upgrade will increase disruption at road-rail junctions and increase risks of accidents at these locations.	**Government:** The Shire of Esperance requested that the proponent should take a lead role in managing traffic issues associated with existing and increased train movements into the port, including traffic management studies and treatment designs, in consultation with other relevant stakeholders. Management of construction traffic was also raised as a concern. The Shire requested that details on volumes of rock and routes of traffic be provided to manage any potential impacts. **Public:** Concern was raised with regard to the implications for increased risk of accidents and disruption to local traffic as a result of increased train movements associated with an increase in iron-ore throughput.	**Considered to be a relevant environmental factor but not within proponent's responsibility and is covered under other advice**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Relevant Environmental Factors
Public Health and Safety – risk and hazard	Increased port activities will increase the risks associated with these activities, including oil and other hazardous waste spillages.	**Public:** With an increased use of the port, the public were concerned as to the implications of increased risk of an incident on port premises and subsequent impacts on the surrounding community.	Risks associated with ship refuelling are considered extremely unlikely as this activity rarely occurs in the port harbour. Increase in shipping movements does present an increase risk of collision but the relative number of ships using Esperance Port is very small compared to other ports. Ship movements are controlled through standard marine operation procedures for vessel approach, pilotage and berthing. Any increase in hazardous cargo handling through the port resulting from the upgrade will be controlled under the *Explosives and Dangerous Goods Act.* **Not considered to be a relevant environmental factor.**
OTHER			
Environmental Management	An existing Environmental Management Program (EMP) covers port operations. This will need to be reviewed and updated appropriately to ensure that increased operations are adequately addressed.	**Public:** The public requested assurances that the port will prepare annual environmental reports available for public scrutiny and a commitment that mechanisms are put in place to implement the EMP.	The proponent has committed to reviewing its Environmental Management Program for port operations as well as the commitments detailed in the Proponent's Consolidated List of Environmental Management Commitments. Performance compliance reports will be prepared, as required by the environmental approval, all of which are available to the public under the *Freedom of Information Act.* Furthermore, the proponent will publishing quarterly newsletter to keep the community abreast of matters relating to port activities. **Not considered to be a relevant environmental factor.**

Appendix 4

Summary of assessment of relevant environmental factors

Appendix 4: Summary of Assessment of Relevant Environmental Factors

Relevant Factor	Relevant Area	Environmental Objectives	Assessment	Advice
Coastal Processes and Littoral Drift	Esperance foreshore located between the Esperance Prot Authority faculty and Bandy Creek Harbour.	Minimise the impact of foreshore erosion down drift of the port facilities and demonstrate that the proposed works will not result in the need for increased beach renourishment or other erosion protection measures.,	The Esperance coastline is characterised by a long-shore littoral drift which transports sand eastwards. It appears that beach erosion at Esperance has been an ongoing problem since at least 1914. However, the construction of the existing breakwater and dredged channel in 1962 - 1963, together with the subsequent breakwater extension in 1973 - 1975, have further interrupted the natural north eastward longshore movement of sand (Connell Wagner, 1997). Monitoring surveys have indicated that the Esperance Harbour breakwater intercepts approximately 25,000 to 28,000 m^3 per annum (GHD, 1999). The Esperance town beaches are experiencing similar rates of erosion and approximately 20,000 – 30,000 m3 of sediment is trapped per annum in the vicinity of Bandy Creek. It appears that the existing configuration of the Port Authority breakwater, finger groyne and dredged channel have effectively interrupted the longshore sediment transport from west of Dempster Head into Esperance Bay and the proposed widening of the breakwater and extension to the finger groyne is unlikely to further effect this process. The Port Authority has committed to reviewing and updating its coastal monitoring programme, which will identify: • a monitoring plan to ensure that the proposed upgrade will not exacerbate the existing problem; • a framework of management actions to address the existing problem; and • an agreed beach amenity value with all relevant stakeholders. The EPA acknowledges that on-going discussion are being held between the Port Authority, Shire of Esperance and Residents for Esperance Development (RED) to progress this matter.	Having due regard for: • The existing and historical context of beach erosion issues at Esperance; • The small scale of impact of the proposed upgrade in the context of the existing infrastructure and impacts; • The proponent's commitment with regard to coastal processes sand littoral drift; and • Acknowledgment of on-going discussions on the matter, It is the EPA's opinion that the proposal is capable of being managed to meet the EPA's objective for this factor.

Relevant Factor	Relevant Area	Environmental Objectives	Assessment	Advice
Noise – operational	Esperance Townsite	Ensue that noise impacts emanating from operational activities comply with statutory requirements and acceptable limits.	Noise monitoring undertaken during the assessment shows that the existing levels of operational noise exceed those required by Environmental Conditions, and prescribed levels as per the Environmental Protection (Noise) Regulations 1997. The Port Authority has implemented, and continues to try to achieve, best practice with regard to noise control. A noise study summary presented to DEP in 1995 as part of a compliance and audit report indicated that there had been some success in reducing noise levels, although exceedances were detected. Due to the proximity of housing and the equipment required to handle ores, noise reduction is difficult to achieve. In recognition of the limitations in reducing noise levels and its desire to meet the Noise Regulations 1997, the proponent has acquired a number of the residences in close proximity to their operations with the intent of creating a buffer zone around the Port. Other noise control measures implemented include: • enclosure of ore handling equipment; • installation of sound attenuation measures, including exhaust fan silencers and use of low sound power equipment; and • acoustic lining of equipment housing. Additional operational noise will be due to dust collectors and front end loaders used in the new iron ore storage shed, shiploading, inloading and outloading conveyors. The proponent has undertaken noise modelling to calculate expected noise levels for three scenarios (Herring Storer Acoustics, 2000) considered to represent highest noise level events: • train unloading directly to ship loader; • train unloading to new iron ore shed; and • out loading from new iron ore shed to ship loader.	Having regard for: • Implementation of previous noise reduction measures; • Locational constraints; • Mechanisms for control under Works Approval and Licence under Part V of the EP Act; • Environmental Conditions stipulated under the regulation 17 variation; and • Amendments to Environmental Conditions under Section 46 of the EP Act, It is the EPA's opinion that the issue of noise can be adequately managed under the Regulation 17 application, with particular regard to taking all practical and necessary action to reduce noise emission in the long term.

Relevant Factor	Relevant Area	Environmental Objectives	Assessment	Advice
			The modelling indicated that: • Day time noise levels from the proposed new iron ore facilities will at times marginally exceed the Noise Regulations 1997 but will be less than existing noise levels from the port. • Night time noise levels from the proposed new iron ore facilities will exceed the Noise Regulations 1997, but will be less than existing noise levels from the Port. As each event at the port, as described above, only occurs for a percentage of each month, the actual percentage of time a residence will receive worst case noise levels under downwind conditions during port operations is estimated at; • 8 % of the day time and 4 % of the night time for current operations; and • 15 % of the day time and 7 % of the night time for the proposed operations. Whilst the new iron ore facilities will operate at lower noise levels than the existing noise levels from the Port, the noise emission from existing operations will remain at current levels. To allow the proposed upgrade to proceed, and to address existing port operation noise levels, a Regulation 17 "Variation to the Assigned Noise Levels" is being sought by the Port Authority in parallel with this assessment. The conditions under which the Regulation 17 approval would be granted are detailed in Appendix 9. Furthermore, to ensure consistency between any new statement issued covering iron-ore operations and the existing Environmental Conditions covering port operations for this activity, a Section 46 change to Environmental Conditions is also being processed with this assessment (Appendix 7).	

Relevant Factor	Relevant Area	Environmental Objectives	Assessment	Advice
Particulates and dust	Esperance Townsite and popular recreational areas in the vicinity	Protect surrounding land users and environmental values.	The control of iron ore dust was identified as the most significant issue confronting the proponent in the assessment of iron-ore operations at Esperance undertaken in 1993. Monitoring of on-going operations over the last 5 years has demonstrated the efficacy of the dust control measures installed at the port. A dust control management plan remains effective today and includes: • an EMP which lists dust control methods, responsibilities, maintenance details and procedures for compliance auditing; and • a dust monitoring program which provides an assessment of the success of dust control measures. Licence conditions imposed on iron ore operations specify requirements for dust control and are administered under Part V of the EP Act. The proposed upgrade, facilitating an increase in iron-ore throughput of 2 Mtpa (an increase from 2-4Mtpa) has the potential to increase the risk of iron-ore dust deposition. To maintain dust control at pre-upgrade levels, or better, the proponent has committed to the installation of similar, or better, dust control measures to those already in place, including best available technology conveyors, dust extractors and ship-loaders. This will be administered through Works Approval and Licence under Part V of the EP Act.	Having due regard for: • Current best practice management for existing iron-ore operations and historical environmental performance in this regard; • Proponent commitments to install similar, or better, dust control measures to those already in place; and • Specification of dust control, monitoring and management mechanisms required under Works Approval and Licence, it is the EPA's opinion that the proposal can be managed to meet the EPA's objective for this factor.
Visual amenity	Eastern vistas across Esperance Harbour from the Townsite	Minimise the visual impacts from popular recreational areas in Esperance as a result of the construction of storage and product handling facilities.	Expansion of the port can only occur with some impact on visual amenity. This was acknowledged by the Port Authority which identified that the most obvious intrusion would be noticed interrupting vistas for the north west of the port, along the Esplanade. To minimise the visual impacts, a dual quadrant shiploader will be constructed, approximately 30 metres high and	Having due regard for: • Use of alternative infrastructure to minimise visual impairment; • Locational constraints on the port for expansion;

Relevant Factor	Relevant Area	Environmental Objectives	Assessment	Advice
			allowing the iron ore handling equipment to run along the ground. Traditional shiploaders, already present at the port, are 40-50 metres high and require the conveyor system to be up in the air, further adding to the visual intrusion. The proposed new iron ore shed will be located behind existing port infrastructure, thereby minimising any further impairment on vistas by this structure. Increased shipping movements, particularly at the newly constructed Berth 3, will also contribute to the visual impairment of the coastal vistas.	• Configuration of infrastructure to avoid impacts where possible; and • Availability of extensive recreational areas not affected by the upgrade, It is the EPA's opinion that the proposal will not unduly compromise the EPA's objective for this factor. However, the EPA recognises that visual amenity across the harbour from the Esplanade will be impaired by the proposed upgrade.
Public health and safety – traffic management (including noise)	Residences adjacent to rail corridor and port facilities. Road-rail junctions in Esperance Townsite	Ensure that the increase in transport activities resulting from the project does not adversely impact on the social surroundings.	Three issues are associated with increased rail traffic: noise, dust and traffic management. Of particular interest to the EPA is the management of increased iron-ore train movements into and out of the port. *Noise* The noise modelling undertaken for the PER considered issues associated with train movements. Whilst the proposed upgrade will not effect truck movements, which are generally associated with the grain industry, train movements will increase. The majority of trains used in existing iron-ore operations are "Q" class locomotives, quieter than the previously used "L" class locomotives. However, maintenance schedules require use of "L" class on 1 or 2 trains per week currently entering the port.	Recommendations provided as Other Advice to the Minister (Section 5)

Relevant Factor	Relevant Area	Environmental Objectives	Assessment	Advice
			The upgrade will increase the number of trains running between Koolyanobbing Mine site and Esperance Port from 7 to 14 per week, comprising 9 trains with 84 wagons and 5 trains with 50 wagons. The DEP has only recently learnt (6th June 2000) that these 5 "smaller" trains will be serviced by "L" class locomotives, thereby increasing the occurrence of these locomotives to potentially 7 per week, as opposed to the 1 or 2 the community currently experiences. Increased traffic will require a review of the existing EMP covering Westrail operations in consultation with DEP/EPA. *Dust* Previous studies on dust generation indicated that there is no detectable dust arising from iron-ore rail transportation (ERM Mitchell McCotter, 1997). Any requirements to initiate additional dust monitoring for the proposed increased throughput will be addressed in the revised EMP for rail operations. *Traffic Management* An increased number of longer trains will impact on road rail junctions and increase risk of accidents associated with these junctions. The Port Authority has committed to preparing and implementing a traffic management plan in consultation with all relevant stakeholders, including Westrail, Shire of Esperance, MRWA and Transport WA. DEP has initiated discussions with Westrail with regards to the implications of the proposed port upgrade on rail operations. Westrail has indicated that it would co-operate with requests to review and update its current EMP covering rail operations on the Koolyanobbing-Esperance rail link.	

Appendix 5

Recommended Environmental Conditions and Proponents Consolidated Commitments

RECOMMENDED CONDITIONS

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

ESPERANCE PORT UPGRADE OF MARINE FACILITIES

Proposal: The upgrade of marine facilities consists of deepening berths 1 and 2, dredging of the harbour basin and shipping channel, construction of a new deepwater berth, reclamation of approximately 15 hectares of land, construction of a new iron ore shed and associated shiploading and conveyor systems, and an increased throughput of iron ore from 2 to 4 million tonnes per annum as detailed in schedule 1 of this statement.

Proponent: Esperance Port Authority

Proponent Address: PO Box 35, ESPERANCE WA 6450.

Assessment Number: 1277

Report of the Environmental Protection Authority: Bulletin 989

The proposal to which the above report of the Environmental Protection Authority relates may be implemented subject to the following Environmental Conditions and procedures:

Procedures

1 Implementation

1-1 Subject to these conditions and procedures, the proponent shall implement the proposal as documented in schedule 1 of this statement.

1-2 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment determines, on advice of the Environmental Protection Authority, is substantial, the proponent shall refer the matter to the Environmental Protection Authority.

1-3 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment determines, on advice of the Environmental Protection Authority, is not substantial, those changes may be effected.

2 Proponent Commitments

2-1 The proponent shall implement the consolidated environmental management commitments documented in schedule 2 of this statement.

2-2 The proponent shall implement subsequent environmental management commitments which the proponent makes as part of the fulfilment of conditions and procedures in this statement.

3 Proponent

3-1 The proponent for the time being nominated by the Minister for the Environment under section 38(6) or (7) of the Environmental Protection Act 1986 is responsible for the implementation of the proposal until such time as the Minister for the Environment has exercised the Minister's power under section 38(7) of the Act to revoke the nomination of that proponent and nominate another person in respect of the proposal.

3-2 Any request for the exercise of that power of the Minister referred to in condition 3-1 shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the proposal in accordance with the conditions and procedures set out in the statement.

3-3 The proponent shall notify the Department of Environmental Protection of any change of proponent contact name and address within 30 days of such change.

4 Commencement

4-1 The proponent shall provide evidence to the Minister for the Environment within five years of the date of this statement that the proposal has been substantially commenced.

4-2 Where the proposal has not been substantially commenced within five years of the date of this statement, the approval to implement the proposal as granted in this statement shall lapse and be void. The Minister for the Environment will determine any question as to whether the proposal has been substantially commenced.

4-3 The proponent shall make application to the Minister for the Environment for any extension of approval for the substantial commencement of the proposal beyond five years from the date of this statement at least six months prior to the expiration of the five year period referred to in conditions 4-1 and 4-2.

4-4 Where the proponent demonstrates to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority that the environmental parameters of the proposal have not changed significantly, then the Minister may grant an extension not exceeding five years for the substantial commencement of the proposal.

5 Compliance Auditing

5-1 The proponent shall submit periodic Compliance Reports, in accordance with an audit program prepared in consultation between the proponent and the Department of Environmental Protection.

5-2 Unless otherwise specified, the Chief Executive Officer of the Department of Environmental Protection is responsible for assessing compliance with the conditions, procedures and commitments contained in this statement and for issuing formal, written advice that the requirements have been met.

5-3 Where compliance with any condition, procedure or commitment is in dispute, the matter will be determined by the Minister for the Environment.

Conditions

6 Environmental Management System

6-1 In order to manage the environmental impacts of the project, and to fulfil the requirements of the conditions and procedures in this statement, prior to commissioning of the new port facilities, the proponent shall demonstrate to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection that there is in place an environmental management system which includes the following elements:

1. An environmental policy and corporate commitment to it;

2. Mechanisms and processes to ensure:

   - planning to meet environmental requirements;
   - implementation and operation of actions to meet environmental requirements;
   - measurement and evaluation of environmental performance; and

3. Review and improvement of environmental outcomes.

6-1 The proponent shall implement the environmental management system referred to in condition 6-1.

7 Seagrass Management

7-1 Prior to the commencement of dredging operations, the proponent shall incorporate management measures for seagrass management within the Dredging and Reclamation Management Plan, to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

7-2 Prior to commencing post reclamation and breakwater construction activities, the proponent shall determine and document the area of seagrass coverage within the provisional seagrass management unit (see Figure 3, schedule 1), to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

The objectives of this investigation are to:

- confirm that seagrass losses are consistent with management objectives for seagrass comminutes in the management unit; and
- determine total seagrass coverage for future management decisions.

This determination shall include:

1. confirmation of the seagrass management unit area and boundary limits;
2. an estimate of historical losses;
3. confirmation of losses due to the implementation of the proposal; and
4. cumulative losses to date.

7-3 Within two weeks following completion of reclamation, the proponent shall record baseline seagrass coverage along the seaward edge of the reclamation area, and then immediately commence monitoring of seagrass habitat for further seagrass community losses resulting from reclamation activities, to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

The monitoring program shall be undertaken at six monthly intervals and run initially for a period of two years. At the end of this two year period, the proponent shall report the results to the Environmental Protection Authority.

The Environmental Protection Authority will review the need for further monitoring after two years.

In the event that unexpected or adverse impacts are detected, the proponent shall report this to the Environmental Protection Authority within one month.

8. Sediment Quality Management

8-1 On commencement of reclamation activities, the proponent shall analyse Tri-butyl Tin and Nickel levels in the reclamation fill material to confirm Tri-butyl Tin and Nickel levels in that material. The results of these analyses shall be reported to the Environmental Protection Authority on an on-going basis throughout the reclamation activity.

The levels in sediment immediately adjacent to the reclamation site, as determined in the proponent's monitoring program provided in Commitment 8, shall be compared with the Southern Metropolitan Coastal Waters Study (1996) criteria, or other as appropriate, to ensure that acceptable criteria are met, to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

As part of the Dredging and Reclamation Management Plan, the proponent is required to outline contingency measures to be implemented in the event that Tri-butyl tin and Nickel levels in the reclamation fill material exceed agreed criteria (agreed between the Environmental Protection Authority and proponent) as determined in the harbour sediment survey undertaken during the preparation of the public environmental review document.

8-2 Within 3 months following completion of construction of the new port facilities, the proponent shall prepare a Sediment Quality Management Plan for port operations to:

- ensure that sediment quality outside of the inner harbour complies with Environmental Quality Criteria (EQCs) identified in the Southern Metropolitan Coastal Waters Study (1996), or other criteria as appropriate, consistent with identified Environmental Quality Objectives outside of the inner harbour; and
- ensure that operational activities have no significant impact on beneficial users outside the inner harbour,

to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

The plan shall address:

1. Potential impacts of port operations;
2. Monitoring protocols, including frequency and duration of sampling;
3. Sediment quality criteria;
4. Management measures; and
5. Contingency plans in the event of spill incidents or unexpected results demonstrated by the plan.

8-3 The proponent shall implement the Sediment Quality Management Plan required by condition 8-2.

The Environmental Protection Authority will review the need for further monitoring after two years pending the results reported.

In the event that unexpected or adverse impacts are detected, the proponent shall report this to the Environmental Protection Authority.

9 Shutdown Provisions

9-1 In the event that dust from iron-ore operations is affecting, or likely to affect, surrounding landuses the proponent shall cease iron ore handling operations to the requirements of the Department of Environmental Protection.

10 Decommissioning Plan

10-1 At least six months prior to the anticipated date of decommissioning, or at a time agreed with the Department of Environmental Protection, the proponent shall prepare a Decommissioning Plan designed to ensure the site is left in a suitable condition, with no liability to the State, to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

The Decommissioning Plan shall address:

1. removal or, if appropriate, retention of plant and infrastructure;

2. rehabilitation of all disturbed areas to a standard suitable for the agreed new land use(s); and

3. identification of contaminated areas, including provision of evidence of notification to relevant statutory authorities.

10-2 The proponent shall implement the Decommissioning Plan required by condition 10-1 until such time as the Minister for the Environment determines that decommissioning is complete.

10-3 The proponent shall make the Decommissioning Plan required by condition 10-1 publicly available, to the requirements of the Environmental Protection Authority.

11 Performance Review (Dust and Noise)

11-1 Each three years following the commissioning of the new port facilities, the proponent shall submit a Performance Review report to the Department of Environmental Protection:

- to document the outcomes, beneficial or otherwise;
- to review the success of goals, objectives and targets; and
- to evaluate the environmental performance with respect to dust and noise over the three years;

relevant to the following:

1. environmental objectives reported on in Environmental Protection Authority Bulletin 989;

2. proponent's consolidated environmental management commitments documented in schedule 2 of this statement and those arising from the fulfilment of conditions and procedures in this statement;

3. environmental management system environmental performance targets;

4. environmental management programs and plans; and/or

5. environmental performance indicators;

to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

Note: The Environmental Protection Authority may recommend changes and actions to the Minister for the Environment following consideration of the Performance Review report.

Note

1. The proponent is required to apply for a Works Approval and Licence for this project under the provisions of Part V of the Environmental Protection Act.

2. Westrail will review and update of the existing environmental management program for rail operations within 12 months following the issue of this statement. This revision will address issues of noise, dust, social amenity and traffic management associated with the proposed upgrade and increase iron-ore throughput.

3. There will also be conditions pertaining to noise related to this proposal, pursuant to Regulation 17 of the Environmental Protection (Noise) Regulations, 1997.*

4. Once the final authority is issued to the decision making authorities under Section 45(7) of the Environmental Protection Act 1986, the conditions in this statement will supersede those of Ministerial Statement 325 (issued 25th October 1993).

*editorial adjustment may be required depending on the sequence of events

The Proposal

Esperance Port is situated immediately east to south-east of the town of Esperance and provides a dominant feature in the region (Figure 1).

The upgrade of marine facilities consists of:
1. deepening berths 1 and 2;
2. dredging of the harbour basin and entry channel;
3. construction of a new deepwater berth;
4. reclamation of approximately 15 hectares of land;
5. construction of a new iron ore shed; and
6. installation of associated shiploading and conveyor systems.

The proposal is totally within Port Authority boundaries and port-controlled waters.

The upgrade of port facilities will facilitate an increased throughput of iron ore from 2 to 4 million tonnes per annum.

Plans and specifications

Figure 1: Proposal location, showing proximity of port to townsite

Figure 2: Esperance Port Upgrade - key proposal characteristics

Figure 3: Proposed seagrass management unit

Key Proposal Characteristics

Element	Description
Dredge the harbour basin and Berths 1 & 2.	• Deepen Berths 1 & 2 from -12.5 metres (reduced level) to -14.7 metres (reduced level). • Deepen harbour basin from approximately -12.8 metres (reduced level) to -15.1 metres (reduced level). • Dredge an area of approximately 50 hectares. • Generate approximately 1,500,000 cubic metres of dredged material.
Extend the existing groyne, relocate the existing breakwater and construct a new breakwater.	• Extend existing 170 metre groyne by an additional 100 metres. • Widen the base of the existing breakwater by approximately 200 metres. • Build a new breakwater, approximately 700 metres long. • Construct a sand apron seaward of the breakwater as a protective measure against erosion.
Reclaim land on the south easterly side of the Port.	• Pump dredged material to behind the new breakwater. • Reclaim approximately 15 hectares.
Construct third berth.	• Construct new deep draft berth and shipping channel along the shoreward side of the existing harbour breakwater. • Deepen new berth and shipping channel to -19 metres (reduced level).
Construct iron ore ship outloading and handling equipment.	• Construct an iron ore shiploader designed to suit Cape Class vessels. • Construct new iron ore conveyor and handling equipment.
Construct an additional iron ore storage shed.	• Construct shed with a capacity of 200,000 tonnes (nominally 300 metres x 60 metres, and 22 metres high).
Timing of construction activities.	• The proposal will commence as soon as all approvals are granted and will take approximately 20 – 24 months to complete. • Dredging and breakwater relocation is expected to take 9 months. • Construction of the third berth and the iron ore shiploader is expected to take 15 months. • Construction of additional iron ore storage and handling facilities is expected to take 12 months.
Ongoing Operation.	• Iron ore delivered to the Port by rail will increase from 2 to 4 million tonnes per annum. • The number of trains from the mine will increase from 7 to 14 trains per week. Train movements in and out of the Port will increase from 26 to 46 movements per week. • Iron ore export will increase from 2 to 4 million tonnes per annum. • An additional 15 – 25 iron ore ships will be added to the current 35 – 40 iron ore ships per year. Note, total number of ships entering the port is currently approximately 120. An additional 15 - 25 ships will thus increase annual shipping by approximately 20%.

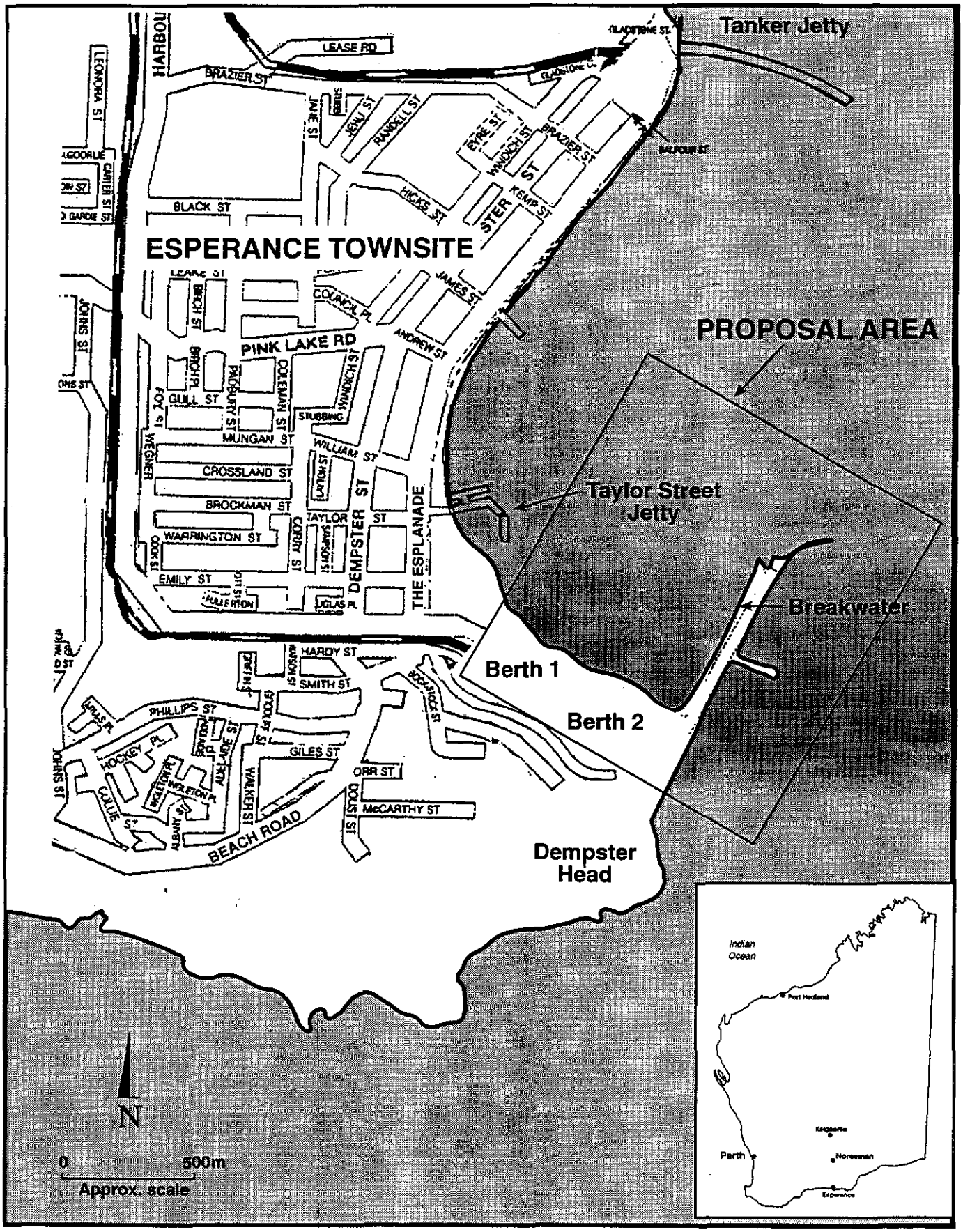


Figure 1. Proposal location, showing proximity of port to townsite.

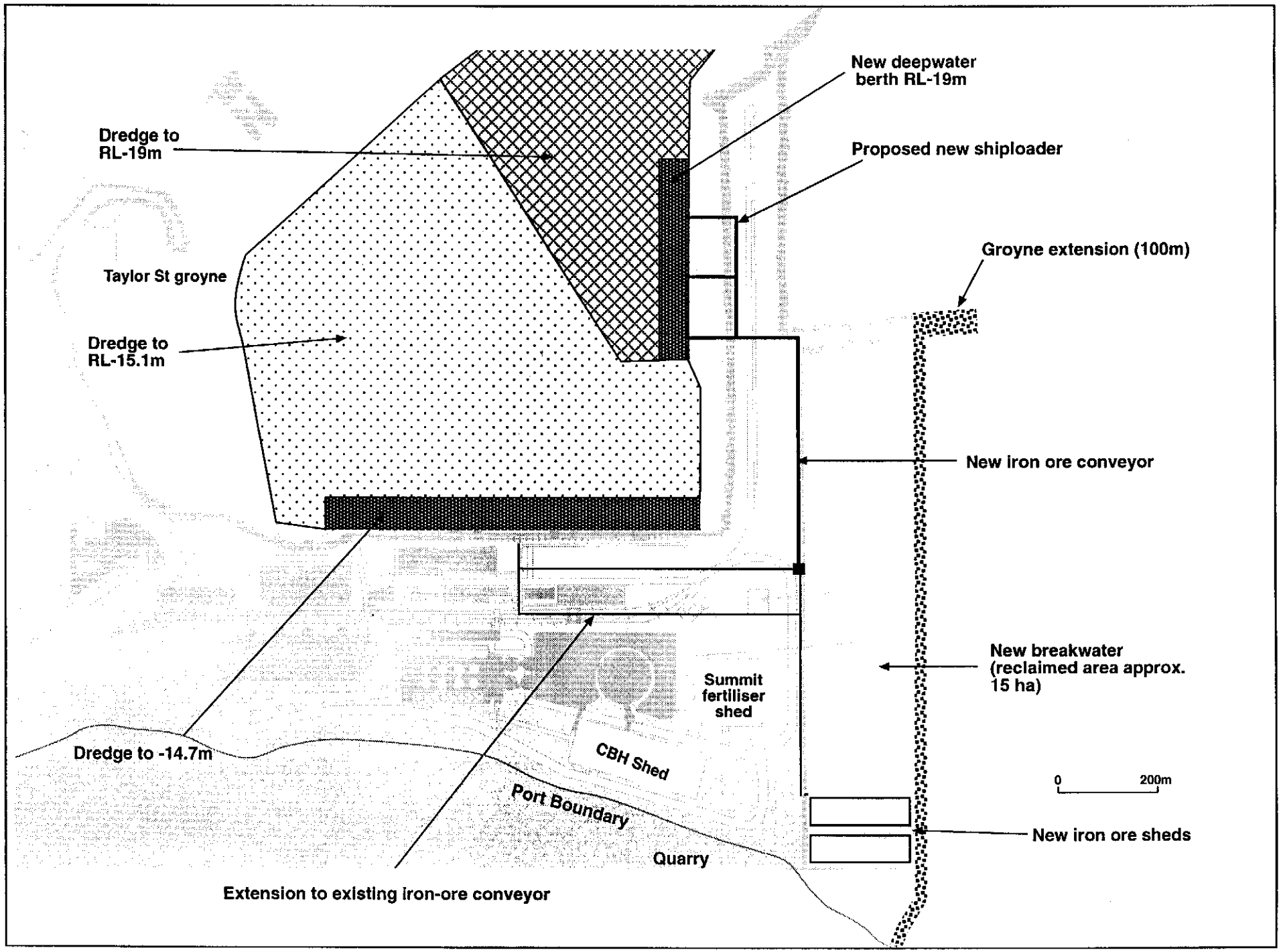


Figure 2. Esperance Port Upgrade — key proposal characteristics.

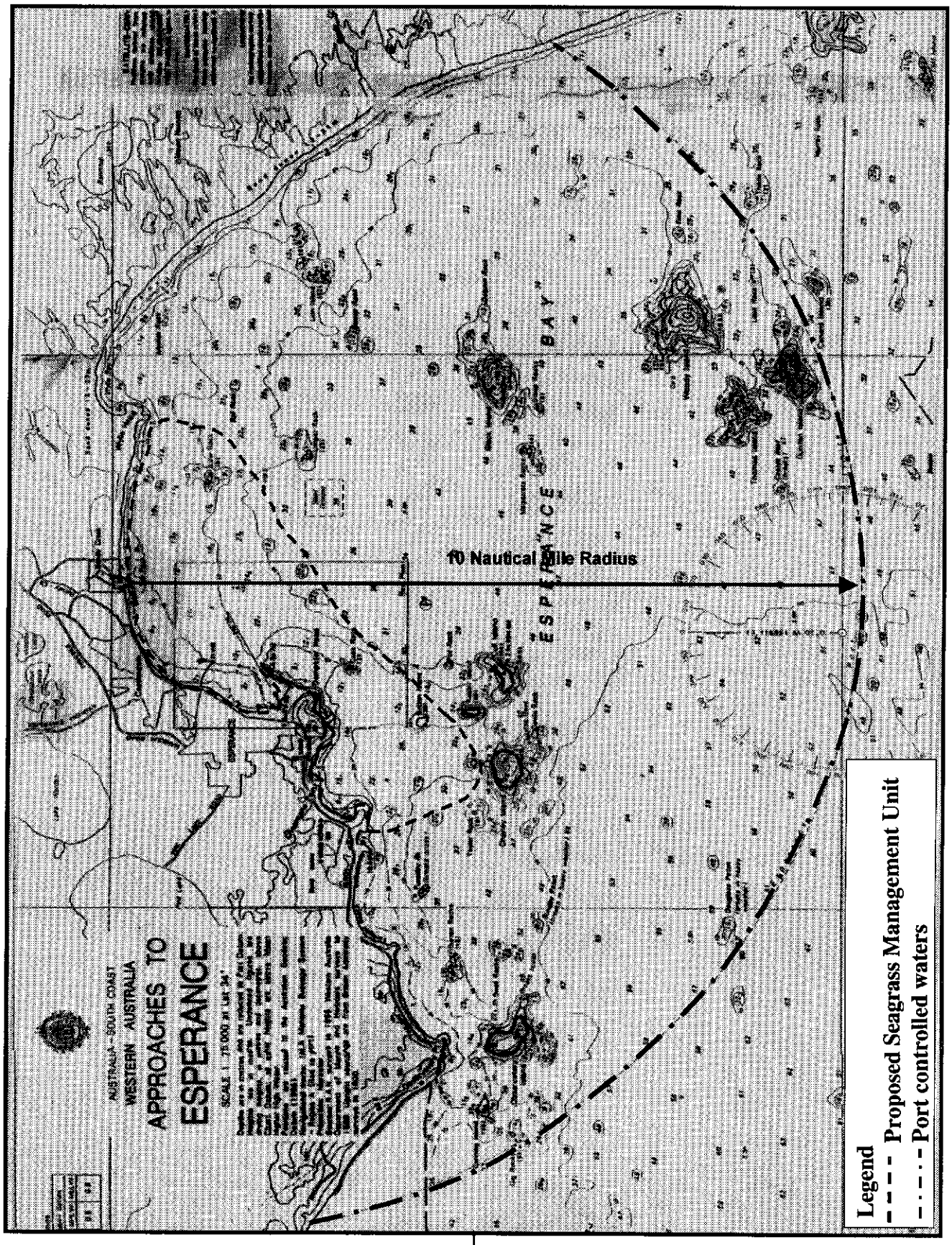


Figure 3. Proposed Seagrass Management Unit boundary (Courtesy of ERS, June 2000).

Schedule 2

Proponent's Consolidated Environmental Management Commitments

August 2000

ESPERANCE PORT UPGRADE OF FACILITIES

ESPERANCE PORT AUTHORITY

SUMMARY OF PROPONENT'S ENVIRONMENTAL MANAGEMENT COMMITMENTS

No.	Topic		Action	Objective	Timing	Advice
CONSTRUCTION PHASE (RECLAMATION, DREDGING AND LAND-BASED CONSTRUCTION)						
1.	Environmental Management.	1.1	Prepare an Environmental Management Program (EMP) for construction works. Program to detail; 1. responsibility; 2. potential environmental impacts; 3. management and monitoring programs; 4. incident reporting; and 5. corrective and preventative action.	To manage environmental issues associated with construction activities.	Prior to commencement of construction.	Shire of Esperance
		1.2	Implement EMP.		During construction phase	
2.	Marine water and sediment quality	2.1	Develop a Dredging and Reclamation Management Plan (DRMP). The plan shall address: • Dredging and reclamation methods; • Assessment of potential impacts; • Contamination assessment; • Disposal of sediments and slurry; • Monitoring plans and water quality criteria; • Management measures; • Contingency measures.	Maintain water quality within the inner harbour at pre-construction levels and ensure dredging and reclamation activities have no long term significant impact on overall water quality of the harbour or beneficial users outside the inner harbour	Prior to the commencement of dredging operations.	Shire of Esperance.

		2.2	Implement DRMP.		At commencement of and during dredging and reclamation operations.	
3.	Sediment Quality	3.1	Analyse levels of Tri-butyl tin and Nickel in all material proposed for beach renourishment.	Confirm Tri-butyl tin levels in material. Ensure Nickel levels within acceptable limits as specified under the National Environment Protection (Assessment of Site Contamination) Measure.	During disposal or relocation of material.	
		3.2	Report results of sediment analysis		During disposal or relocation of material	
4.	Noise	4.1	Comply with Australian Standard 2436-1981 Guide to Noise Control on Construction, Maintenance and Demolition Sites and Environmental Protection (Noise) Regulations 1997 (EPNR), in accordance with EPA Guidance No. 8, Environmental Noise (1998)	Ensure noise impacts resulting from construction activities comply with statutory requirements.	During construction.	
		4.2	Prepare a construction noise management plan (CNMP) in accordance with EPNR.	Ensure noise impacts resulting from construction activities comply with statutory requirements.	Prior to commencement of construction.	Shire of Esperance
		4.3	Implement CNMP.		During construction	
5.	Air Quality	5.1	Develop a dust management plan for construction activities.	Protect surrounding landuses and environmental values.	Prior to commencement of reclamation and land construction works.	Shire of Esperance

		5.2	Implement dust management plan		During reclamation and other construction activities.	
6.	Visual amenity	6.1	Locate and install new port infrastructure consistent with details provided in the PER (See Attachment A, schedule 2).	To minimise visual intrusion.	Prior to construction of land based infrastructure components.	
PORT OPERATIONS						
7.	Environmental Management.	7.1	Review and update existing port operations EMP to incorporate the individual management and/or monitoring plans/programs specified in commitments 8 – 16.	Manage environmental issues identified through the upgrade assessment.	Prior to commissioning of new port facilities.	Shire of Esperance
		7.2	Implement EMP through an Environmental Management System		Operation	
8.	Marine Flora and Fauna	8.1	Prepare a program of on-going biological monitoring. Program to include: • Monitoring of potential Tri-butyl Tin and Nickel leaching from reclamation area; and • appropriate remedial and contingency measures.	Ensure operational phases of the proposed upgrade have no adverse off-site impacts outside the inner harbour.	Prior to the completion of reclamation works.	Coastcare

		8.2	Implement biological monitoring program.		Immediately post reclamation/ dredging activities at six monthly intervals. Review after 2 ycars with need for further monitoring dependent on results.	
		8.3	Report results of biological monitoring program.		Annual reporting if unexpected or negative impacts. Otherwise at 2 year review.	
9.	Coastal processes and littoral drift.	9.1	Review and update coastal processes monitoring program. Program to address: 1. historical aspects of beach erosion; 2. agreed amenity value of beach; 3. investigation of management measures to address breach erosion; 4. a framework for appropriate management actions; 5. monitoring; and 6. participation of proponent with other relevant agencies to develop and implement management strategy to address beach erosion.	Ensure proposed upgrade: • does not exacerbate existing beach erosion problems; • provides a mechanism for implementing management measures if impacts are noted; • provides a mechanism for the development of solutions to the historical problem of beach erosion issues at Esperance.	Prior to commencing post-reclamation phase.	Coastcare, Shire of Esperance and Transport WA.
		9.2	Implement coastal processes monitoring program		During port operations.	

10.	Introduction of foreign species.	10.1	Participate in a recognized program of research co-ordinated by the Centre for Research on Introduced Marine Pests	Maintain diversity of local marine flora and fauna.	Within next 5 years.	CSIRO
		10.2	Adopt strategies consistent with AQIS guidelines for ballast water management.	Minimise risk of introduction of unwanted marine organisms.	Within 6 months following completion of construction activities.	AQIS
		10.3	Continue prohibiting in-water hull cleaning in port controlled waters	Minimise risk of introduction of unwanted marine organisms.	During port operations	
11.	Marine water and sediment quality.	11.1	Review and update ship/shore cargo handling procedures.	Minimise spill incidents resulting from loading operations.	Within 3 months following commencement of dredging operations.	
		11.2	Review and update oil spill management strategy.	Maintain water quality within Esperance Harbour and areas adjacent to shipping channels.	Within 3 months following commencement of increased shipping operations.	State Combat Committee for Oil Spill Management, Transport WA.
12.	Noise (operations)	12.1	Prepare noise monitoring and management plan (NMMP) consistent with any statutory mechanisms and approvals.	Ensure noise impacts resulting from on-going operations comply with statutory requirements.	Prior to commissioning new port facilities	Shire of Esperance
		12.2	Implement NMMP.		During port operations	
13.	Noise (traffic)	13.1	Establish an agreed code of conduct for train drivers and alternative locomotive practices in consultation with Westrail.	Manage impact to noise sensitive premises from increased traffic movement.	Prior to increasing iron-ore throughput.	Westrail (or other relevant rail operator).
		13.2	Implement the agreed Code of Practice		During port operations.	Westrail(or other relevant rail operator).

14.	Air Quality.	14.1	Review and update dust monitoring and management plan for port operations to accommodate upgrade (as required by Works Approval, Licence or Registration).	Protect surrounding landuses and environmental values.	Prior to increasing iron ore throughput.	Shire of Esperance.
		14.2	Implement revised dust monitoring and management plan.		During port operations	
		14.3	Enclose all iron-ore conveyors and transfer towers.	Protect surrounding landuses and environmental values.	During construction	
15.	Community liaison	15.1	Review and update community liaison procedures.	To maintain and develop communication links between the proponent and local residents to ensure the public is aware of project progress through design, commissioning and operational phases.	Prior to increase in iron ore throughput.	Shire of Esperance.
		15.2	Implement community liaison procedures.		Prior to increase in iron ore throughput.	
16.	Public Health and Safety (Traffic management)	16.1	Prepare a traffic management plan in consultation with relevant stakeholders.	Manage impacts resulting from additional rail movements associated with an increased iron ore throughput.	Prior to increased iron ore throughput.	Shire of Esperance, Westrail (or relevant rail authority), MRWA and Transport WA
		16.2	Implement traffic management plan in conjunction with relevant stakeholders.		During operations associated with increase in iron ore throughput.	Shire of Esperance, Westrail (or relevant rail authority), MRWA and Transport WA.

Abbreviations:

AQIS Australian Quarantine and Inspection Service
CSIRO Commonwealth Scientific and Industrial Research Organisation
DEP Department of Environmental Protection
MRWA Main Roads Western Australia

Extract from Public Environmental Review Document

The installation of boom gates and provision of pedestrian control facilities (to restrict pedestrian movement across the rail line to a single or limited number of locations) have been recommended (Ref. 6). Pedestrian control facilities have since been installed, and Pink Lake Road has been re-alligned to improve traffic flow (Personal Communication, Shire of Esperance, 1999).

The Watson road urban rail crossings is considered to offer an adequate level of protection (Ref. 6).

The rural rail crossings are considered to have an adequate level of protection with stop signs or flashing lights provided at each crossing, with the exception of the Button Street crossing (Ref. 6). Signs that indicate whether vehicles should stop or give way have been installed at Button Street (Personal Communication, Shire of Esperance, 1999).

The increase in iron ore train movements per week will place increased pressure on the road/rail crossings described above. The Shire of Esperance is using the 1997 management measures suggested by ERM Mitchell McCotter as a planning tool to manage rail/road crossing safety, and will initiate further action as necessary in conjunction with MRWA, DoT and Westrail.

6.2.8 Raw Materials Spillage

The Port's cargo handling procedures have improved significantly over the past several years, as have spill cleanup and housekeeping practices. This has reduced dockside and overboard spillage of Port cargo such as iron ore and nickel.

The new iron ore ship outloading and handling equipment will be state of the art, reducing the likelihood of iron ore spillages to the marine environment.

The Port Authority therefore expects to have minimal, if any, incidents of iron ore spillage.

The current DEP licence (Licence Number 5099/4) sets stringent dust control measures and, in regards to spillage, requires that the Port Authority:

- take all reasonable and practicable measures to prevent or minimise the spillage of raw material to any waters during loading and unloading operations;
- clean up spillage of raw materials on the roads, standing areas and access ways as soon as practicable, giving due consideration to prevailing meteorological conditions;
- ensure that all spillage from feed out hopper loading operations be cleaned up immediately upon completion of the load out operation;
- minimise spillage onto the deck of the vessel being loaded/unloaded in a manner so as to prevent its access into Esperance waters; and
- collect all spillage onto the wharf in a manner so as to prevent its access into Esperance waters.

The Port Authority will apply the above licence conditions to the proposed iron ore operations.

6.3 Social Surroundings

6.3.1 Visual Amenity

Dredging of the Esperance Harbour will cause temporary discolouration of the sea around the Port. Suspended sediment associated with the 1988/1989 dredging settled within a few weeks, and harbour waters have remained clear ever since. Photos 6.1 and 6.2 show the discolouration that occurred during the 1988/1989 dredging. Based on past experience, similar discolouration is expected with the current proposal.

The new iron ore handling facilities will impact on coastline views[59]. The impact will be most obvious from the area to the north west of the Port, along The Esplanade.

A dual quadrant (cantilever system) shiploader will be constructed. It will be approximately 30 m high at its highest point. If a traditional shiploader like the current shiploader used at the Port were to

[59] Ie., the new iron ore conveyor and handling equipment and shed, Berth 3, the larger vessels berthing at Berth 3, and the ship loader used at

be constructed, it would constitute a 40 - 50 m high structure. The dual quadrant shiploader allows for iron ore conveyor and handling equipment to run along the ground (unlike a traditional shiploader which requires this equipment to be up in the air, with greater visual impacts).

The new iron ore shed will be located behind existing Port structures which will serve as an effective screen. The new shed will be similar in appearance to the existing iron ore shed.

The new works will be painted with colours that blend with the surrounding environment.

Refer to the following figures for an impression of the visual impact of the proposed works:

- Figure 6.2 - View of Proposed Berth 3 from Taylor Street Beach;
- Figure 6.3 - View of Proposed Berth 3 from Taylor Street Beach with Cape Class Vessel;
- Figure 6.4 - View of Proposed Berth 3 if Traditional Style Shiploader is Constructed; and
- Figure 6.5 - View of Proposed Iron Ore Infrastructure from Top of Dempster Head.

6.3.2 Recreation

Figure 5.6 shows the primary areas where recreational fishing is currently undertaken around the Port[60]. In particular, there is a popular fishing spot in the Port basin, off the boat shed, to the east of the Port Authority Offices.

Views have been expressed by various local fishermen that the stirring up of the harbour basin during dredging may attract fish to the area and improve recreational fishing in the short term.

Small boat fishing will still be possible provided that it does not encroach on dredging operations. Once Berth 3 has been constructed a 100 m clearance zone around the berth will be enforced for safety reasons. Notices advising of clearance requirement will be installed.

6.3.3 Tourism

During the August and September 1999 community consultations (refer to Section 7.2), the issue was raised whether the proposed development would impact on potential tourism in the area. Tourism operators in Esperance expressed the view that construction and operation of the proposed development are likely to attract tourists to the area as dredging, construction activities, and berthing of larger vessels will be viewed as interesting activities to observe.

6.4 Other

6.4.1 Environmental Management

The Port Authority is in the process of developing an IRMS. The IRMS will address quality, safety and environmental issues. It will consolidate and elaborate on documentation related to the following elements (Ref. 9):

- organisational roles and responsibilities;
- legal requirements;
- quality, safety and environmental policies;
- quality, safety and environmental factors;
- objectives, targets and performance indicators;
- operational controls during normal and unusual work circumstances;
- management and monitoring plans;
- procedures for dealing with non-compliance;
- communication procedures;
- training programmes;
- emergency response;
- internal and external reviews and audits; and
- documentation and methods of document control.

[60] The Recreational Fisheries Advisory Committee (RFAC) of Esperance was consulted in order to help prepare the map.

Appendix 6

Ministerial Statement 325

WESTERN AUSTRALIA

MINISTER FOR THE ENVIRONMENT

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

IRON ORE EXPORT THROUGH THE PORT OF ESPERANCE (781)

ESPERANCE PORT AUTHORITY

This proposal may be implemented subject to the following conditions:

1 Implementation

The proposal as assessed may be implemented, though changes to the proposal which are not substantial may be carried out with the approval of the Minister for the Environment.

1-1 Subject to these conditions, the manner of detailed implementation of the proposal shall conform in substance with that set out in any designs, specifications, plans or other technical material submitted by the proponent to the Environmental Protection Authority with the proposal. Where, in the course of that detailed implementation, the proponent seeks to change those designs, specifications, plans or other technical material in any way that the Minister for the Environment determines, on the advice of the Environmental Protection Authority, is not substantial, those changes may be effected.

2 Proponent Commitments

The proponent has made a number of environmental management commitments in order to protect the environment.

2-1 In implementing the proposal, the proponent shall fulfil the relevant commitments made in the Consultative Environmental Review; the commitments made in documentation on the modified proposal and in response to issues raised in public submissions (Volumes 1 and 2); and, the consolidated environmental management commitments published in Environmental Protection Authority Bulletin 701 as Appendix 3; provided that the commitments are not inconsistent with the conditions or procedures contained in this statement. (A copy of the consolidated commitments is attached).

3 Iron Ore Dust

The proponent should ensure that iron ore dust or particles do not significantly impact on other port operations or the port's surroundings.

3-1 The proponent shall ensure that there is no visible, airborne iron ore dust, nor discoloration from accumulations of iron ore particles, outside the port's operations area as shown in Environmental Protection Authority Bulletin 701, Figure 2 (A copy is attached).

3-2 The proponent shall ensure that there is no iron ore particulate discoloration of the ocean and beaches resulting from stormwater drainage discharges.

Published on

25 OCT 1993

3-3 Prior to commissioning the iron ore facility, the proponent shall prepare and implement a research programme designed to establish the quantity of iron ore particles which would cause observable discoloration of Esperance beach sand.

3-4 During operation of the iron ore facility, the proponent shall monitor the level of iron ore particles in Esperance beach sand and, if a threshold level to be set by the Environmental Protection Authority is exceeded, shall prepare an amendment to the Environmental Management Programme (required by condition 7) which specifies measures to identify and eliminate the source of the particles which would cause observable discoloration.

3-5 Prior to commissioning the iron ore facility, the proponent shall prepare and implement an iron ore dust monitoring programme.

4 Noise Limits

The proponent should conduct operations so that noise emissions do not unreasonably impact on the surroundings.

4-1 The proponent shall ensure that noise emissions do not exceed:

- 40 dB $L_{A10,\ 1\ hour}$ slow and 50 dB $L_{A\ max}$ slow between 2200 hours and 0700 hours on any day when measured on any noise-sensitive premises;
- 45 dB $L_{A10,\ 1\ hour}$ slow and 55 dB $L_{A\ max}$ slow between 1900 hours and 2200 hours on any day, and between 0700 hours and 1900 hours on Sundays and gazetted public holidays, when measured on any noise-sensitive premises;
- 50 dB $L_{A10,\ 1\ hour}$ slow and 70 dB $L_{A\ max}$ slow between 0700 hours and 1900 hours on Monday to Saturday inclusive, when measured on any noise-sensitive premises; and
- 65 dB L_A slow when measured at or near the boundary of premises that are not noise-sensitive premises (other industries);

where such emissions would result in the noise level present at the affected premises exceeding the ambient noise level present at any time by more than 5 dB L_A slow.

4-2 The proponent shall ensure that noise emissions from those activities which solicit complaints from residents do not exhibit tones, amplitude modulation, frequency modulation or impulsiveness of a nature which increases the intrusiveness of the noise.

4-3 The proponent shall conduct noise surveys and assessments in consultation with the Environmental Protection Authority.

5 Shutdown Provision

If necessary, the proponent must shut down operations to protect the environment of Esperance and its surroundings.

5-1 The proponent shall cease iron ore handling operations, for as long as necessary, if it is apparent that the dust or noise limits required by conditions 3 and 4 respectively, have either been exceeded, or are likely to be exceeded.

6 Ship Ballast Water Discharges

The proponent must protect Esperance's marine environment from exotic marine organisms which could be introduced by ballast water discharges from shipping.

6-1 The proponent shall ensure that iron ore bulk cargo ships proposing to discharge ballast water in waters under the control of the Esperance Port Authority or within the protected waters of the Archipelago of the Recherche (See note 2) comply with the contemporary procedures of the Australian Quarantine Inspection Service.

7 Environmental Management Programme

A practical operational plan is needed to implement good environmental management.

7-1 Prior to commissioning the iron ore facility, the proponent shall prepare an Environmental Management Programme which shows the details of how the requirements of conditions 3, 4, 5 and 6 will be met.

7-2 The proponent shall include in the Environmental Management Programme required by condition 7-1 contingency plans for rehabilitation of beaches outside the port's operations area in the event that iron ore particulate discoloration occurs.

7-3 The proponent shall implement, and regularly update, the Environmental Management Programme required by condition 7-1.

8 Proponent

These conditions legally apply to the nominated proponent.

8-1 No transfer of ownership, control or management of the project which would give rise to a need for the replacement of the proponent shall take place until the Minister for the Environment has advised the proponent that approval has been given for the nomination of a replacement proponent. Any request for the exercise of that power of the Minister shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the project in accordance with the conditions and procedures set out in the statement.

9 Time Limit on Approval

The environmental approval for the proposal is limited.

9-1 If the proponent has not substantially commenced the project within five years of the date of this statement, then the approval to implement the proposal as granted in this statement shall lapse and be void. The Minister for the Environment shall determine any question as to whether the project has been substantially commenced. Any application to extend the period of five years referred to in this condition shall be made before the expiration of that period, to the Minister for the Environment by way of a request for a change in the condition under Section 46 of the Environmental Protection Act. (On expiration of the five year period, further consideration of the proposal can only occur following a new referral to the Environmental Protection Authority.)

10 Compliance Auditing

In order to ensure that environmental conditions and commitments are met, an audit system is required.

10-1 The proponent shall prepare periodic "Progress and Compliance Reports", to help verify the environmental performance of this project, in consultation with the Environmental Protection Authority.

Procedure

1 The Environmental Protection Authority is responsible for verifying compliance with the conditions contained in this statement, with the exception of conditions stating that the proponent shall meet the requirements of either the Minister for the Environment or any other government agency.

2 If the Environmental Protection Authority, other government agency or proponent is in dispute concerning compliance with the conditions contained in this statement, that dispute will be determined by the Minister for the Environment.

3 Transport of iron ore to the Port of Esperance shall be in accordance with an environmental management plan which addresses the issues of dust, noise, safety, scheduling and public amenity, prepared by Westrail prior to the commencement of the transport operation, to the requirements of the Environmental Protection Authority.

Note

1 The proponent will be required to apply for a Works Approval and Licence for this project under the provisions of Part V of the Environmental Protection Act.

2 The protected waters of the Archipelago of the Recherche are as defined by the Territorial Sea of Australia including the Approaches to Esperance - Chart No AUS 119 - published by the RAN Hydrographic Office, and more generally within the area of the Territorial Sea of Australia seaward of the Territorial Baseline Pursuant to section 7 of the Seas and Submerged Lands Act 1973, as proclaimed 14 February 1983 and as amended from time to time.

K. J. Minson

Kevin Minson MLA
MINISTER FOR THE ENVIRONMENT

25 OCT 1993

PROPONENT'S CONSOLIDATED ENVIRONMENTAL MANAGEMENT COMMITMENTS

IRON ORE EXPORT THROUGH THE PORT OF ESPERANCE (781)

ESPERANCE PORT AUTHORITY

The proponent has made the following environmental management commitments:

ESPERANCE PORT AUTHORITY
ENVIRONMENTAL COMMITMENTS
PROPOSAL TO EXPORT IRON ORE

1 GENERAL

1.1 An Environmental Management Program (EMP) will be developed for the Port of Esperance prior to commissioning of the iron ore export facility.

1.2 The EMP will outline a variety of strategies which will be used to ensure protection of the environment from iron ore loading operations. The EMP will include, but will not be limited to, engineering and procedural pollution control and details of the Port's environmental monitoring and audit program.

1.3 Additional environmental management measures will be incorporated into the proposed design of the iron ore handling facility by the Esperance Port Authority during construction and operation, if deemed necessary, or if required, by the Environmental Protection Authority.

2 DUST MANAGEMENT (CONTINGENCY PLANNING)

2.1 Best practicable technology will be utilised during the design, commissioning and ongoing operation of the iron ore export facility in order to maintain an acceptable level of dust control to the satisfaction of the Environmental Protection Authority.

2.2 Shiploading will be stopped immediately should there be any potential for dust or noise emissions to adversely affect the Esperance environment outside of the Port operations area. This contingency plan will be detailed in the Port's EMP.

2.3 In the unlikely event of failure of the installed dust control system, manual methods of dust suppression, eg water sprays, will be used. The methods chosen will ensure that dust levels are not increased above established ambient levels outside the Port boundary.

3 DUST/NOISE MONITORING

3.1 In order to establish existing dust and noise levels within the Esperance environment, a baseline dust and noise monitoring program will be carried out by the Esperance Port Authority. These programs will be implemented as soon as practicable, following approval for the project to proceed.

3.2 A dust and noise monitoring program will be implemented by the Esperance Port Authority during the operating life of the iron ore export facility. These programs will be implemented during and immediately following commissioning of the facility. In the event of results indicating unacceptable dust emissions from the facility,

additional control measures will be implemented as soon as practicable.

3.3 Contamination of other products handled at the Port will be monitored on an ongoing basis, in discussion with other relevant Port users.

4 NOISE MANAGEMENT

4.1 The Port Authority will identify and control, if practicable, existing sources of noise. This survey will be undertaken prior to commissioning of the iron ore export facility.

4.2 Best practicable technology will be used during the design, commissioning and operation of the iron ore export facility in order to minimise noise emissions from the facility to the satisfaction of the Environmental Protection Authority.

5 TRAINING

Formal training of Port Authority and relevant Westrail employees will be undertaken in regard to procedures outlined in the Port's EMP. This training will be undertaken prior to commissioning and on an ongoing basis throughout the operational life of the facility.

6 VISUAL AMENITY

6.1 A visual inspection program for dust will be implemented following commissioning of the iron ore export facility. The program will include regular inspections of nearby beaches, vegetation and property. Additional control measures will be implemented in the unlikely event of unacceptable impact.

6.2 Vegetation screening will be provided in order to minimise any visual impact from the iron ore storage shed. This vegetation will be established as soon as practicable following approval for the project to proceed.

6.3 The colour and design of the shed will be selected with a view to minimising visual impact.

7 MARINE IMPACT/DRAINAGE CONTROL

7.1 Operating procedures will be developed prior to commissioning of the facility to ensure that entry of iron ore to the marine environment from the wharf and ship is controlled to a best practicable degree.

7.2 The Port Authority will fund or participate in a survey of toxic dinoflagellates (under the auspices of the Australian Quarantine Inspection Service) in the marine environment in the immediate

vicinity of the Port within one year of commissioning of the iron ore export facility.

7.3 The Port Authority will ensure ongoing compliance with the Australian Maritime Safety Authority's requirements whilst vessels are within the Port Authority area of jurisdiction.

7.4 The Port Authority will ensure compliance with the requirements of the Australian Quarantine Inspection Service in respect of discharge of ballast water whilst vessels are within the Port Authority area of jurisdiction. Procedures in this regard will be detailed in the Port's EMP.

8 LIGHTING

Shielding will be provided where lighting has the potential to adversely affect nearby neighbours. Should lighting prove to be a source of annoyance following commissioning of the facility, additional shielding or other control measures will be implemented in discussion with those affected.

9 COMMUNITY LIAISON

Compliance with procedures and requirements outlined in the Port's EMP and results of environmental monitoring, will be reviewed on a regular basis by a community liaison group which will be established as soon as practicable following approval for the project to proceed.

10 REGIONAL PLANNING

The Port Authority will participate in the regional planning review presently being formulated by the Goldfields Esperance Development Authority (GEDA).

11 EMPLOYEE HEALTH STANDARDS

Levels of airborne dust in the work environment at the Port will be maintained in compliance with the requirements of the Department of Occupational Health Safety and Welfare (WA). Ongoing monitoring will be undertaken to confirm compliance.

12 WESTRAIL OPERATIONS

The Port Authority will maintain regular liaison with Westrail to ensure that iron ore transport operations are carried out in a manner which minimises environmental impact to a best practicable degree.

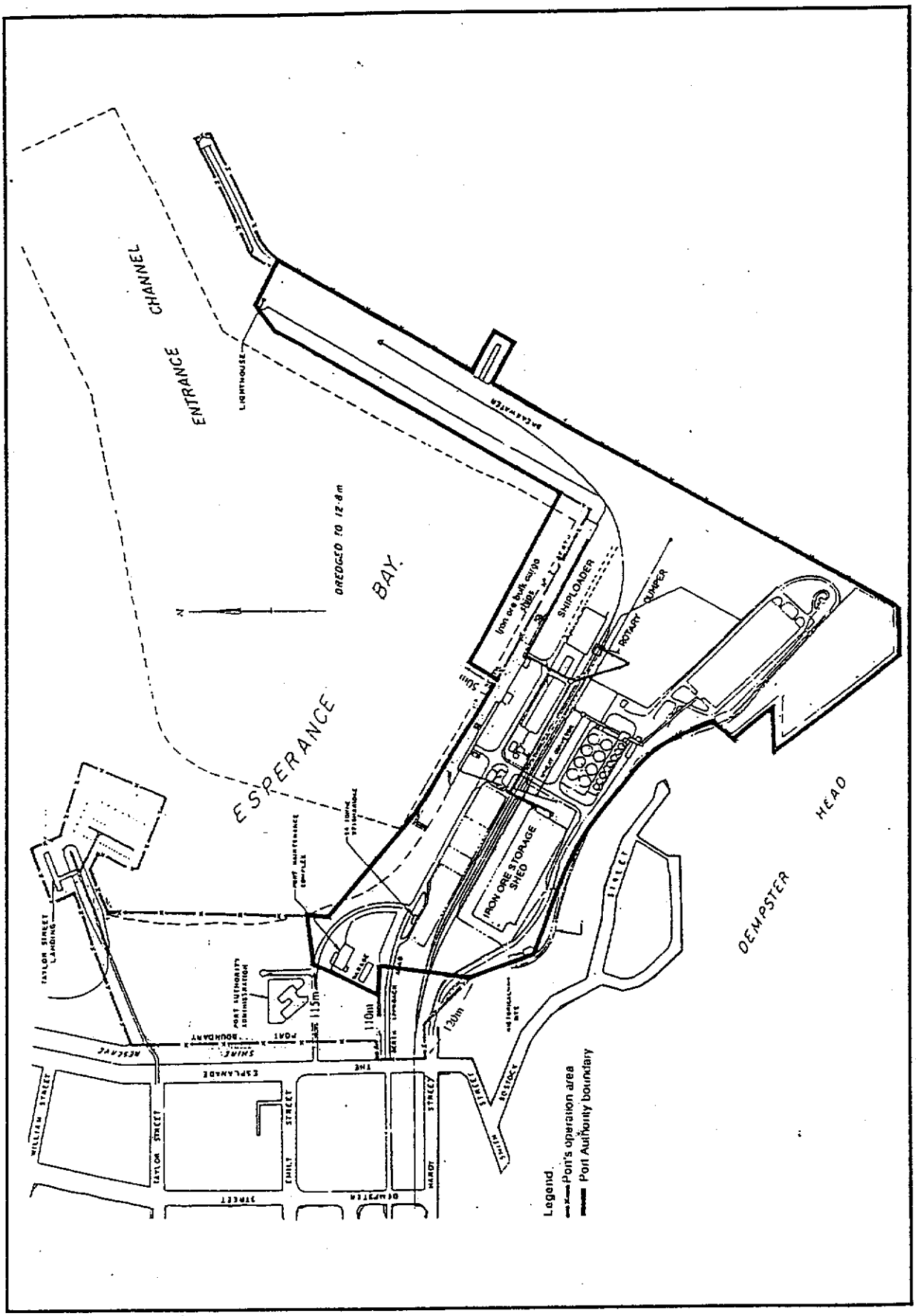


Figure 2. Port operations area

Appendix 7

Section 46 amendment to Ministerial Statement 325

Statement No.

STATEMENT TO AMEND CONDITIONS APPLYING TO A PROPOSAL (PURSUANT TO THE PROVISIONS OF SECTION 46 OF THE ENVIRONMENTAL PROTECTION ACT 1986)

ESPERANCE PORT UPGRADE OF MARINE FACILITIES

Proposal: The upgrade of marine facilities consists of deepening berths 1 and 2, dredging of the harbour basin, construction of a new deepwater berth, reclamation of approximately 15 hectares of land, construction of a new iron ore shed and associated shiploading and conveyor systems, and an increased throughput of iron ore from 2 to 4 million tonnes per annum (as detailed in Schedule 1).

Proponent: Esperance Port Authority

Proponent Address: PO Box 35, ESPERANCE, WA, 6450.

Assessment Number: 1327

Previous Assessment Number(s): 781

Previous Statement Number(s): Statement No. 325 published on 25 October 1993

Report of the Environmental Protection Authority: Bulletin 989

Previous Report(s) of the Environmental Protection Authority: Bulletin 701

The implementation of this proposal is subject to the conditions and procedures in Ministerial Statement 325 (25 October 1993) as amended by the following:

Condition 4-1 (noise limits) is deleted.

The following note is inserted after note 2:

There will also be conditions pertaining to noise related to this proposal, pursuant to Regulation 17 of the Environmental Protection (Noise) Regulations, 1997.

Appendix 8

Summary of Submissions and

Proponent's Response to Submissions

ESPERANCE PORT AUTHORITY

UPGRADE OF FACILITIES AT ESPERANCE PORT

PUBLIC ENVIRONMENTAL REVIEW
ASSESSMENT NO. 1277

RESPONSE TO PUBLIC SUBMISSIONS

JUNE 2000

Environmental Risk Solutions Pty Ltd
ACN 071 462 247
3/ 16 Moreau Mews, Applecross, WA, 6153.
Telephone: (08) 9364 4832 Facsimile: (08) 9364 3737 Email: ers@one.net.au

CONTENTS

1. GENERAL COMMENTS ON THE PROPOSAL

Q1.1. *Assessment of the spatial elements of the proposal for the Esperance Port Upgrade are based on inspection of the layout plans presented as Figures 1.1, 1.2 & 1.3. The scale of these plans at notionally 1:2000 does not appear to be correct. Using the scale rule on the map the reclaimed area shown on Figures 1.2 & 1.3 appears to occupy just over 8 Ha. The text gives the reclaimed area as 15 Ha. This error may then distort the relative size of the storage shed and other infrastructure and confound assessment of the scale of the impact on the marine and aesthetic environments. The Port Authority should submit revised plans to the Environmental Protection Authority, appropriately scaled, and provide amended figures for reclamation areas, seagrass impacts etc as necessary.*

A1.1. The scale on Figures 1.2 & 1.3 is not correct. At the time that Figures 1.2 & 1.3 were drawn, the proposed area of reclamation under discussion was ~8.8ha. Shortly before going to print with the Public Environmental Review (PER), the reclamation figure changed to ~15 ha, leaving the scale of Figures 1.2 & 1.3 incorrect. The proposed 15 ha reclamation is stated in the Executive Summary, Table E.1: Key Characteristics of Proposal, and in Chapter 2: Project Description. The inclusion of a scale on Figures 1.2 & 1.3 is unfortunate as the figures were meant to be representative only.

On Figures 1.2 & 1.3, the size of the proposed iron ore storage shed is correctly indicated as 300m x 60m. Aesthetically the impact of the shed will be shielded behind existing Port structures (refer PER Figure 6.2). The visual impact of other infrastructure, such as conveyors, are shown in PER Figures 6.1 - 6.3 and 6.5. Seagrass impacts are set out in the PER text as 2% of the seagrass currently within Port - controlled waters (PER Table E.2 and PER Chapter 6).

No misrepresentation was intended and the PER text provides sufficient information for the Environmental Protection Authority (EPA) to make its assessment.

Q1.2. *Residents for Esperance Development (RED) produced a detailed submission on the 1993 CER for the construction of iron ore shipment facilities at the Esperance Port. In an addendum to that response RED identified undisclosed plans by the Esperance Port Authority to upgrade the Port (RED Submission 1993). At the time the Port Authority denied that it intended to implement these plans. The Port upgrade proposals, which are the subject of the current PER, are substantially the same as those foreshadowed by RED in 1993. This leads to the conclusion that the implications of the original development in terms of long-term environmental and social impact were withheld from the community.*

This process of incremental disclosure seems to be continuing. Figure 1.3, the "longer term port development plan" shows sites for sulphur offloading, handling and storage on the reclaimed area. The PER however makes no reference to the potential for handling elemental sulphur or of any additional import or export products associated with the Nickel Industry. Clearly the Esperance Port Authority anticipates that it will be engaged to carry out these operations but the environmental impacts and management of sulphur handling are not considered in the PER. It appears on this basis that the Port is being covert and dishonest in the way it is proposing its intentions for expansion. What assurances can the Port Authority provide to counter such claims?

A1.2. The implications of the 1993 development was that presented to the EPA in the 1993 CER. A variety of concept plans for the future development of the Port of Esperance have been produced over the years. Most have identified the breakwater as the location for extra wharf and shipping facilities. In 1993 there was no intention to proceed with such a development. CBH's upgrade, due to the dramatic increase in grain production in the region (578,000 tonnes in 1992 to 1,482,000 tonnes in 1999), will result in Berth 1 becoming totally dedicated to grain exports. This will increase the congestion on Berth 2. The need for a third berth along the breakwater was confirmed with Portman Mining's decision to increase its exports to 4 Mtpa.

The Port Authority aims to be open in its development planning, which is why mention is being made of the possibility of future sulphur trade in Section 1 of the PER. The environmental impacts and management of sulphur handling are deliberately not considered in the PER as it is a potential development only, dependant on future growth in the mining area. Should sulphur trade become viable, a development proposal (including details of the environmental impacts and management of sulphur handling) will be referred to the EPA for determination of a level of assessment under the Environmental Protection Act 1986. Such assessment will involve appropriate community consultation.

Q1.3. *Can the Port Authority provide full disclosure of its intentions, particularly in regard of proposed further increases in iron ore throughput, sulphur and nickel handling? If Portman Mining are considering increasing shipping to 8 million tonnes per annum, why does the PER not state this tonnage and discuss the impacts associated with such an operation?*

A1.3. At the time that the PER was written, the available iron ore production figures were 4 Mtpa in the long term (refer PER Table 6.1: Current and Expected Trade through the Port of Esperance). Table 6.1 is based on trade projections that Connell Wagner, an engineering firm commissioned to undertake strategic development planning for the Port, made looking at a 5 - 10 year timeframe (1998 - 2008). Subsequent to the PER being released for public comment, the long term iron ore production figure changed to 8 Mtpa. If an increase in iron ore trade beyond 4 Mtpa becomes viable, a development proposal will be referred to the EPA for determination of a level of assessment under the Environmental Protection Act 1986. The same goes for possible increases in the nickel or sulphur trade through the Port.

Q1.4. *Can the Esperance Port Authority clarify any intent that it has to purchase land near Lake Warden and to have that land rezoned industrial? Is this an indication of the direction of change envisaged for the Port? Does this mean the Town of Esperance will see increased stockpiling and conveying of mining inputs and products?*

A1.4. The Port Authority has approached DOLA re the possibility of acquiring unallocated crown land at Shark Lake, adjacent to the railway line opposite the Esperance abattoirs. The process of developing such land may require a number of statutory approvals including environmental approval, native title clearance, Water and Rivers approval, and planning approvals from the Shire of Esperance.

The Port's objectives in setting out to acquire the land are to:

- develop a transport terminal outside the town area to service the Port; and
- provide storage and cargo aggregation outside the town.

It is envisaged that into the future (10 – 15 years), products could be transferred to the Port from the Shark Lake land via conveyor or train shuttle.

There are no specific products earmarked for the land. However, with the growth in timber production the site could well be used by the timber industry.

Q1.5. *The PER states that an environmental audit by the DEP found the Port Authority to be generally in compliance (except for noise levels) up until 1995. There has been no comprehensive audit since. Can the Port provide current evidence to demonstrate good environmental performance?*

A1.5. The operations undertaken by the Port Authority is regulated and controlled through Department of Environmental Protection (DEP) licensing which is kept current (the current DEP licence is No. 5099/4). The DEP licence contains general provisions and specific provisions on air, noise and marine pollution control. The DEP licence requires that dust sampling is undertaken on a three monthly basis, and that a six monthly dust monitoring report is provided to the DEP. The DEP licence also requires the keeping of a Pollution Control Log which is accessible at all times by an Inspector of the DEP. Intermittent site visits and inspections are conducted by the DEP, Goldfields Region Office.

Environment Australia uses the Port as an example of Best Practice Environmental Management for dust management.

Q1.6. The Port is applying to dredge the outer harbour to a depth of 18 metres, ostensibly to allow Cape class vessels to service Portman Mining's iron ore operation. Sales figures show (Fig. 2, report published by Connell Wagner, January 2000) that Portman is rapidly losing market share, having fallen from 1.5Mtpa in 1998 to 1.0Mtpa in 1999. The suggestion that Cape class ships will somehow reverse this fall is open to question when considering that Portman's reason for existence was its ability to service shallow ports in China. The use of Cape class vessels will surely only put Portman in direct competition with BHP, Robe and other Pilbara companies who are significantly closer to the markets and have the benefit of economy of scale. On this basis an increased iron ore trade is by no means assured. Can the Port Authority please provide a justification for the necessity of this upgrade activity and an argument against the rejection of the proposal?

A1.6. The decline in iron ore shipments in 1998 was related to the downturn in the Asian economy.

To explain the need for a deeper Port that can service Cape Class vessels: in 1997, the Port Authority commissioned Connell Wagner to develop a strategic development plan for the Port. The strategic development plan is based on:

- a consideration of the existing Port facilities and capacity;
- current and future expected cargo tonnages;
- current and future demands on Port facilities;
- environmental and planning constraints; and
- *current and future shipping trends.*

The strategic development plan states that the Port currently faces the following key issues:

- a demand for shipping of increased volumes of iron ore;
- *an increase in cargo vessel sizes;*
- a shortage of Port lands available for industrial development; and
- a need to provide a third berth.

The need to provide competitive freight rates is also applying pressure on the Port to accommodate deeper draft vessels. The use of Cape Class vessels will half the freight rates from Esperance to China (current freight rates are ~$US 12-13 per tonne; Cape Class rates currently are $US 6-7 per tonne).

While an increased iron ore trade is not assured, all indications are that over the next 9 years between 4 - 8 Mtpa of iron ore will be mined by Portman Mining. The Port Authority is acting in good faith on Portman's trade projection. Fluctuations in iron ore tonnage per annum are expected from year to year.

Portman Mining does not only target Chinese trade markets. The upgrade, and access to Cape Class vessels, will allow Portman Mining to diversify their markets.

Q1.7. *The Port is applying to build a third berth, ostensibly to cater for the speculated increased iron ore sales. Based on previous studies, there is significant unused capacity in the existing infrastructure. For example, in answer to question No. 312 in the 1993 EPA report the Port Authority replied:*

"The Port is operating well below capacity. It has berth occupancy of less than 20%. With the proposed iron ore trade it will still operate at less than 40%. Optimum berth occupancy is considered to be around 60%".

This confirms that even with 1.5Mtpa, the port still has spare occupancy for another 1.5Mtpa, giving a total of 3Mtpa. In addition, if Panamax ships depart fully loaded, they will be carrying 70,000 tonnes instead of 55,000 tonnes at present. This will be achieved without affecting the occupancy rate. This means a total capacity of 3.8Mtpa. It appears that Portman will be adequately catered for in the foreseeable future using the existing infrastructure and the Port would be operating with optimum berth occupancy, not maximum berth occupancy. Can the Port Authority please provide a justification for the necessity of this upgrade activity and an argument against the rejection of the proposal?

A1.7. Because of CBH's dramatic increase in grain production (578,000t in 1992 to 1,482,000t in 1999), Berth 1 is to become totally dedicated to grain handling. All other trades will now have to be handled over Berth 2. The infrastructure at Berth 2 will not be able to handle the projected increased volume of iron ore on top of the products handled already and does not lend itself to an upgrade to accommodate the projected increase in iron ore.

The strategic development plan that Connell Wagner drafted based its recommended development proposal partly on a consideration of the existing Port facilities and capacity. After consideration of all the factors listed in A1.6, the recommendation made, amongst other suggestions, was that the Port needed to construct a third berth.

Q1.8. *It is noted that the iron ore No. 2 shed is currently under construction. In answer to question No. 16 in the 1993 EPA report, which asked:*
"If the amount of ore exported is increased, will additional ore be stockpiled?"

The Port Authority replied:

"An increase in iron ore exports will not result in increased iron ore stockpiles. The proposed stockpiles would just be turned over more regularly".

How then can the Port Authority justify a third shed if they are intending merely to "turnover" stockpiles more regularly?

A1.8. It has become clear since 1993 that storage capacity approximating 12 – 15 % of the planned annual throughput is required. This figure is in large part determined by the capacity of the rail operations and the regularity of shipping. With an expected trade of 4 Mtpa, there will be a need for more storage space (ie. a third shed).

Q1.9. *The sulphur storage and handling facility are drawn into Figure 1.3, which is described as the Longer Term Development Plan. It is misleading to refer to this as a Long Term Plan. Connell Wagner reported (item 1.1, paragraph 5) that:*

"At Berth 2 Wharf, reaching berth capacity was predicted to occur in the year 2001 – 2003 if iron ore cargo tonnages continued to increase. This limit would occur sooner if larger volumes of sulphur were imported over Berth 2 Wharf in addition to the handling of "other than grain" cargoes in the port".

This statement shows that before the Port can import large volumes of sulphur it must either limit iron ore exports or provide another loading facility.

When the Port Authority first made application to the EPA for an upgrade, Portman Mining was considering Kwinana as a preferred port. It is obvious that increased iron ore exports were not driving the application at that time and it is misleading to attempt to justify the upgrade on these grounds.

It is believed that the port upgrade is actually geared to sulphur importation, driven by considerable demand by nickel producers for sulphur to be imported through Esperance Port. On this basis, the importation of sulphur is obviously an integral part of this upgrade application even though it is excluded from the PER. By leaving sulphur imports out of this PER, the community is not being given the opportunity to comment on the real purpose of the upgrade. It is deceptive to pretend that this expansion plan is just "business as usual" but on a slightly bigger scale. In reality it is designed to double the land area available to the port and set the port up to handle new and undesirable substances from the community's point of view.

The assessment should be delayed until the question of sulphur importation is included in the application. Furthermore, how does the Port Authority intend to accommodate future expansion?

A1.9. Sulphur importation has not driven the current application. The Port Authority engaged Environmental Risk Solutions (ERS) in April 1999 to assist with the environmental approval process for a Port upgrade. At the time, there were three stages of upgrade being considered of which only the first was justified on the expenditure of $65 million by CBH on their Esperance grain export terminal. Portman Mining were at the time evaluating the option of relocating their iron ore export operations to Kwinana.

The three stages under discussion when the proposal was referred to the EPA in May 1999 were:

- Stage 1 - deepening and land reclamation to meet the requirements of the CBH upgrade (dredging from 12.8 m to 15.1 m and reclaiming ~8 ha of land). Stage 1 was committed due to the C.B.H. upgrade;
- Stage 2 - dredging of a deeper berth pocket alongside the breakwater to enable the loading of larger vessels for the iron ore trade, the building of a new berth and shiploading facility to load the larger vessels and the construction of extra storage facilities. At the time of the referral to the EPA, Stage 2 was uncommitted due to the considerable uncertainty surrounding Portman Mining's intentions; and
- Stage 3 - if sulphur imports became a reality, Stage 3 would involve the construction of sulphur storage and handling equipment to service the lateritic nickel industry. At the time of referral and as is the case today, there have been no commitments from the mining companies to the importing of sulphur through Esperance.

The PER process was commenced at a time when Stage I was the only committed development at the Port.

In late August 1999, Portman Mining advised the Port Authority that they intended to continue their operations through Esperance. At the end of October 1999 they committed $6.5 million to the building of increased storage at the Port and advised the Port of their desire to expand their operations to 4 Mpta of exports.

It was decided at this time to expand the PER to seek approval for both Stages 1 and 2.

The reason why mention is made of possible future sulphur importation in the PER is so that the community is informed of future development options before the Port. The sulphur trade is a potential development only. Were it a more secure option, a detailed sulphur proposal (including details of the environmental impacts and management of sulphur handling) would have been included in the current PER.

While the upgrade will make more land for development available to the Port, sulphur importation is only one option that may be pursued. Future development will depend on areas of growth in agriculture and mining in the region.

While the Port Authority acts in an environmentally responsible manner and aims to take community views on-board, it is a commercial enterprise. The Minister for the Environment, as an independent decision-maker will balance the needs of the community and the Port Authority, taking into account local, regional and State pressures.

Q1.10. *It is of some concern that the claim is made on page v of the Executive Summary that 'Port owned land is exempt from local government building requirements. No other planning approvals are required.' Similar claims are in 1.5, page 14.*

In January 1999 the Minister for Local Government advised Council of legislation, which gives the Port Authority the status of being an agent of the Crown, and therefore exempt from local government planning approvals. The Minister referred to a legal opinion from the Crown Solicitor's Office and a copy of a letter from the Department of Planning and Urban Development (not supplied) which confirmed that CBH Ltd is not required to obtain planning approval from the Shire. He went on to say, however, that even if CBH Ltd enters into a business arrangement with the Port Authority, CBH Ltd would not enjoy Crown status and would therefore be required to obtain a building license.

The Shire of Esperance Town Planning Scheme No 22 was granted final approval by the State Planning Commission and the Hon Minister for Planning on 27th September 1991. The advice offered by the Department of Planning and Urban Development to the Esperance Port Authority may well have preceded gazettal of the Scheme as s5.10 refers to granting of planning consent within the Harbour Zone. S5.10 is as follows:

5.10 Harbour Zone – Overall Development Plan

5.10.1 Council shall not grant planning consent to development and recommend approval of a subdivision of any land within the Harbour Zone unless:-
i) an adequate environmental assessment has been prepared that satisfies Council that no adverse environmental, engineering, traffic or social problems will arise within the Zone or in related parts of the Scheme Area and satisfies Council that zoned development can proceed;
ii) an overall plan in respect of the Harbour Zone has been prepared and approved by Council.

5.10.2 An overall plan shall at least show the overall layout of land use, arterial sub-arterial and collector road systems, location of major public utilities, community facilities, open space and foreshore reserves.

Shall include a report that explains the basis for the locations and layout of the elements of the plan.

5.10.3 Where the Council is satisfied that a proposed development or subdivision is of minor nature only and is consistent with the provisions of the Scheme it may grant planning consent or recommend approval, as the case may be, before an overall plan has been approved."

Furthermore, Column 13 of the zoning table specifically refers to the Harbour Zone and is cross-referenced to various uses, which may or may not be permitted. Even in the case of uses which are 'permitted' the following meaning is assigned:

'P' means that the use is permitted provided it complies with the relevant standards and requirements laid down by the Scheme and such conditions imposed by the Council in granting Planning Consent.

On this basis it would certainly seem that Council has the right to seek planning applications for development and subdivision.

A1.10. Section 38 of the Port Authorities Act 1999 exempts the Port from formal approval from the Shire.

Development approvals were applied for under the formal environmental assessment process in Western Australia, which is assessed by the EPA and granted or refused by the Minister for the Environment. Works approval will be sought from the DEP for construction of the proposed iron ore loading and unloading system.

Q1.11. Will Esperance Port Authority supply a long term strategic plan for future developments encompassing proposals extending up to twenty five years available for comment by the local authority? Would the Port consider developing such plans with full public consultation?

A1.11. The strategic development plan developed for the Port Authority by Connell Wagner has a 5 - 10 year timeframe (1998 - 2008). At this point in time, predictions on market trends beyond that set out in the Connell Wagner strategic development plan are difficult to make with any certainty, and would at best be speculative. Based upon known and projected developments in the Goldfields-Esperance region, the Port Authority believes that the proposed upgrade will provide the Port with adequate capacity to meet the demands of industry over the next 20 - 25 years. The deeper harbour will result in Esperance being the deepest Port south of Dampier and readily able to handle the size of vessels required by the major trades of the Port. The new iron ore shiploading facility will more than double the loading rates currently being achieved (the new shiploader will be designed to load 4,500 tph compared to the existing loader's capacity of 2,000 tph).

The current proposal has been openly canvassed with the community. Since 1995 the Port Authority has released media statements and information on the possible developments at the Port (refer PER Chapter 7).

Q1.12. The PER has too many unfounded claims. For instance, it states that the proposal will not have a significant impact on marine flora and fauna, littoral drift processes or changes in water quality. Furthermore, the document suggests that no increased risk of fuel spillage, no unacceptable noise or visual impacts and no reduction in air quality will occur. On the basis that noise is already unacceptable and breaching conditions and regulations, these statements are not founded on any firm evidence. Furthermore, the final comment of the PER Executive summary draws some concern – viz:

"None of the environmental factors of the proposal were found to have significant effect on the environment"

Whilst all reports may provide this indication, further, ongoing research will provide stronger grounds for this conclusion in the future.

Will the Port Authority specify commitments to address each issue to ensure that the Esperance environment is not further compromised?

A1.12. The impact assessment of the upgrade on marine flora and fauna, littoral drift processes, water quality, fuel spillages, noise and air quality were undertaken by scientists and engineers with years of experience in these particular fields, who have no vested interest in the outcome of the assessments. The conclusion that they reached was that it is unlikely that there will be significant environmental impacts on any of the assessed factors. The Port Authority is confident in the adequacy of the impact assessment undertaken.

Specifically, on increased risk of fuel spillage, the PER stated that while there is an increased potential for fuel and oil spills from ships because of the 20% increase in shipping movements, that the impact is not considered significant given the relatively low number of vessels using Esperance Port compared to other ports.

Assessment of noise impacts was based on noise modelling undertaken for the PER (refer Kenrac Consultancy Pty Ltd T/A Esperance Safety and Health, *Noise Study - October 1999*) and for the supplementary document on noise (refer Environmental Risk Solutions, *Community Consultation - Noise Information, 14 March 2000*).

It is acknowledged that there will be a changed visual skyline. The Port Authority has committed to minimising the adverse visual impacts of the upgrade and maintaining acceptable visual impacts.

Suggested environmental commitments by the Port Authority are set out in PER Table E.3, and include commitments on marine water quality, noise, air quality, visual amenity, and environmental management. These commitments will be refined in discussions with the DEP, and will become legally binding under Part IV of the Environmental Protection Act 1986. The Proponent Commitments will be supplemented by Minister's Conditions imposed by the Minister for the Environment which will ensure that the proposed development is managed to the approval standards of the Minister. The Proponent Commitments and the Minister's Conditions will be enforced by the DEP under its legislative powers.

Q1.13. A number of the submissions are supportive of the upgrade, siting the Port Authorities previous good corporate image and community consultation processes.

A1.13. No Comment.

Q1.14. Some submissions went on further to indicate that whilst there was general acceptance by the community of current activities and the proposal to dredge the harbour to allow for more efficient handling of grain stockpiles, expansion of iron ore, and in particular, any consideration of sulphur and increased nickel handling operations, was not acceptable.

A1.14. Should sulphur importation or significantly increased nickel trade become viable development options, development proposals will be referred to the EPA for determination of a level of assessment under the Environmental Protection Act 1986. Such assessment will involve appropriate community consultation.

Q1.15. How can the Port Authority expect the Esperance community to accept expansion of the Port when residents of Kwinana objected to iron ore even though their port is industrial and has adequate buffer distances?

A1.15. The environmental impact assessment process for the Esperance proposal has, through the PER, critically examined the environmental factors, their impacts and their management. The conclusion by the proponent was that none of the environmental factors were found to have a significant impact on the environment.

Comparison of proposals at different locations is difficult due to different local environs and different environmental controls being possible. For example, due to the relatively close proximity of housing to the Esperance Port, more stringent dust controls such as full enclosure of conveyor belts may be suitable compared to an operation with a large buffer zone where the dust control measure of 'wind boards' may be suitable.

The advantage that this environmental impact assessment has, compared with a new proposal, is that the proposal is for an expansion of an existing operation for which there is a proven track record of environmental controls. These controls have been continually reviewed and improved since the Port commenced operation.

Ultimately, this decision is one that the Minister for the Environment will be called to make as an independent decision-maker balancing the needs of the community and the Port Authority, on a local, regional and State level.

2. COMMENTS ON ALTERNATIVE OPTIONS FOR PORT FACILITIES

Q2.1. *One of the consequences of the staged development of Esperance Port is that an agricultural port, in a residential and tourist area with no buffer zone, is being transformed to a heavy industry port by stealth. This process is being driven by the medium term business interests of a Port Authority and is outside any strategic planning framework. The Goldfields - Esperance Regional Planning Strategy recommended the development of a separate industrial port, not turning the Esperance Port into an industrial port. Furthermore, the Shire of Esperance conducted a survey on living in Esperance. The Port development was high on the list of concerns as was the value attributed to the natural environment. Has the Port Authority sought any of the information from this survey in preparing its development plans?*

A2.1. The current development proposal is based on strategic development planning that was undertaken by the Port Authority which is based on a 5 - 10 year timeframe (refer A1.3).

The Goldfields - Esperance Regional Planning Strategy, 1999, states that (p115):

> "*Current and proposed use [of the Port of Esperance] is expected to satisfy demands for the next 25 years*".

The Goldfields - Esperance Regional Planning Strategy goes on to state that an additional port is not yet required (p115):

> "...*a second port site with adequate land for support industry should be investigated. Butty Head and Wylie Bay have been identified as potential locations for a future additional port, if new development in the region requires increased capacity. However, it is considered that the port's operations do not need to be changed at present, and proposed development work is expected to satisfy requirements for the time horizon of this study.*"

Environmental assessment of any future Port developments will involve, as did the assessment of the present proposal, a consideration of alternatives based on environmental, economic and social factors.

A survey on living in Esperance was published in 1999 (Ref: Government of Western Australia, 1999, *Living in the Regions: The Views of West Australians. The Goldfields - Esperance Report,* DEP Library/Information Centre, Perth, Western Australia). While the Port Authority is cognisant of the information presented in the document and community views are important to it, the Port Authority is a commercial enterprise with economic development as one of its objectives. If the Port did not pursue economic development, it will not remain commercially viable. Like the community, the Port Authority values the natural environment in which it works and lives. The reason for the community consultation on the proposed upgrade is to involve the community in decision-making, incorporate their views, and allow opportunity for contribution on the environmental management of the proposal. Information obtained from the public during the Public Open Days in Esperance has been incorporated into the development proposal. For example, it has been proposed that the storage shed be re-orientated to minimise visual impacts. This suggestion is currently being reviewed by the Port Authority.

The Shire of Esperance survey on living in Esperance was conducted after the PER was produced.

Q2.2. *The evaluation of alternatives rejects the possibility of constructing a purpose built mining/industrial Port because it would be uneconomic for the Esperance Port Authority. The government is already committed to fund a heavy industry port at Oakajee and proposing others for Breton Bay and Kemerton. The assumption that the government would not put taxpayers money into strategic industrial ports is not born out by recent history. The possible role of these west coast "industrial" ports is not considered in evaluating the future role for Esperance. Neither does the PER mention the proposal (abandoned?) to export Koolyanobbing iron ore through Kwinana or why Esperance was ultimately selected to handle this product. Can the Port Authority provide some context in this regard?*

If the ultimate fate of Esperance Port is to be a heavy industry port, surely this should be adopted or rejected by a consultative regional planning process, incorporating a review of the strategic role of Esperance compared to other ports?

A2.2 At the time the Port Authority referred the proposed upgrade to the EPA, it was competing with Fremantle Port for Portman's business. At that time, Portman Mining was still considering alternative export options as environmental approval to proceed with the development at Kwinana Port had not yet been granted. Esperance was ultimately successful in retaining the iron ore exports because of the natural features it has of deep water in close proximity to the Port (ie. no need for extensive channels) and readily dredge-able sand material in the harbour basin. Kwinana does not have such attributes making the cost of development a lot higher than Esperance.

Esperance Port sees its future as continuing to primarily be that of a bulk cargo Port handling agricultural and mining products. It is a matter of conjecture as to whether this constitutes the Port being a "heavy industry" Port.

Q2.3. *What assurances can the Port Authority give that a second "industrial port" has been fully evaluated in considering alternatives?*

A2.3 The Port Authority assessed the alternative of another Port along the coastline in the vicinity of Esperance. Section 4 of the PER reflects the findings of this assessment which showed that a second industrial Port was not economically viable. The associated environmental costs of constructing a new Port with the same basic facilities are also potentially high. Further evaluation was therefore considered not warranted for the current proposal under consideration.

Should government initiate a strategic assessment of an alternative site for a Port in Esperance, the Port Authority would be prepared to assist the relevant agencies to evaluate what options may be available.

3. BIOPHYSICAL FACTORS AND ISSUES

3.1 Marine Flora and Fauna

Q3.1.1. *The consultants should have taken the opportunity during the benthic habitat survey to develop some of their drop-dive sites as permanent quantitative baseline monitoring sites in anticipation of the forthcoming dredging and reclamation program. It is not appropriate for private developers to piggyback future monitoring of the impacts of their operations on a community-based CoastCare Project. Such a project would be for broad-scale/regional environmental monitoring purposes and not be scientifically designed to detect particular impacts associated with the Port upgrade proposal. This is an abrogation of the polluter pays principle. Similar opportunism by the Port appears to be occurring in relation to ballast water organisms.*

Will the Port Authority commit to establish its own biological monitoring program (consistent with the principles in Southern Metropolitan Coastal Waters Study and Perth's Coastal Waters – Environmental Values and Objectives) within its area of potential impact that are compatible with, but independent of, the CoastCare project methodologies? Data from both projects can then be contributed to a common database.

A3.1.1. The drop-dive sites were not developed as permanent quantitative baseline monitoring sites because the assessment of the impact of the proposed upgrade on marine flora and fauna indicated that it is unlikely that there will significant impacts. The Port Authority supports the CoastCare marine habitat mapping and monitoring programme, and has committed $30,000 to assist in the funding of the proposed University of Western Australia Research program into the Benthic Habitats and Ecosystems of the Recherche Archipelago.

The marine survey of ballast water organisms being coordinated by the Centre for Research on Introduced Marine Pests (CRIMP) is a national program. Ports are encouraged to fit in with the program so that data can be collated into a national databank for further national and international research. The Port is committed to undertaking the survey as the Department of Transport advised in January 2000 that in future ships will be penalised for visiting ports that have not undertaken baseline surveys of introduced marine pests.

Q3.1.2. *The survey work undertaken to date is inadequate as a baseline survey upon which to assess impacts and effectiveness of proposed management on marine flora and fauna? Can the Port demonstrate that they fully understand the ecosystem upon which they may impact, fully documenting both marine flora and fauna that will be affected by both construction and operational activities?*

A3.1.2. The assessment of the impact of the proposed upgrade on marine flora and fauna, undertaken by reputable marine consultants with years of experience in marine flora and fauna in Western Australia (particularly seagrasses) indicated that it is unlikely that there will be significant impacts. Because of this, permanent monitoring of the effectiveness of the proposed management was considered not warranted.

The marine flora and fauna that will be affected by construction and operational activities have been fully documented as part of the impact assessment undertaken for the PER (refer D.A.Lord & Associates Pty Ltd, *Esperance Harbour Redevelopment - Marine Environmental Studies*, Report No. 99/106/1).

Q3.1.3. *The Port claims that the area to be dredged is bare sand, and that this is due to previous dredging. However, there are seagrass communities adjacent to these areas and some regrowth will be removed. Can the Port Authority confirm these losses and indicate how any impacts may be managed/mitigated?*

A3.1.3. The PER states that there are some seagrass seedlings along the dredged slopes of the harbour basin and that this will be removed:

> "*Some of the seagrass seedlings observed along the dredged slopes of the harbour basin during the 1999 Marine Survey may be lost*".

Within the harbour turning basin, where dredging will take place, seagrass is not encouraged to grow as this is an active port area which is subject to periodic dredging. Therefore, no management or mitigation is proposed for the turning basin floor or sides.

Dredging and reclamation impacts will be limited to the smallest practicable area through adherence to the Dredging and Reclamation Management Plan.

Q3.1.4. *About half the area to be reclaimed is live seagrass. It is estimated that reclamation will claim about 5 to 10 hectares between Dempster Head and the groyne, or about 1-2% of seagrass in the Port controlled area. Turbidity caused by dredging may cause more seagrass to be lost and accumulation of sea wrack offshore caused by alterations to the groyne may cause even further loss. How does the Port Authority propose to monitor and mitigate for these impacts?*

A3.1.4. The turbidity caused by dredging is expected to be of short duration with limited spacial impact. Settling rate determinations of harbour sediments to be dredged indicated that 90% of the sediments will settle from the surface waters to the seabed in 15 – 20 minutes. The sediments to be dredged are predominantly fine to medium silica sands, with a very low silt plus clay fraction (less than 1%) (the silt plus clay fraction is the fine particles that stay in suspension the longest). A very low proportion of the dredged sediments will be sufficiently small to stay in suspension for long periods. The marine consultants stated that:

> "*there is very little likelihood of smothering of adjacent benthic communities*".

The Dredging and Reclamation Management Plan will address the management and monitoring of turbidity caused by dredging.

It is correct that alterations to the groyne may cause accumulation of sea wrack offshore and cause seagrass loss in the area immediately offshore of the proposed reclamation area. The marine consultants concluded that it is expected that the seagrass loss will be minimal. To be conservative, the 5 - 10 hectares estimate assumes total loss to 100m out from the relocated breakwater. Observations of the impact of the existing breakwater suggest that losses will be as predicted.

Because the seagrass loss due to sea wrack accumulation is expected to be minimal, management and monitoring are not proposed.

Q3.1.5. *The predicted 20% increase in shipping will create increased turbulence. How will this impact existing seagrass communities and seagrass regeneration? What other impacts on marine flora/fauna have been considered?*

A3.1.5. There are no seagrass communities in the shipping channel through which ships approach the Port, or within the harbour turning basin, as these are active port areas subject to periodic dredging.

There is not a direct link between increased shipping and increased turbulence. Turbulence in shipping movements is associated with vessels departing at maximum draft. With the increased depth in the harbour, small to medium sized vessels that continue to visit the Port will have a lot more water under the keel and turbulence will be negligible. The passage of vessels with a deeper draft than the existing vessels may cause localised turbidity. The new berth will result in vessels leaving the Port having a shorter distance to travel before reaching deep water, and hence the turbidity generated will be less.

Any turbulence that result from the increased shipping is expected to be less than current levels and is not expected to have a significant impact on seagrass communities in the vicinity of the harbour basin or on seagrass regeneration. Small turbidity plumes currently occur during shipping movements. The presence of seagrass seedlings on the dredged slopes of the harbour basin suggests that the turbidity caused by shipping movements is of short duration and is having minimal impact. This position is expected to continue in future.

Based on the above, monitoring is considered not to be warranted.

Please refer to PER Section 6.1.1 for other impacts on marine flora/fauna that have been considered.

Q3.1.6. *Will the Port Authority commit to supporting the community based habitat mapping and monitoring program, with particular emphasis on contributing to studies which will monitor changes resulting from the upgrade?*

A3.1.6. The Port Authority supports the program. Refer to A3.1.1. The Port Authority has committed $30,000 to assist in the funding of the proposed University of Western Australia Research program into the Benthic Habitats and Ecosystems of the Recherche Archipelago.

Q3.1.7. *What evidence can the Port provide to demonstrate that it is complying with regulations, conditions, bylaws or other regulatory mechanisms in regards to managing land and sea floor rehabilitation and water borne pollutants?*

A3.1.7. There will be no seafloor rehabilitation. Dredging will occur within the existing harbour basin in an area comprising of bare sand due to previous dredging activities. No existing land is being altered as a result of the proposed upgrade, and no land rehabilitation will be undertaken.

The current DEP licence is Licence No. 5099/4. It contains provisions on marine pollution control, including raw material spillage controls. The DEP licence requires the following:

- take all reasonable and practicable measures to prevent or minimise the spillage of raw material to any waters during loading and unloading operations;
- clean up spillage of raw materials on the roads, standing areas and access ways as soon as practicable, giving due consideration to prevailing meteorological conditions;
- ensure that all spillage from feed out hopper loading operations be cleaned up immediately upon completion of the load out operation;
- minimise spillage onto the deck of the vessel being loaded/unloaded in a manner so as to prevent its access into Esperance waters; and
- collect all spillage onto the wharf in a manner so as to prevent its access into Esperance waters.

Sediment sampling was undertaken in the harbour basin area. The aim of the sampling was to check for contaminants in harbour sediments. The results of the sampling showed that, after 35 years of Port operation, the sediments fell within the acceptance criteria stipulated in the Australian and New Zealand Environment and Conservation Council (ANZECC) Interim Ocean Disposal Guidelines 1998 except for TBT and nickel where small exceedences occurred. Refer to A4.1.1 for the control of TBT and nickel. The Port considers that the sampling results show that it is complying with its regulatory obligations in regards to water borne pollutants.

The Port Authority is currently developing an Integrated Risk Management System that will include meeting the intent of the Australian Standard for Environmental Management of 'continuous improvement'.

Q3.1.8. Impacts on marine flora/fauna at the intertidal zone do not appear to have been addressed. Does the Port Authority expect any impacts at Dempster Head or elsewhere along the line of reclamation?

A3.1.8. No impacts on marine flora and fauna are expected other than that stated in the PER.

Q3.1.9. In determining seagrass losses, the Port Authority has not described or justified the management unit upon which the losses are based. Can the Port Authority provide a figure defining the management unit (in unit area) and provide a basis for this as per Draft DEP guidance No 22, Seagrass Habitat Protection?

A3.1.9. The management unit used in the PER to calculate seagrass losses is the waters under the control of the Port Authority, ie. all waters within a 10 nautical mile radius of Bandy Creek, which is 126 nm^2 of water. Based on 15 - 20 m depth contours (which approximates the depth limits of seagrass meadows), there is an estimated 4,500 ha of seagrass within the waters under the control of the Port Authority. Refer Figure 5.

The management unit used to calculate seagrass losses has been refined on advice of the DEP. Refer Figure 5.

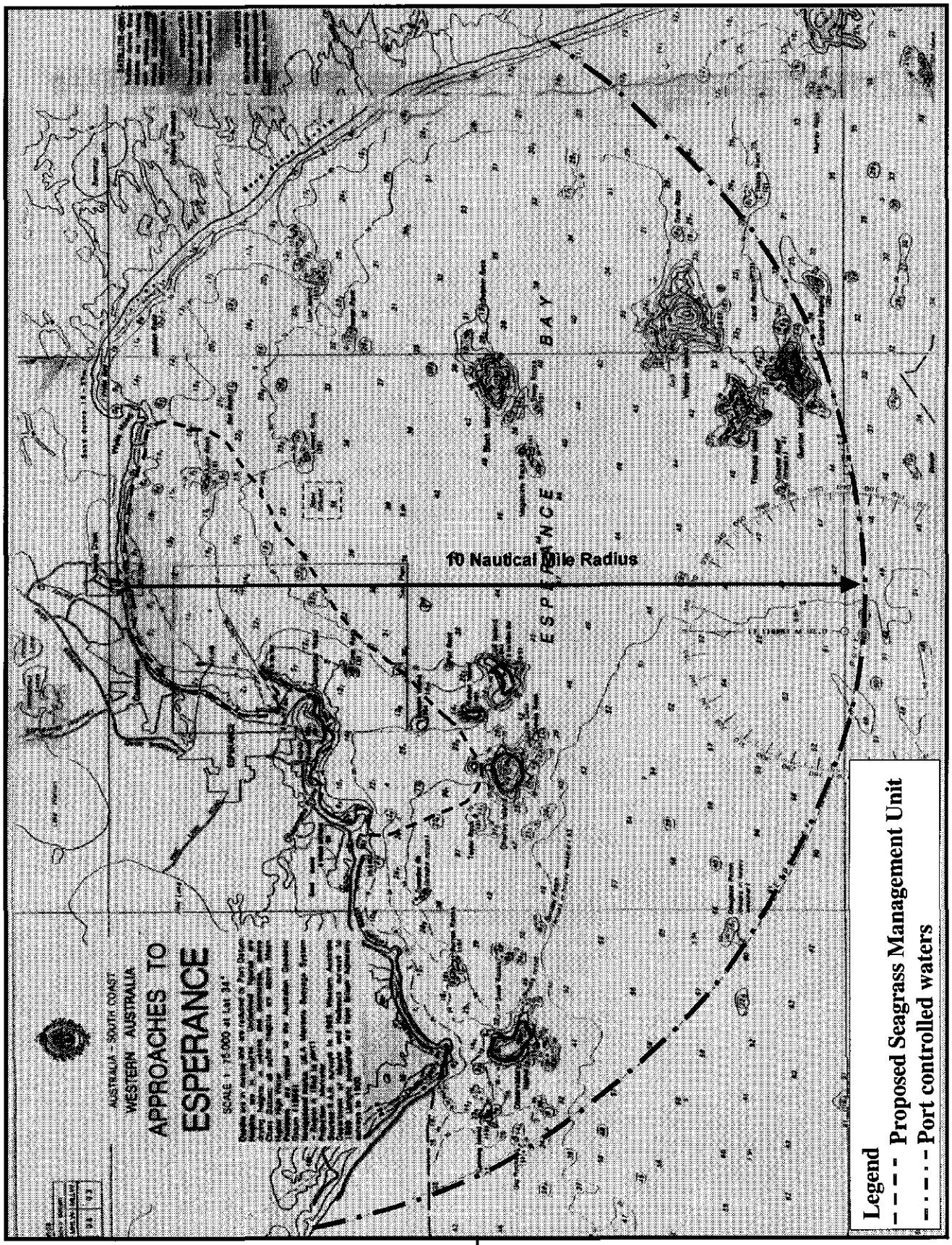


Figure 5. Proposed Seagrass Management Unit boundary (Courtesy of ERS, June 2000).

Q3.1.10. Draft DEP Guidance No. 22 requires that seagrass community impacts account for historical losses, not just those due to the upgrade proposal. This allows cumulative losses to be considered and this cumulative impact assessed. The Port Authority should present an argument in the context of total losses, including historic.

A3.1.10 The historical losses are associated essentially with the Port itself. There has been regrowth of seagrasses in areas where dredged material was deposited and on sides of the turning basin. The total percentage loss is less than 10%. The percentage needs to be kept in context of the total representative seagrass along the coastline.

Q3.1.11. The Port Authority should resubmit the impact assessment for seagrasses when the drawing figures have been re-scaled, allowing an accurate estimate of losses to be calculated.

A3.1.11.There is an accurate estimate of seagrass losses described in the PER:

> "*Minimal reduction in seagrass coverage within the current harbour and bordering seabed due to the proposed dredging activities. A potential 5 - 10 ha of seagrass loss in the reclamation area and adjacent 100m wide zone along and outside of the relocated breakwater*", and "*... 5 - 10 ha amounts to about 1-2% of the seagrass currently within Port-controlled waters ...*".

Although the scale of PER Figures 1.2 and 1.3 are not correct (refer A1.1.), the figures do not attempt to show seagrass losses. PER Figure 5.3 shows benthic habitats around the Port on a correct scale.

Q3.1.12. Will the Port Authority provide commitments to manage dredge plumes to protect seagrass within the harbour? Will the Port Authority also commit to managing reclamation to avoid impacts on benthic communities east of the current breakwater?

A3.1.12. Refer A3.1.4.

The Port Authority will commit to managing reclamation to avoid impacts on benthic communities east of the current breakwater, and will use management measures to improve the quality of reclamation water discharged back into the marine environment. For example, the containment bund walls for the reclamation area could be extended to split the area into sub-areas. This would create several smaller reclamation and silt settlement areas to allow for longer retention times in the reclamation area. Weir boxes and/or graded silt screens may be installed in the bunds to assist in the management of fines. The levels of fines in harbour sediments are very low and a good level of fines control should be possible. To minimise the potential for impacts from turbidity, the reclamation water may be piped from the reclamation area back to the bottom of the harbour basin. This would largely restrict potential impacts to a single site (the harbour basin). The rock revetment of the reclamation area will be lined with filter cloth to prevent material leaching from the reclamation area to the sea.

3.2 Coastal Processes and Littoral Drift

*Q3.2.1. In Section 6.1.2 the proponents argue, based on a number of studies, that the existing port breakwater and dredged channel captures **all** of the sand carried by the long shore drift into Esperance Bay. It is argued in the PER that the extension of the breakwater and increase in the size of the dredged basin cannot make the current situation any worse but there are no proposals to improve the existing level of impact. Beach erosion caused by the current Port operations is a serious problem for shoreline infrastructure and property in Esperance and the continual loss of beaches has a negative impact on the tourism industry. How does the Port propose to address this issue? Will the Port commit to maintaining an accessible beach along the relevant stretch of foreshore?*

At present the Esperance Port Authority takes responsibility for beach nourishment between Taylor St and the Tanker Jetty. However, given the admissions in the PER, the Port should take responsibility for maintaining the sand cycle throughout Esperance Bay. The role of the existing breakwater in trapping and holding offshore large quantities of algal/seagrass wrack is likely to have altered the inshore food chain in Esperance Bay and may have reduced recreational fishing values. The deflection of sea wrack offshore may increase with the lengthening of the breakwater.

Is the Port Authority willing to take full financial responsibility for the sand supply to Esperance Bay? Have any studies been undertaken to investigate the environmental impacts downstream from the Port and in the area affected by the interruption to littoral drift?

A3.2.1. The breakwater is being widened, not extended. Breakwater extension implies making it longer.

The Port Authority acknowledges that the Port has interrupted littoral sand drift.

PER Section 6.1.2 states that:

> "*the existing breakwater, breakwater groyne and dredged channel have interrupted the natural longshore movement of sand from west of Dempster Head into Esperance Bay*".

It was not the intension to create the impression that the existing port breakwater and dredged channel captures all of the sand carried by the long shore drift into Esperance Bay. Approximately 25,000 – 28,000m^3 of sand is captured by the current configuration annually.

The Port Authority will continue to work with the Shire of Esperance and other relevant agencies to address the existing beach erosion problems, and remains committed to maintaining the foreshore between Taylor Street and the Tanker Jetty. In February 2000, CoastCare organised a community forum in Esperance to discuss the management of the foreshore from the Port to Bandy Creek, including the problem of coastal erosion. The General Manager of the Port Authority participated in the discussions, and committed to using excess dredged material to re-nourish beaches between Taylor Street and the Tanker Jetty. A sub-committee was formed to summarise the findings of the forum and present it to the Shire of Esperance. The Port Authority is currently investigating a number of short, medium and long term coastal engineering solutions to the problem. The Port commits to maintaining the section of beach under its control (ie. between Taylor Street and the Tanker Jetty), and takes financial responsibility for sand supply to this area.

The Recreational Fisheries Advisory Committee of Esperance was consulted in assessing the potential impacts of the upgrade. No impacts on recreational fisheries due to the existing or proposed configuration were identified.

It is stated in the PER that the sea wrack offshore may be relocated with the widening of the breakwater:

"*The offshore extension of the breakwater groyne, together with the reclamation, may transfer the area of wrack accumulation offshore. If the wrack material persists in this area it may result in light limitation to the seabed and some seagrass loss in the area immediately offshore of the proposed reclamation area. It is expected that the seagrass loss will be minimal (Appendix D), but the 5 - 10 ha estimate assumes total loss to 100 m out from the relocated breakwater to be conservative*".

Numerous studies have been undertaken to investigate beach erosion experienced downstream from the Port and in Esperance Bay. For example:

- Connell Wagner Pty Ltd, 1999. *Port Study - Final Phase 3 Report for the Esperance Port Authority*, Spring Hill, Queensland, Australia;
- D.A. Lord & Associates Pty Ltd, 1999. *Esperance Harbour Redevelopment - Marine Environmental Studies*, Report No. 99/106/1, Nedlands, Western Australia;
- Gutteridge Haskins & Davey, 1999. *Esperance Foreshore Coastal Protection Works: Coastal Management Options*. Report prepared for the Shire of Esperance, Report Number 14533, May 1999;
- Connell Wagner Pty Ltd, 1998. *Port Study - Phase 2 for the Esperance Port Authority*, Spring Hill, Queensland, Australia;
- Connell Wagner Pty Ltd, 1997. *Port Study - Phase 1 for the Esperance Port Authority*, Spring Hill, Queensland, Australia;
- Hsu J.R.C. and Coyler C.J., 1996. *Headland Control for Esperance Beach Stabilisation*. Centre for Water Research;
- Hsu J.R.C., 1995. *A Review of Esperance Beach Stabilisation Report*. Centre for Water Research, Report No WP-1050-JH;
- Department of Transport, 1994. *Esperance Beach Stabilisation—Report on Coastal Erosion and Shore Protection Options*. Coastal Information and Engineering Services, Report No. DMH P19/93;
- Paul M.J., 1985. *Beach Erosion, Esperance Western Australia*. Marine & Harbours Engineering Division Report; and
- Public Works Department, 1978. *Esperance Beach Investigations—Report on Coastal Erosion and Possible Shore Protection Works*. Public Works Department of Western Australia, Harbours and Rivers Branch, Coastal Investigation Section, Report No: C.I.S. 78/2, October 1978.

Q3.2.2 *The possibility that the extended breakwater may alter the wave-climate in Esperance Bay needs to be monitored very closely and the present coastal monitoring needs to be upgraded. The existence of a coastal segment with a reversal in the direction of the long-shore drift indicates that the current oceanographic situation is complex and not sufficiently well understood.*

A3.2.2. D.A. Lord & Associates, in their report entitled *Esperance Harbour Redevelopment - Marine Environmental Studies* (Report No. 99/106/1) states that:

"*There is a small chance that the proposed works will affect the inshore wave climate and currents within the southern corner of Esperance Bay. These modifications to the inshore hydrodynamics may result in changes in the shoreline configuration. However, it is considered that these impacts will be small compared to the impacts arising from the construction of the existing breakwater*".

The Department of Transport (then the Public Works Department) undertook shoreline monitoring in Esperance from 1975 - 1993 (refer Department of Transport, 1994. *Esperance Beach Stabilisation—Report on Coastal Erosion and Shore Protection Options.* Coastal Information and Engineering Services, Report No. DMH P19/93; and Connell Wagner Pty Ltd, 1999. *Port Study - Phase 1 for the Esperance Port Authority,* Section 7.4, Spring Hill, Queensland, Australia). For results of this monitoring, refer PER Table 5.3.

The Port Authority will re-implement this monitoring program for the beach between Taylor Street and the Tanker Jetty (the section of beach for which it holds responsibility), and will take appropriate action when monitoring so indicates. Refer also to A3.2.1.

Q3.2.3. *Insufficient attention has been given to the impact of breakwater extension on hydrology, sand movement and displacement, nutrient cycling and associated ecological impacts in Esperance Bay. In particular, insufficient evidence of trophic relationships and downstream impacts on fisheries has been presented to allow assessment of impacts to be made.*

A3.2.3. The impacts of breakwater widening on the hydrology, sand movement, nutrient cycling and associated ecological impacts in Esperance Bay were assessed by reputable consultants with years of experience in marine assessment in Western Australia. They stated that it is unlikely that there will be significant impacts on any of these factors.

The strategic development plan developed by Connell Wagner indicates that the upgrade will not result in a significant change over and above what was created by the construction of the existing breakwater.

Refer also to A3.2.1, A3.2.2 and A3.2.5.

There is no significant commercial fisheries immediately downstream of the Port.

Q3.2.4. *Esperance Port Authority has entered into an agreement with CBH to dredge the port to a depth of 15 metres. This would allow Panamax Vessels to depart the port fully loaded with grain. The PER attempts to justify using the dredged material to reclaim 8ha of land to the southeast of the port. The dredged material should be used to repair the town beaches. In 1970 a similar amount of sand was dredged from the harbour and used for this purpose. As a result, the beaches were in excellent condition until very recently. The Port Authority entered into an agreement with the community to maintain these beaches in good condition; a commitment it has failed to honour in recent times. The Port Authority should have beach repair as its first priority and should commit all of this dredged material to the beaches.*

A3.2.4. It is proposed that ~15 ha of land (not 8 ha) is reclaimed.

The Port Authority views beach repair as a priority. The Port Authority has committed to a beach re-nourishment program using excess dredged material for beaches between Taylor Street and Tanker Jetty. The Port Authority has commission a study to determine the needed quantity of sand and best method for re-nourishing these beaches. For other strategies, refer to A3.2.1.

Q3.2.5. *Long shore littoral drift interception by the existing Port breakwater has been identified as the cause of beach erosion in the vicinity of Castletown Quays by a number of independent studies, as is stated in the review document. The review document does not address the Littoral Sand Drift in detail and makes the following statement on Page 86 of the review documents:-*

"The proposed harbour redevelopment is unlikely to further change littoral sand drift."

Due to the magnitude of the effects of beach erosion due to the interception of long shore littoral drift, can the Port Authority provide firm evidence that no impact will be caused by the proposed breakwater extension?

As a number of studies have been undertaken in Esperance on the foreshore erosion process, can the Port Authority provide additional supporting information regarding the impact of the development on littoral drift and assure the community that there is no risk of the existing erosion problem worsening? What contingency measures are proposed in the event of problems or unforeseeable impacts?

A3.2.5. The objective of the PER is to give a summary of the impact assessment findings of the marine consultants who investigated the impacts of the upgrade on littoral sand drift. Littoral sand drift is addressed in detail by the marine consultants (Refer D.A. Lord & Associates Pty Ltd, *Esperance Harbour Redevelopment - Marine Environmental Studies*, Report No. 99/106/1). The consultants have years of experience in the field of littoral sand drift, and concluded that the proposed extension of the breakwater groyne, widening of the breakwater, and deepening of the existing channel:

> "*... is unlikely to further effect longshore sediment transport into Esperance Bay*".

Nothing can be predicted with absolute certainty. Predictions are based on best current available information and the marine consultants' reputation and years of experience. Management measures to overcome the problem of beach erosion in Esperance Bay are being investigated (refer A3.2.1). Monitoring will also be undertaken (refer A3.2.2).

Q3.2.6. The spur groynes constructed at 90° to the breakwater have acted as a land bank for the Port Authority as intercepted sand accretes. Once the upgrade is complete and considering the breakwater and harbour channel primarily cause the beach erosion problems, it is reasonable to expect the Port to address the cause of the problem and bypass the required 28,000m³ per annum of sand to a point down drift of the port which will reduce beach erosion through material long shore drift and accretion as nature originally intended. The sand by-passing system should attempt to alleviate beach erosion problems south of the Tanker Jetty (ie, section currently managed by the Port Authority) as well as north of the Tanker Jetty (ie, section currently managed by Council).

Will the Esperance Port Authority provide an undertaking to investigate, design, cost and construct a sand bypassing system following completion of the proposed upgrade?

A3.2.6. Short, medium and long term solutions are being investigated by the Port Authority (refer A3.2.1).

The Port Authority remains committed to maintaining the foreshore between Taylor Street and the Tanker Jetty (refer A3.2.1).

Q3.2.7. The Port Authority intends to dredge approximately 1,500,000 cubic metres of sand from the harbour basin and berth areas to enable the expansion to occur. The Port Authority has verbally indicated that a portion of the dredged material will be pumped onto the eroded beach areas between the Port and the Tanker Jetty. The volume of sand which will be pumped to renourish this section of eroding beach should be quantified and should be sufficient to provide some protection to the existing sections of revetment mattress. Pressure exists on the Port Authority to utilise as much of the dredged material as possible to reclaim the proposed 15 hectares area of land on the east side of the Port. Additional information should be provided to quantify the approximate volume of dredged sand required to provide protection to the subject section of beach for a minimum of 10 years and ongoing protection measures which will be applied after that period by the Port Authority to minimise beach erosion.

A3.2.7. Refer A3.2.4.

For other strategies, refer to A3.2.1.

Q3.2.8. *The revetment wall in Esperance Bay has collapsed again. Each time it collapses, the beach is strewn with concrete. Will the Port commit to cleaning up this debris and putting in place a more permanent measure?*

A3.2.8. Noted. The Port Authority endeavours to keep the beach clear of debris. Work is delayed at times due to weather or tidal factors.

Q3.2.9. *Clean white sandy beaches are becoming covered in brown gravel. This gravel is used by the Port Authority to reduce wind erosion from stacks of sand used for renourishment. Could the Port Authority not use tarpaulins instead and avoid spoiling the beaches?*

A3.2.9. Noted. The use of gravel has been discontinued since the late 1980s. The Port welcomes direct communication from the community at any time on matters such as this so that, where appropriate, immediate corrective action may be initiated.

Q3.2.10. *The PER states that the reclamation also includes use of a sand apron to reduce the effects of erosion. The size and location of this has not been indicated. Can the Port Authority provide these details?*

A3.2.10 The proposed seawall relocation will involve placing a sand bar or apron up to a depth of minus 4 m along the alignment of the breakwater prior to placing the rock on top of the sandbar. The sand apron will serve as a base to the new breakwater. It is not linked to reduction of erosion on beaches in Esperance Bay.

Q3.2.11. *Some submissions have expressed a concern that the Port Authority has been operating without due regard of its broader commitments to the community and have queried why no action has been taken against them for the impacts on the foreshore beaches caused by the port infrastructure.*

A3.2.11. The erosion impacts on the foreshore beaches are an unfortunate, and at the time it was built unforseen, consequence of the existing Port configuration. The Port Authority has spent considerable sums of money dating back to 1969/70 to address the coastal erosion along The Esplanade. The Port Authority has committed to continue work to address the problem (refer A 3.2.1).

3.3 Introduction of Exotic Organisms

Q3.3.1. *Environmental commitment 7.2 from the Esperance Port Authority's 1993 CER (EPA Bulletin No. 701) was as follows:*

"The Port Authority will fund or participate in a survey of the toxic dinoflagellates (under the auspices of the Australian Quarantine Inspection Service) in the marine environment in the immediate vicinity one year of commissioning of the iron-ore export facility".

This "survey" consisted of four water samples submitted to the Australian Government Analytical Laboratories on 23 June 1994. Can the Port Authority justify how these incidental samples constitute a scientific survey?

A3.3.1. The 1994 survey was carried out by a recognised scientific agency under the guidance and recommendations of the University of Hobart, an academic institution recognised for its work on introduced organisms.

Q3.3.2. *Whilst introduced toxic dinoflagellates probably pose little risk in the currently open and oligotrophic waters of Esperance Bay, the issue here is that an environmental commitment was made which does not appear to have been adequately fulfilled. Current PER commitments by the Port Authority about active involvement in the CRIMP ballast water program are therefore viewed with scepticism. Can the Port Authority justify its position on the above and provide assurances that commitments will be honoured?*

A3.3.2. The Port Authority is committed to undertaking the survey of exotic organisms as the Department of Transport advised in January 2000 that, in future, ships will be penalised for visiting ports that have not undertaken baseline surveys of foreign species. The Port Authority considers the nationally co-ordinated CRIMP program is the most appropriate program for monitoring the introduction of exotic marine species (refer A3.1.1).

The Port's Environmental Management Plan (EMP) is currently being updated and will contain management actions to control the introduction of foreign species (refer A3.3.4). The Port Authority will continue to enforce the International Maritime Organisation's (IMO) Ballast Water Protocols, Australian Quarantine and Inspection Service (AQIS) ballast water guidelines, and the ban on in-water hull cleaning of ships in Port waters. The Port Authority will implement proposed National Control strategies (refer PER Section 5.2.11). The effectiveness of these management measures will be assessed through the marine survey that will be undertaken in conjunction with CRIMP.

The Port Authority's continued aim is to control the introduction of foreign species to the maximum extent possible so that there is no detectable change in the diversity of the local marine flora and fauna.

Q3.3.3. Existing and probable protocols on the discharge of ballast water are ineffective and unlikely to prevent the periodic translocation of exotic marine organisms into Port Authority waters. The rate of translocation will obviously be greater with the increase in ship movements and the wider variety of ports of origin. However the proponent has made no attempt to assess the magnitude of this increased risk for the PER. Why was a detailed risk assessment not done as part of the PER?

A3.3.3. The PER states that:

> "*The risk of introducing foreign species will increase ~20% initially, but will continue to be reduced by implementation of national and international control measures already under development*".

The Australian ballast water regulatory regime, soon to become mandatory, are internationally recognized as being at the forefront of ballast water monitoring and management. Increased ship movements will not by definition mean a wider variety of ports of origin.

The Port will fit in with the nationally co-ordinated CRIMP program.

Q3.3.4. Since translocation can be minimised but not prevented more emphasis needs to be placed on regular surveillance and rapid response following detection. The Consultative Committee on Introduced Marine Pest Emergencies has prepared a draft "Australian Emergency Marine Pest Management Plan". The proponent should be aware of its implications before finalising its environmental commitments, and include any appropriate recommendations in its Port EMP.

Will the Port Authority establish a regular programme of underwater marine surveillance to provide early detection of establishing exotic marine organisms?

A3.3.4. Any appropriate recommendations of the draft "Australian Emergency Marine Pest Management Plan" will be included in the Port's Environmental Management Plans and Emergency Response Plans.

The Port Authority will establish a regular programme of underwater marine surveillance to provide early detection of establishing exotic marine organisms.

Q3.3.5. *The continued enforcement of the International Maritime Organisation's Ballast Water Protocols and AQIS ballast water guidelines provide some confidence that the risk of introduction of pests, or foreign species to Esperance waters will be reduced. However, some concern is raised as to what distance from Esperance shores would be considered adequate to constitute 'open waters'?*

A3.3.5. The Esperance Port Authority expects that offshore discharge will occur in international waters, that is, 200 nautical miles, or more, offshore. The control of this matter falls under Australian Quarantine and Inspection Service (AQIS) responsibilities.

Q3.3.6. *Does the Esperance Port Authority keep a record of breaches of enforced protocols and guidelines in regards of contaminated ballast water? Are these made available to the DEP or other public agency?*

A3.3.6. The Port Authority keeps a record of breaches of enforced ballast water protocols and guidelines. AQIS is the agency responsible for monitoring the ballast water protocols.

4. POLLUTION MANAGEMENT FACTORS AND ISSUES

4.1 Marine Water and Sediment Quality

Q4.1.1. *The PER states on page 56:*

"sediment contaminant levels are generally well below screening levels recommended in the ANZECC 1998 guidelines...estimated as less than one percent of the material to be dredged."

The executive summary explains that the volume of sediments with elevated nickel and tributyl tin (TBT) concentrations represent less than 0.5% and 1% of the total volume to be dredged respectively and that such contamination is localised to existing Berths 1 and 2. This raises the question however of what methods of reduction will be implemented in the future with currently existing berths, and the future third berth, to reduce not only TBT and Nickel, but iron ore spillage levels as well?

A4.1.1. TBT in harbour sediments is due to flaking from ships' hulls. Use of TBT is being controlled internationally and nationally. The Internationally Maritime Organisation (IMO) has stated that the application of all antifoulings containing TBT should be banned throughout the world by January 2003, and that a complete ban on the presence of these products as antifoulings on ships' hulls should be in place by January 2008. Australian legislation prohibited the use of TBT on vessels shorter than 25m in length in 1991, and specifies the acceptable leaching rate of TBT from antifoulant paints on vessels longer than 25m. In addition, the Port Authority does not allow in-water hull cleaning which could cause TBT contamination if the ship's hull coating contains TBT. International and Australian researchers are currently developing alternatives to the use of TBT, but to date no commercially viable alternatives have been found.

There were nickel spillage incidents during loading operations in the 1980s and early 1990s as a result of relatively poor design on the original shiploader (the shiploader has been replaced). This is believed to have caused the elevated levels of nickel in harbour sediments. Strict house keeping practices for materials handling (of all trades) during loading operations at Berths 1 – 3 will be continued. The Port Authority's objective is to have no spillage incidents. The current DEP licence contains provisions on raw material spillage (refer A3.1.7).

The Harbour Sediment Survey undertaken in 1999 demonstrated that spillage control measures have been effective for all trades (barring nickel). Harbour sediments do not contain elevated levels of haematite. The new iron ore facilities will be state of the art, reducing the likelihood of iron ore spillages to the marine environment. Strict spill clean-up and house keeping practices will be continued (refer paragraph immediately above). The above mentioned DEP licence conditions on spillage will also be applied to the new iron ore operations.

Q4.1.2. *The impacts of water turbidity are not discussed. The PER states that 90% of the resuspended material will settle in 15-20 minutes but that the finer material will take days/weeks. What impact assessment of this has been undertaken?*

A4.1.2. The impacts of turbidity are discussed in detail in the PER (refer PER Sections 5.2.12 and 6.2.1). Also refer A3.1.4.

On contaminated harbour sediments, the PER states in Appendix C that:

> "*It is inferred that the high nickel levels are due to spillage of nickel concentrates during loading operations in which case the nickel is in the form of minerals as sulphides, and to a lessor extent oxides, and is therefore not expected to be readily available in seawater. Hence, nickel release is not considered an environmental issue during dredging operations. Similarly, TBT release into the water column during dredging operations is not considered an environmental concern: TBT adsorbs strongly to sediments, is not very soluble in water and, as noted above, the majority of the sediments disturbed during dredging will settle out within 15-20 minutes. The level of all other metals are so low as to be of negligible environmental concern*".

The impact assessment was undertaken by reputable marine consultants with years of experience in marine impacts.

Q4.1.3. *Has any consideration been given to the potential impact resulting from increased suspension of contaminated sediments due to the increased shipping?*

A4.1.3. Refer A 3.1.5.

There are no contaminated harbour sediments alongside Berth 3 to be potentially stirred up by increased shipping.

Most of the sediment alongside Berths 1 and 2 with elevated levels of TBT and nickel will be dredged and relocated to the proposed reclamation area. Little sediment with elevated levels of TBT and nickel will remain that can be stirred up by shipping.

Q4.1.4. *The PER states that "the volume of sediment which exceeds the recommended TBT screening level is estimated to be approximately 1% of the total dredging volume" (Appendix C, p iv). How did this conclusion arise given that all 22 sediment samples tested for TBT were above the screening level?*

A4.1.4. The Executive Summary of the report in PER Appendix C, on p iv, contains a typographical error whereby the word 'screening' should have been replaced by 'maximum' to reflect the more detailed findings in the rest of the report in Appendix C. The correct wording should have been: "The volume of sediment which exceeds the recommended TBT maximum level is estimated to be approximately 1% of the total dredging volume". All 22 sediment samples tested for TBT (including control samples taken outside the harbour area) exceeded the ANZECC 1998 tin screening level.

Note, the correct information is stated in the report in Appendix C on p 24:

> *"The volume of sediment which exceeds the recommended TBT maximum level is estimated as about 1% of the total dredging volume and, as noted above, the sediment is to be handled together and so the mean of all samples should be compared with the ANZECC guidelines. In this case the sediments would still exceed the ANZECC screening level, indicating a potential problem with spoil disposal at sea. However, the sediments are not to be disposed of at sea, and only small amounts of sediment would be suspended into the water column during the dredging process. Furthermore, TBT adsorbs strongly to sediments, is not very soluble in water and, as noted above, the majority of sediments disturbed during dredging will settle out within 15–20 minutes. Due to this combination of factors, TBT release into the water column during dredging operations is not considered an environmental concern".*

Dredged sediment will be contained in the reclamation area behind rock armour which will be lined with filter cloth to prevent material leaching from the reclamation area to the sea.

Reclamation fill material will be analysed for TBT and nickel to record the levels going into the reclamation area. If need be, operational monitoring will be undertaken to determine whether TBT and nickel leaching is occurring from the reclamation area.

Q4.1.5. Has the Dredging and Dredge Spoil Management Plan been developed yet? What measures are there for returned post dredging pump water?

A4.1.5. The Dredging and Reclamation Management Plan is in the process of being developed. It will be prepared by the successful dredging contractor.

For management of reclamation waters, refer A3.1.12.

Q4.1.6. It is of concern that the Port Authority and EPA are adopting environmental objectives and criteria defined in the Southern Metropolitan Coastal Waters Study (1996) and Perth Coastal Waters Environmental Values and Objectives (2000). This approach is more about allowing water quality standards to decline, or remain unsatisfactory, in certain zones and establishing areas demanded by industry.

In Cockburn Sound this approach serves to sanction the status quo. At Esperance, the port lies in close proximity to important public use, tourist and marine areas. The port only handles agricultural and mineral commodities and does not support heavy industry. There is therefore no justification for allowing water or sediment quality to decline below Level 2 (high) of Environmental Quality Objective 1 (Ecosystem Integrity). The adoption of zones that accommodate lower water quality are categorically opposed.

A4.1.6. The water quality in Esperance Bay is currently considered high (based on water clarity and the presence of extensive meadows of healthy seagrass in the area). It is the Port Authority's aim to maintain this.

Q4.1.7. Given the predicted increase in shipping movements, it is likely that TBT (and other contaminants) will increase over time in the sediments. Does the Port Authority intend to establish and implement a sediment monitoring program to, firstly, monitor levels of pollutants to determine trends in sediment levels resulting from increased operations and, secondly, provide a basis for disposal of maintenance dredge spoil in the future? Such a program will need to identify the potential contaminants of concern and appropriate management actions in the event of exceedance of established criteria, consistent with the principles in the Southern Metropolitan Coastal Waters Study and Perth's Coastal Waters – Environmental Values and Objectives.

A4.1.7. Refer A4.1.1.

A Harbour Sediment Survey was undertaken in 1999 which investigated levels of pollutants in harbour sediments (refer PER Appendix C). Given the results of the survey (after ~35 years of Port operation, only ~1% of the total volume to be dredged exceeded the ANZECC 1998 maximum criteria), ongoing sediment sampling is considered not warranted. However, the proposed Environmental Management Plan will include initial sediment sampling, and the frequency of and need for sampling will be tailored following review of results.

Q4.1.8. The Port should implement a water quality monitoring program to investigate trends resulting from increased operations to protect existing and approved uses likely to be impacted by the port operations, consistent with the principles in the Southern Metropolitan Coastal Waters Study and Perth's Coastal Waters – Environmental Values and Objectives.

A4.1.8. The impact assessment undertaken by reputable marine consultants concluded that there will be no additional impact on Esperance Bay water quality after the construction phase of the upgrade (there will be temporarily increased turbidity during dredging and land reclamation activities). A Dredging and Reclamation Management Plan will be used to manage and monitor the turbidity from dredging and reclamation.

In the PER, the Port Authority has committed to maintaining the high water quality of Esperance Bay:

> "*Maintain water quality within the inner harbour at an acceptable level so that it does not have an adverse impact on the marine environment or on the beneficial uses outside the inner harbour*".

4.2 Contamination

Dredge spoil

Q4.2.1. What is the Port intending to do about long term management of sediment quality given that increased shipping will most likely result in increased contamination?

A4.2.1. Within the existing harbour basin, shipping occurs in an area comprising mainly of bare sand due to previous dredging activities. For this reason, impacts on marine fauna and flora due to sediment quality will be limited.

The Harbour Sediment Survey indicated that, after ~35 years of Port operation, only ~1% of the total volume to be dredged exceeded the ANZECC 1998 maximum criteria. This is considered not to be a high percentage. The ANZECC guidelines were only exceeded for TBT and nickel. For management measures of TBT, nickel and other trades through the Port, refer A 4.1.1.

Q4.2.2. Is the Port Authority in a position to limit or ban ships painted with TBT? Does it intend to document ship movements, in terms of routings, ports of departure etc?

A4.2.2. Refer A4.1.1.

Existing procedures require the Port Authority to be advised of vessel movements.

Q4.2.3. What maintenance dredging is proposed in the future? Will the Port Authority commit to a specified management program for these types of activity?

A4.2.3. Presently, the Port requires little maintenance dredging (the last such dredging was in 1988). Maintenance dredging will depend on the rate of infill of sand in the harbour channel and basin but is not expected within the next 10 years. If maintenance dredging is undertaken, a management plan will be developed and implemented. It will be subject to a noise management plan if dredging activities falls outside the hours of 07h00 – 19h00 or on Sundays or Public Holidays.

Q4.2.4. *It is likely that 1% of the total volume of sediment to be dredged exceeds TBT maximum levels (as stated in Appendix C, p24). However, this ratio is a misleading method of describing dredged spoil suitability for use in land reclamation, because the suitability of the spoil depends on the average TBT concentration of the total spoil volume. This ratio gives no indication of average TBT concentrations in the dredge spoil.*

It is reasonable to suggest from the data presented that average TBT concentrations of the total dredged volume may exceed the ANZECC 1998 screening level by a factor of seven and be about half the ANZECC 1998 maximum level.

While these sediments are unsuitable for ocean disposal they may be suitable as landfill for industrial areas and port installations. The suggestion of their use as beach nourishment on the Esperance foreshore however is completely inappropriate given the toxic nature of TBT.

The Port Authority needs to provide a detailed analysis of dredge spoil suitability for the uses proposed to ensure that public health and safety is not compromised. Based on the above, an alternative means of disposal of excess dredge material is required.

A4.2.4. The expected average concentration of TBT in sediments to be dredged is ~0.024 mg/kg (the ANZECC 1998 TBT screening level is 0.005 mg/kg and the maximum level is 0.072 mg/kg).

On the suitability of the sediment to be dredged for land reclamation, Appendix C (p24) states that:

> *"... the sediments would still exceed the ANZECC screening level, indicating a potential problem with spoil disposal at sea. However, the sediments are not to be disposed of at sea, and only small amounts of sediment would be suspended into the water column during the dredging process. Furthermore, TBT adsorbs strongly to sediments, is not very soluble in water and, as noted above, the majority of sediments disturbed during dredging will settle out within 15–20 minutes. Due to this combination of factors, TBT release into the water column during dredging operations is not considered an environmental concern*".

Only clean sediments will be used for beach replenishment. Beach replenishment material will be tested for suitability for deposition on the beach.

Oil spill

Q4.2.5. *Does the Port Authority have sufficient resources to control an accident that pollutes the Bay? What are the spill response measures?*

A4.2.5. In the event of an oil spillage occurring, the Port has developed and implemented an oil spill management plan. The Port Authority has adopted the "National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances" as its fuel and oil spill contingency plan. The fuel and oil spill contingency plan is part of the emergency response plans for the Port. The national plan is supplemented by the Australian Industry Cooperative Oil Spill Arrangements ("AMOSPlan"). The plans make available expertise, supplies and large stockpiles of equipment to combat fuel and oil spills. The Port has a base stock of equipment to provide "first strike capacity" until further assistance is called in, if necessary, from national resources. The fuel and oil spill contingency plan is reviewed on a regular basis and will be specifically reviewed as a result of the proposed upgrade.

4.3 Noise

Construction

Q4.3.1. *Construction noise is expected to continue for two years, and include pile driving, earthmovers, dredgers and other plant equipment. Dredging will occur for 24 hours a day. What is proposed in the noise management plan that will be developed, as stated on p60 of the PER?*

A4.3.1. The noise management plan will state the required construction works, anticipated noisy activities, the planned timing, the predicted noise levels, and control measures. For example, control measures will include the following:

- using the quietest available construction equipment;
- for pile driving, restricting the hours of operation to daylight hours (07h00 – 19h00);
- requiring that the dredge operates at the noise levels indicated in the dredge contractor's tender; and
- monitoring noise levels, and where necessary, initiating remedial action such as altering earthmover operating times and routes.

Operations

Q4.3.2. *The supplementary noise report prepared by Environmental Risk Solutions indicates that the noise levels experienced by some residents in Esperance breach the Ministerial Conditions and the Environmental Protection (Noise) Regulations. The consultants then make the unsubstantiated statement that "existing noise levels associated with the iron-ore activities appear to be accepted by the community subject to the expectation of responsible noise management to minimise intrusive noise". Has the consultant considered what the likely response is going to be when iron ore operations double?*

The consultant's go on to indicate that the Port Authority will apply to have the noise standards varied (ie. reduced) under Regulation 17 of the Noise Regulations. The proposition that "both the present and proposed increase in noise levels are acceptable" should be put to Esperance house-holders in a independent survey. Will the Port Authority commit to undertaking an independent survey of Esperance residents to determine the extent to which they are prepared to tolerate excess noise?

This survey should form the basis of any decision to a) approve the port expansion and b) vary the noise levels allowable under the noise regulations. The increase in night time train movements is of particular concern. Will the Port stipulate a maximum number of trains that will enter and leave the port between the hours of 22.00 and 06.00 hours?

A4.3.2. The statement that existing noise levels associated with the iron-ore activities appear to be accepted by the community subject to the expectation of responsible noise management to minimise intrusive noise was taken from the following reference: Kenrac Consultancy Pty Ltd T/A Esperance Safety, *Noise Study – October 1999.* It was inferred that this position will remain unchanged subject to the provision that noise management to minimise intrusive noise is undertaken. Noise modelling was undertaken to quantify the extent of the noise impact due to the doubling of iron ore. A separate report was produced which presented the results (refer Environmental Risk Solutions Pty Ltd, Esperance Port Upgrade of Facilities, *Community Consultation – Noise Information*, 14 March 2000).

The Port Authority has made a Regulation 17 (Environmental Protection (Noise) Regulations 1997) application for a variation of the assigned noise levels applicable to the Port. It has also applied for a Section 46 (Environmental Protection Act 1986) amendment to the Minister's Conditions on noise. Information on the Regulation 17 and Section 46 applications, and on the total noise due to the Port Authority and CBH's upgrade, will be mailed out in May 2000 to everyone who received or requested a copy of the PER, to everyone who attended the Public Open Day, and to everyone who requested a copy of the supplementary noise report. The availability of the information will also be advertised in the Esperance Express and copies will be available at the Port Authority offices. The community will have a two week period in which to consider the information and submit comment to the EPA on the proposed variation.

For the number of trains enter and leave the port between the hours of 22h00 and 06h00 hours, refer A4.6.2.

Q4.3.3. A number of submissions categorically refute the notion that the community appear to accept existing noise levels. On what basis has the Port Authority made this assumption?

A4.3.3. The statement that existing noise levels associated with the iron-ore activities appear to be accepted by the community subject to the expectation of responsible noise management to minimise intrusive noise was taken from the following reference: Kenrac Consultancy Pty Ltd T/A Esperance Safety, *Noise Study – October 1999.* The Port Authority has received very few complaints relating to noise levels since the new locomotives commenced iron ore operations.

Q4.3.4. It is not logical that a non-complying premise can double throughput without subjecting the surrounding community to more unacceptable levels of noise when the existing operations do not comply with conditions and/or regulations, unless of course the community shifts.

The community is sceptical in regards of how the Port Authority intends to comply with any new conditions relating to noise, given their non-compliance to date and the doubling in throughput of iron-ore. There also appears to be no consideration of other port related activities and future expansion. What assurances can the Port Authority give that the Esperance community will not be subjected to ever increasing noise levels?

A4.3.4. An application has been made to vary the noise levels applicable to the Port. The community will be consulted for their views. Refer to A 4.3.2. In general, ports struggle to comply with the noise levels stipulated in the Environmental Protection (Noise) Regulations 1997. In Esperance, there is the added difficulty of a very limited buffer zone between the Port and residential areas because of planning decisions taken in the sixties. The Port Authority is attempting to overcome this problem by acquiring properties in close proximity to it to create a buffer. Refer PER Section 5.3.5.

Please refer to PER Table 6.1 for current and expected future trade through the Port. Only iron ore is expected to increase because of the upgrade. Noise associated with other trades will remain at current levels or decrease (eg. noise associated with CBH's operations because of the upgrade it has recently undertaken).

Future expansion will be driven by growth in agriculture and mining in the region. The Port Authority is a commercial enterprise with economic development as one of its objectives. The Minister for the Environment, as an independent decision-maker will balance the needs of the community and the Port Authority, taking into account local, regional and State pressures.

The Port Authority remains committed to achieving the intent of the ISO 14001 (an international standard used in environmental management) objective of continual improvement and to ongoing noise management.

Q4.3.5. *Following the 1993 CER the Minister for the Environment set noise limits conducive to the position of the port in the community. The community's position has not changed with houses still only 150m from the port boundary and the transport corridor running through the town. The centre of town is still less than 2km from the port.*

By its own admission, the Port has been unable to meet the ministerial conditions for noise since the iron ore trade commenced. Recommendation 7 in the Report and Recommendations of the EPA September 1993 included a provision to temporarily shut down the operation if noise limits set in recommendations were exceeded. It is a serious breach of this provision that a shut down has not occurred. It would be a flagrant violation of the public consultation process to permit port expansion when the EPA and the Minister are fully aware that the Port Authority cannot meet noise conditions suitable for a residential area. The proposed port upgrade should be rejected on noise grounds alone.

A4.3.5. An application has been made to vary the noise levels applicable to the Port. Refer to A4.3.2. The DEP is currently investigating setting more realistic noise standards for Ports because, in general, ports struggle to comply with the noise levels stipulated in the Environmental Protection (Noise) Regulations 1997. In Esperance there is the added difficulty of a limited buffer between the Port and residences. The Port Authority is attempting to overcome this problem (refer A4.3.4).

Q4.3.6. *A number of submissions have clearly stated that they would oppose any changes to existing Ministerial conditions. How does the Port Authority intend to ensure that any changes to existing conditions will not compromise existing environmental performance?*

A4.3.6. The Port Authority remains committed to achieving the intent of the ISO 14001 objective of continual improvement and to ongoing noise management.

The Minister's Conditions are not the only enforcement mechanism available to the government. The Environmental Protection (Noise) Regulations 1997, which came into force after the Minister's Conditions were set, applies to the Port. An application has been made to vary the noise levels applicable to the Port in terms of the Environmental Protection (Noise) Regulations 1997 (refer to A4.3.2). The Noise Regulations are administered and enforced by the DEP.

Q4.3.7. *How does the port propose to mitigate noise impacts? What precise measures are available to reduce noise levels? Has screening been considered?*

A4.3.7. The Port Authority has implemented, and continues to try to achieve, best practice with regard to noise control. As part of the proposed Port upgrade, work will be undertaken to reduce noise from a number of sources, for example:

- all conveyors and transfer points will be enclosed;
- iron ore will be hauled mostly by Q Class locomotives which are the newest and quietest locomotives available and which are quieter than the L Class locomotives previously used for iron ore railing; and
- a buffer zone is being created around the Port (a number of residences and vacant blocks have been acquired in close proximity to the Port. The effectiveness of this buffer will be established with future noise monitoring programs).

For a more extensive list of noise controls, refer PER Table E.2 - Noise and PER Section 6.3.4.

A detailed noise study investigating noise sources and further noise controls is planned for the future. The Port Authority views noise as an issue requiring continual improvement and on-going management.

4.4 Air

Particulates/dust from operation

Q4.4.1. *Examination of the dust monitoring reports prepared by the Esperance Port Authority reveals that in 1995 the method of sampling fugitive dust, and in particular haematite from the iron-ore product, was changed from AS 1668.2 (1991) to AS 3580 (10.1.1991). These changes were apparently effected to fulfil the requirements of Clause A.14b of Environmental Protection Licence No. 5099.*

Prior to the 1995 change over, haematite levels were measured as micrograms per cubic metre per day by a high volume dust sampler. Later results were measured as milligrams per square metre per month using an undisclosed method. No attempt was made to preserve continuity by cross calibrating the two methods and this raises serious problems with interpretation of the results.

Furthermore, the 1995 dust monitoring report suggests that haematite dust levels above 1 microgram per cubic metre per day correlated with complaints from the local community. This level might have been used as a trigger point on the " no visible dust" Ministerial Condition (3.1). Unfortunately the change in monitoring method and measurement units makes it impossible to apply to the later monitoring. Haematite dust levels certainly did increase in Esperance after iron-ore loading commenced and relatively high values continue to be detected at 3 stations outside the Port Authority area. Unfortunately in the absence of trigger values that relate to the Ministerial Condition it is impossible to determine the extent to which the Port Authority has been in compliance. On this basis it is considered that there should be no approval to expand the iron-ore operations until these trigger-point dust levels are set for the monitoring data. Does the Port intend to adopt any criteria, and if so, on whose advice?

A4.4.1. The dust sampling method was changed from AS 1668.2 (1991) to AS 3580 (10.1.1991) on request of the DEP. The sampling method used in dust gauge sampling is that stated in AS 3580 (10.1.1991).

Information that was gained from the High Volume air sampling was that in general Total Suspended Particulates (TSP) was ~30 micrograms per cubic metre per day. The "highs" tended to be ~70 - 80 micrograms per cubic metre per day. The National Health and Medical Research Council (NH&MRC) guideline is 90 micrograms per cubic metre per day (geometric mean) and 260 micrograms per cubic metre per day (24 hour max).

The High Volume air sampling was discontinued because no worthwhile long term data was being obtained from which trends could be established. This was mainly because the higher TSP values were due to "other than Port activities". The TSP levels varied considerably and were not conclusive for interpretation. The process was also cumbersome and noisy.

Dust gauge sampling gives a reference to actual surface deposit rates, and was considered a better reference for long term trends. The decision was considered appropriate given that TSP levels were below NH&MRC guideline levels.

No requirement existed at the time to cross calibrate the methods and measurement units of AS 1668.2 (1991) and AS 3580 (10.1.1991). What remains to be determined is whether iron ore dust deposition levels remains the same after the proposed upgrade compared to existing data.

In the absence of available guideline values on haematite dust, the "trigger value" of 1 micrograms per cubic metre per day was decided upon to assess the effectiveness of the dust control measures at the Port. A subjective assessment was made of when dust was visible at the shiploader at the Port. The "trigger value" relates to dust being seen at the Port, and not to evidence of dust at residences.

Trigger values for haematite dust monitoring data will be established for the upgraded Port facilities. It will be based on a similar subjective assessment of visible dust at the Port. This is viewed as a conservative measure which will identify dust emission problem before it has the potential to affect residences.

Q4.4.2. *Ministerial Condition 3.3 of Statement 325 required that:*

"Prior to commissioning the iron-ore facility, the proponent shall prepare and implement a research program designed to establish the quantity of iron-ore particles which would cause observable discolouration of Esperance Beach Sand".

Apparently, a decision was made, following a preliminary investigation, that it was not worth pursuing this condition. On what basis was this decision made, allowing the Port Authority not to comply with one of the conditions of environmental approval previously issued? Would this work not have established "trigger" criteria to assist port operations management?

A4.4.2. In discussions with the DEP, it was agreed that it was difficult to analytically assess sand in terms of it being affected by iron ore dust from Port operations. Analytical testing would be restricted to iron levels as opposed to haematite levels. It is difficult to establish "trigger criteria" for visual discolouration of beaches as trigger criteria would be based on iron levels in the sand. Beach sand around Esperance contains varying and fluctuating levels of naturally occurring iron. An increase in iron levels in the sand could be due to factors other than the iron ore operations at the Port.

Beach sand samples were taken prior to the commencement of the iron ore operations in 1993. The samples include deliberately contaminated sand samples at various concentrations of haematite. The samples have been retained.

Since 1993, a visual inspection program of haematite dust on beaches, property and vegetation have been undertaken by Kenrac Consultancy T/A Esperance Health and Safety. Monitoring of this kind was found to be sufficient, and to date, no visible discolouration of beaches have been detected.

Q4.4.3. *Will the Port Authority provide a commitment to develop and establish dust monitoring values for haematite which will correlate with any condition requiring no visible iron-ore dust on surfaces or beaches outside the port area?*

A4.4.3. On the difficulty of establishing "trigger values" for discolouration of beaches, refer A4.4.2. Data from dust gauge sampling currently being undertaken is also used to assess surface and beach discolouration. In the absence of available guideline values on haematite dust, the current dust gauge data levels are being used as a reference level. Increasing trends can be monitored from the six monthly dust monitoring reports provided to the DEP.

Q4.4.4. *A number of factors in the Port upgrade proposal increase the risk of impact from fugitive dust. These include the large increase in iron ore product being handled, the probable handling of sulphur, the location of the new and largest iron-ore shed in a much more exposed position and the very exposed position of the third berth. The PER states that dust control at the new facilities will basically extend or replicate current dust control measures. However the third berth ship-loader, additional conveyors, transfer points and storage shed will be much more exposed to the strong south-easterly winds which will take the dust over Esperance in the spring and summer months. Early problems and non-compliance with the existing iron-ore loading operations were associated with the original ship-loader. Berth 3 lies beyond the protection of the headland and is completely open to the south-easterlies. Remedial measures taken at the other berths may not be sufficient to ensure compliance with dust emissions from the new berth.*

What assurances can the Port Authority give that dust control will not be compromised by the upgrade? This is a critical issue as the additional iron-ore storage shed is upwind from the CBH storage facility under prevailing south-easterly conditions. This increases the potential risk for contamination of the CBH product.

A4.4.4. The Port Authority has 7 years experience in managing and controlling dust associated with iron ore operations. The Port Authority is confident that it will be able to deliver a system that not only matches but improves present dust controls. The increased quantities of iron ore that will be handled through the Port will be stored in the proposed new iron ore shed. There will be no open stockpiles, and the iron ore will not be exposed to the wind. DEP Licence No 5099/4 requires that both doors of the existing iron ore shed are not open at the same time. This requirement will also be applied to the new shed. The new iron ore shed will be kept under negative pressure. Approved dust extractors will be operated and maintained on the iron shed at all times during stockpiling or load out operations.

The conveyor system from the iron ore unloading point (from the train) to the ship loader discharge chute will be fully enclosed so iron ore will not be subject to wind whipping. Conveyor spillage will be collected within the closed system. Dust extraction/collection equipment will be installed at every point where there is change in the direction (vertical or horizontal) of the flow of the iron ore. Iron ore ship loading at Berth 3 will use a discharge chute located at or below the hatch combing, and a water-spray ring at the end of the discharge chute will be operated to suppress dust generation.

Maintenance and housekeeping practices will be employed to control spillage, and to ensure that there is no accumulation of waste or raw materials in or around the premises which may lead to the generation of airborne dust. The Port Authority will continue to monitor dust deposition levels during iron ore operations. If dust levels associated with the additional iron ore operations are found to be unacceptable, additional dust management measures will be initiated.

Environment Australia currently uses the Port as a teaching example for dust management in its "Best Practice Environmental Management" module. The Port Authority is committed to maintaining its reputation for dust control.

Sulphur importation is not part of the present proposal. Refer A1.9.

CBH product is not at risk from the proposed upgrade.

Q4.4.5. Potential for increasing pollution of the environment (natural and human) with airborne pollutants, particularly mining dusts, is of particular concern. It is not clear that the Port Authority has demonstrated it has met Ministerial Conditions in the past, and can do so in the future. It is essential that Ministerial Conditions, monitoring and compliance triggers are measurable and comparable. This is not evident in the PER.

A4.4.5. Ministerial Statement 325 states that the Port Authority should ensure that iron ore dust does not significantly impact on other Port operations or on the Port's surroundings. A 1997 study by ERM Mitchell McCotter states that the level of dust emissions in Esperance from Port-related iron ore and nickel activities is minimal (refer ERM Mitchell McCotter, 1997. *Esperance Service Corridor Town Planning Scheme and Industrial Park Location Study*, Perth, Western Australia). Dust-monitoring studies undertaken by several different agencies indicate that there is no detectable dust arising from iron ore rail transportation (ERM Mitchell McCotter, 1997. *Esperance Service Corridor Town Planning Scheme and Industrial Park Location Study*). A 1999 report by Dames & Moore (refer Dames & Moore Pty Ltd, 1999. *Kwinana Export Facility: Consultative Environmental Review,* East Perth, Western Australia) states that:

> "... *measures which have been implemented at Esperance are considered to represent 'state of the art' technology and have been included as a case study in Environment Australia's 'Best Practice Environmental Management in Mining Module' for Dust Management*".

The report also states that:

> "... *monitoring at Esperance has shown that the dust management measures are extremely efficient at minimising dust emissions*".

The DEP Licence No. 5099/4 requires that dust sampling is undertaken on a three monthly basis, and that a six monthly dust monitoring report is provided to the DEP. The DEP licence also requires the keeping of an Air Pollution Control Log which is accessible at all times by an Inspector of the DEP. Intermittent site visits and inspections are conducted by the DEP, Goldfields Region Office.

Q4.4.6. Whilst the lack of specific standards for the measurement of haematite dust in WA is acknowledged, the Port Authority is encouraged to continue and develop dust control criteria and testing methods to determine trends. These results should be made available to the relevant officers at DEP and the Shire Council.

A4.4.6. Agreed and already effected. The PER states that:

> "*Whilst there are no specific standards in WA for deposited dust or haematite, the results from the deposit dust gauges may be used to show trends in dust levels and assess the effectiveness of dust control equipment (refer Figure 5.5)*".

Three monthly dust sampling is undertaken, and six monthly dust monitoring reports are produced. Results are made available to the DEP and to the Shire of Esperance. Refer A4.4.5.

The Port Authority remains committed to achieving the intent of the ISO 14001 objective of continual improvement and to ongoing noise management.

Q4.4.7. If fugitive dust levels are found to be above 1999 levels, indicating a potential problem, what mitigative measures can be put in place to prevent any adverse impact? Is the Port Authority prepared to back these measures up with commitments?

A4.4.7. The Port Authority will continue to monitor dust deposition levels during iron ore operations. The monitoring results will be compared to the 1999 dust data to identify any significant changes in total iron ore dust levels and the quantity of iron ore in the samples. If dust levels associated with the additional iron ore operations are found to be unacceptable, additional dust management measures will be initiated. The Port Authority is committed to maintaining its reputation for dust control as a responsible corporate citizen.

Q4.4.8. What evidence can the Port provide that it is complying with regulations, conditions, bylaws or other regulatory mechanisms in regards to managing emissions from plant equipment operating in the port?

A4.4.8. Refer A1.5.

Q4.4.9. What evidence can the Port provide that it is complying with regulations, conditions, bylaws or other regulatory mechanisms in regards to managing airborne particulate or gaseous emissions from stockpiles on its premises?

A4.4.9. Iron ore stockpiles are stored in sheds which are kept under negative pressure. Refer A 4.4.4.

Refer A1.5.

Q4.4.10. The PER states "In 1997, ERM Mitchell McCotter stated that the level of dust emissions in Esperance from Port related iron ore activities is minimal". Is this statement backed up by data and if so what data?

A4.4.10. The statement is based on Hi Volume Dust Collection data and dust gauge data. Refer to Section 5.2 in ERM Mitchell McCotter, 1997. *Esperance Service Corridor Town Planning Scheme and Industrial Park Location Study*, Perth, Western Australia, where it is stated that:

"Since iron ore export began in Esperance, air monitoring has been carried out for the Esperance Port Authority ... Three high volume air samplers located around the Port and within the townsite have taken over 200 samples during this time ... These samplers measure Total Suspended Particulates (TSP). TSP data indicates that during the sampling period a geometric mean of 30 µg/m^3 for any 24 hour period can be expected. A level of 100 µg/m^3 has been exceeded only on a few occasions. This can be compared to the quality guidelines of 90 µg/m^3 geometric mean (NHMRC) and 260 µg/m^3 24 hour maximum (USEPA) ... In addition to the high volume air samplers, there are six dust gauges which are moved around the port and townsite on a monthly basis. These dust gauges are used to measure amounts of nickel and haematite and are positioned where dust problems are most likely ... extensive dust monitoring has indicated undetectable levels of haematite within the townsite ... A dust monitoring study was commissioned by Westrail at Sims Street rail crossing between January 1995 and January 1996. This report found "...[the] iron levels [were] substantially natural and [were] not due to any significant rail transport iron ore dust fallout. If any dust is escaping at the Sims Street location then there has been no impact ... An earlier study in 1994 suggested that "increases in dust levels are due to factors other than the introduction of iron laden dust into the environment" (Yorke Environmental Consultants, 1995)".

Also refer to the six monthly dust monitoring reports provided to the DEP for dust monitoring data.

Q4.4.11. The PER states "In 1999, Dames and Moore stated that iron ore deposition levels around Esperance are well below the NSW air quality standards". These standards are generally not used by the DEP for assessment. Ambient standards, such as NEPM for Ambient Air Quality, are considered to be the most appropriate for WA.

A4.4.11. Noted.

The DEP does not have any formal ambient standards for dust deposition (Dames & Moore Pty Ltd, 1999, *Kwinana Export Facility: Consultative Environmental Review.* Level 3, Hyatt Centre, 20 Terrace Road, East Perth, Western Australia). The NSW EPA utilise a standard which is one of the lowest in the world (Dames & Moore Pty Ltd, 1999, *Kwinana Export Facility: Consultative Environmental Review*).

Q4.4.12. Will all the iron ore conveyor systems be fully enclosed?

A4.4.12. All conveyers will be enclosed.

Q4.4.13. Will the Port Authority provide a commitment to install extraction/collection equipment wherever appropriate and as required by Works Approval, rather than only at points where there is a change in direction?

A4.4.13. The Port Authority commits to installing extraction/collection equipment wherever appropriate and as required by Works Approval.

Q4.4.14. Will the Port Authority provide a commitment that will ensure that remedial action is undertaken if required to mitigate dust generation to the satisfaction of the DEP?

A4.4.14. The Port Authority commits to undertaking remedial action to mitigate dust generation if required, and will do so to the satisfaction of the DEP.

Q4.4.15. Can the Port Authority provide an outline of the visual inspection program identified and detail likely measures that could be taken to rectify any potential problems?

A4.4.15. Refer A4.4.2.

The Port Authority believes that prevention is better than cure and it's aim is to control dust emissions so that there is no discolouration of beaches, property or vegetation.

Q4.4.16. As the Port expands, the issue of cumulative impacts on air quality will become increasingly more important. Has the Port considered how this issue can be managed, both in terms of the upgrade and any future expansion?

A4.4.16. Impacts on air quality due to the proposed upgrade was assessed in the PER (refer PER Section 6.2.5; and above A4.4.4). Should a proposal for further expansion become a reality, it will be referred to the EPA for determination of a level of assessment under the Environmental Protection Act 1986. Such assessment will consider the added impacts on air quality due to the proposal.

Q4.4.17. Although it is not expected, what measures will be taken if large amounts of dust are generated from construction activities?

A4.4.17. Dust levels during all construction activities will be monitored by the contractor and the Port Authority and, where necessary, remedial action, such as watering, altering truck routes, or ceasing work in exceptionally windy periods, will be undertaken to minimise dust generation. The Port Authority will require contractors to undertake routine maintenance practices to ensure that there is no accumulation of waste materials in or around the construction site which may lead to the generation of dust from the Port.

Q4.4.18. What evidence can the Port Authority provide that demonstrates that dust from train wagons is not problematic for Esperance? Is it likely to cause problems for other towns on route from Koolyanobbing? Would best practice management not call for crusting agents or covered wagons? Before the proponent dismisses these concerns, it should be pointed out that these were issues raised in the assessment of iron ore handling through Kwinana.

A4.4.18. To date, dust-monitoring studies undertaken by several different agencies indicate that there is no detectable dust in Esperance arising from iron ore rail transportation (ERM Mitchell McCotter, 1997. *Esperance Service Corridor Town Planning Scheme and Industrial Park Location Study*, Perth, Western Australia). The iron ore train travels through Esperance at low speeds of 20 - 30 km/h. This reduces the potential for dust emissions. Empty iron ore rail cars returning to the mine site have dust retained in the empty wagons, and a rail car water spray system has been installed over the rail line. This system is operated, when necessary, to minimise the generation of dust from empty ore wagons leaving Esperance.

It is not likely to cause problems for other towns on route from Koolyanobbing mine site. The PER states that:

> "*Iron ore is currently transported from Koolyanobbing through Norseman to Esperance ... The iron ore trains have open rail wagons...Loose dust in the rail wagons will be blown off the wagons in the first few km after leaving Koolyanobbing and will not pose a dust problem when the train reaches Esperance ... The Shire of Esperance, the DEP (Kalgoorlie) and the Shire of Dundas (including the town of Norseman) received no dust complaints in 1997 - 1999 as a result of the iron ore transport operations (Ref. 9). Prior to this time, only one complaint was received regarding dust along the rail line*".

Rail operations outside of the Port are covered by an Environmental Management Plan prepared by Westrail. This EMP will be reviewed and updated through the process of environmental approvals for the Port upgrade.

Q4.4.19. How are dust monitoring locations chosen? Is the Port Authority looking specifically at issues related to visual deposition? If so, how is this being developed?

A4.4.19. Dust monitoring locations are based on a selection of vulnerable sites around the perimeter of the Port, requests from private residences, and control points.

The Port Authority have undertaken a visual inspection program of haematite dust on beaches, property and vegetation since 1993. Refer A 4.4.2. The Port Authority acts immediately on a complaint being received by itself or the Shire of Esperance, and sends out its Health and Safety representative to investigate the matter.

Q4.4.20. Do the current dust suppression measures use groundwater? If so, would it not be a more efficient use of this resource to use waste/recycled water?

A4.4.20. Noted. The Port Authority is evaluating the use of rainwater collected from the roof of storage sheds.

Q4.4.21. Correspondence between the DEP and Esperance Port Authority dated 2nd February 2000 in regards of dust gauge monitoring suggested a trend towards elevated levels of nickel and haematite with corresponding increases in tonnage. This raised the concern that existing dust control measures were not adequate.

In the context of the upgrade, this raises an additional concern that a doubling of throughput of iron ore will put further pressure on the existing systems, particularly given that some components of the iron ore handling operation are not being upgraded (ie the train offloading).

Has this issue been resolved with the Goldfields Regional Office? What assurances can the Port Authority give to ensure that dust control will remain satisfactory?

A4.4.21. The Port Authority is conscious of the potential for increased dust emissions. State of the art equipment will be constructed and additional dust control measures will be developed to handle the proposed increase in iron ore tonnages. Dust control measures will include increased house keeping, maintenance, staff and routine checks. Refer A4.4.4.

The Port Authority will continue to adhere to DEP licence conditions. In the PER, the Port Authority has committed to minimising dust during construction, maintaining the amenity of nearby land users, and meeting agreed DEP dust control criteria and licence criteria.

Ongoing liaison on dust controls will be maintained with the Goldfields Regional Office.

Q4.4.22. Given the pattern and duration of wind in Esperance, would it not be more appropriate to install high volume samplers to monitor trends in total dust emission? It is acknowledged that deposit gauges will pick up settled dust in the immediate vicinity of the port. There should also be a requirement however to monitor general trends to pre-empt other problems well in advance of them becoming visibly evident. Would the Port Authority commit to the installation of high volume samplers if deemed appropriate?

A4.4.22. The High Volume air sampling was discontinued because no worthwhile long term data was being obtained from which trends could be established. This was mainly because the higher Total Suspended Particulates (TSP) values being recorded were due to "other than Port activities". The TSP levels varied considerably and were not conclusive for interpretation. The process was also cumbersome and noisy. Dust gauge sampling gives a reference to actual surface deposit rates, a better assessment of haematite levels, and is considered a better reference for long term trends. The decision was made in consultation with the DEP.

Dust monitoring requirements will be reviewed and updated as appropriate to ensure that the increased iron ore throughput will not pose any increased risk of offsite impacts.

4.5 Light

Q4.5.1. What specific design features will be incorporated to reduce light overspill? As this is largely a subjective issue, will the Port Authority seek public input into the final design?

A4.5.1. Lighting impacts will be addressed through appropriate lighting design in order to minimise light overspill. Specifically, light spill will be minimised due to the inherent design consideration of maximizing light levels in the areas where it is required. Should light spill affect residences consideration will be given to providing lighting shrouds to the specific lights causing the problem. Lighting will however need to be of a standard that allows safe working at night when vessels are alongside the docks. The Port Authority does not intend to seek public input into the final design of the lighting.

4.6 Traffic

Q4.6.1. Train movements and truck braking at the entry of the Port have been the subject of several complaints, hence the findings of the noise monitoring survey. Has the Port Authority considered undertaking a detailed study of the potential for reduction of this noise source?

A4.6.1. During the public consultation undertaken in 1999 there was specific concern raised with regard to noise from trucks at the entry of the Port. The present proposal will result in the railing of increased tonnages of iron ore through the Port. Traffic associated with other primary trades through the Port is expected to remain at current levels. The Port Authority is considering further measures to address community concerns on noise from the trucking of fertilizer and grain. A study commissioned jointly by the Shire of Esperance and the Port Authority in 1997, amongst other things, on the transport corridor through Esperance came up with a number of recommendations on how to improve the traffic flow at the entrance to the Port (refer ERM Mitchell McCotter, 1997. *Esperance Service Corridor Town Planning Scheme and Industrial Park Location Study*, Perth, Western Australia). The Port Authority has since commenced working with interested parties to come up with an acceptable solution.

Q4.6.2. The port access road and railway line run through residential areas. Noise pollution across town and the West Beach is already a problem. What assurances can the Port provide that this problem will not be exacerbated by the upgrade and proposed increase in iron ore throughput?

A4.6.2. The upgrade will result in the railing of increased tonnages of iron ore through the Port. Traffic associated with other primary trades through the Port is expected to remain at current levels.

The 1997 ERM Mitchell McCotter study (refer A4.6.1) makes a number of recommendations on how to reduce the impact of transport operations on residential areas adjacent to the transport corridor. The Port will continue to work with the Shire of Esperance on the implementation of the recommendations.

Management measures of rail noise include the following:

- iron ore will continue to be hauled by Q Class locomotives which are the newest and quietest locomotives available (they are much quieter than the L Class locomotives previously used for iron ore railing);
- possible management measures of the "explosive" noise along the Wegner Drive area that empty rail wagons sometimes make when the train slows at the Pink Lake Road crossing, include the train commencing slow down 200 m before the Pink Lake Road crossing so that the noise occurs in the "cut away" section of the railway line where the noise will be muffled, and the train proceeding to the station at a steady speed;
- possible management measures to reduce the noise impact from the sounding of warning horns at rail crossings nearby the Port (Pink Lake Road, Smith Street and The Esplanade), include requiring one small horn burst whenever safe and practicable, the train leaving the station slowly as visibility is good at Pink Lake Road crossing, and the train slowing significantly at The Esplanade crossing; and
- possible management measures to reduce railway line/wheel screech reduction, include modifying the railway track or using new wheels.

The practicality of these measures will be investigated during discussions between the Port Authority and Westrail. The Port Authority will liaise with Westrail to establish an agreed code of conduct for iron ore train drivers.

Q4.6.3. *Can the Port provide an assurance that the number of night time trains (22h00-06h00) will not increase from those serving the current operations? If so, will the Port commit to limiting these activities to a specified number per month in consultation with affected community members or enter into negotiation to implement noise reduction, at the Ports expense?*

A4.6.3. Currently the only trains scheduled to arrive at the Port between 22h00 and 06h00 hrs are nickel concentrate trains. These trains are scheduled to arrive in the Port at 01h00 on Sunday mornings and 01h00 hours on Tuesday mornings. Occasionally when trains are used to transport grain from Salmon Gums and Grass Patch the trains are scheduled to arrive in the evening. Iron ore trains will as far as practicable continue to be scheduled to arrive and depart outside the hours of 22h00 and 06h00.

Rail operations outside of the Port are covered by an Environmental Management Plan prepared by Westrail. This EMP will be reviewed and updated through the process of environmental approvals for the Port upgrade.

5. SOCIAL FACTORS AND ISSUES

5.1 Visual amenity

Q5.1.1. The proponents argue that the selected design of the berth 3 ship-loader/conveyor system reduces the visual impact when compared with their existing facilities. Given that more infrastructure will be present, berth 3 and its ship-loader can only further reduce the visual amenity of Esperance Bay and reduce the areas reputation as a scenic tourist destination. Can the Port provide assurances that effective measures will be implemented to reduce the visual impact?

A5.1.1. The Port Authority has committed to minimising the adverse visual impacts of the upgrade and maintaining acceptable visual impacts (refer PER Table E.3). It has also committed to using a bulk ore shiploader and conveyor system with the least visual impact (refer PER Table E.3).

Q5.1.2. Visual pollution due to the proposed expansion is of concern. Despite assertions to the contrary, it is believed that the visual impact of the expanded facility will have an overall negative impact on visual amenity. This will impact directly on the local community and could adversely influence the developing tourism potential of Esperance (in addition to the impact of having a reputation as an industrial port city). Visual issues not only include the structural components of the port, but also the visual state of beaches.

Is the Port prepared to discuss these issues in an open forum?

A5.1.2. Development pressures exist on the Port Authority to undertake the proposed upgrade (refer A1.6). The stated third berth and associated shiploader, conveying and handling equipment are necessary parts of the upgrade. The Port Authority is committed to minimising the adverse visual impacts of the upgrade and to using equipment with the least visual impact (refer PER Table E.3). Equipment with the least visual impact has already been selected. Technically it is not possible to make the visual impacts of the "least visible" option even less. PER Figures 6.3 and 6.4 show the alternative designs that were considered.

Since 1993, a visual inspection program of possible haematite dust on beaches, property and vegetation have been undertaken. No visible discolouration of beaches have been detected. The monitoring will be continued in future.

Q5.1.3. The models shown in the PER of the No.3 berth being occupied are misleading. A Cape Class ship and loaders will be much larger in reality than as demonstrated in the artist impression (see attachment 1).

A5.1.3. The PER shows an impression of a loaded Cape Class vessels (refer PER Figure 6.3). The vessel depicted is a photo enhancement of an actual vessel (a Panamax Class vessel loaded with iron ore) departing the Port. The photo was enhanced to increase the Panamax length of 230 m to the Cape Class length of 280 m.

During the Public Open Day held in Esperance in February 2000 a visual impression of an unloaded Cape Class vessel was displayed.

The vessel shown in Attachment 1 is not a Panamax class vessel but what is known as a handy max vessel.

Q5.1.4. *The specific guidelines for visual amenity refer to the objective of minimising the visual impacts from popular recreational areas in Esperance as a result of construction of storage facilities.*

Page xix identifies temporary discolouration of sea around the Port and changes to the Port skyline when viewed from the area to the north west of the Port due to the proposed new iron ore infrastructure, and the larger vessels using Berth 3.

The environmental management proposed is to:

- *Locate the new iron ore shed behind existing Port structures (which will serve as an effective screen);*
- *Use bulk ore shiploader with minimal visual impact; and*
- *Paint the new works with colours that blend with the surrounding environment.*

However, no environmental management is suggested for 'temporary discolouration of sea around the Port during dredging and land reclamation.'

Each of the other management commitments is commendable but the 'predicted outcome' of 'no unacceptable visual impacts' does not appear to be accepted by many members of the community as any development on the breakwater groyne will be highly visible against the sea and sky and will also be blocking views to some of the islands. The longer term port development plan (Figure 1.3) shows a site for sulphur storage and handling and a new rail spur for sulphur outloading – all of which will be on the new breakwater and further detract from the visual amenity from many vantage points in Esperance. What consideration of alternatives has the Port considered in coming to a decision on its final design, bearing these concerns in mind? Why does the Port not present an ultimate scenario for assessment ?

A5.1.4. Refer to A3.1.4.

Feedback received from the public following release of the PER and during the Public Open Days held in Esperance on the layout of the storage shed has been an input into the decision-making by the Port Authority. As a result, the Port Authority is considering re-aligning the storage facility on an East-West alignment rather than North-South. This will result in the iron ore storage facility and any future storage requirements being placed behind the existing Port buildings.

In future, should a proposal for further expansion become a reality, a development proposal will be developed and referred to the EPA for determination of a level of assessment under the Environmental Protection Act 1986. Such assessment will consider the visual impacts of the proposal. The community will be able to comment on the proposal.

Q5.1.5. *What evidence can the Port provide that it is complying with regulations, conditions, bylaws or other regulatory mechanisms in regards to managing visual impacts?*

A5.1.5. The Port Authority is not aware of any regulations, conditions or bylaws relating to visual impacts. The Port Authority adheres to DEP licence conditions (current DEP licence is No. 5099/4).

Q5.1.6. *Has the Port considered relocating the proposed reclamation of land on the South East side of the breakwater to continue along the same line which already exists ie. in a south-easterly direction? It is considered this will assist reduce visual impacts by reducing the intrusion of sheds onto the skyline.*

A5.1.6. Refer A5.1.4. The Port Authority considers it possible to realign buildings so as to minimise visual impact by constructing buildings behind existing Port buildings. Areas of reclaimed land more visible from the foreshore will be retained for hardstand areas and traffic requirements ie. train and truck spur lines and turning bays etc.

5.2 Recreation

Q5.2.1. *How does the Port intend to address the issue of reduced recreational facilities due to the foreshore erosion?*

A5.2.1. The foreshore along The Esplanade will be re-nourished. Refer A3.2.1.

Q5.2.2. *Will increased Port operations compromise recreational boat use in Esperance in relation to the public jetties/moorings?*

A5.2.2. Recreational boat use in Esperance in relation to the public jetties/moorings will continue as presently the case.

5.3 Public Health and Safety (Traffic Management)

Q5.3.1. *Road and rail transport of bulk materials by road and rail through Esperance is a major cause of concern to residents. The health and nuisance implications of spillage and dust including iron-ore, sulphur and nickel concentrate along transport corridors lies outside the Port Authorities jurisdiction. What measures are being undertaken to ensure that these impacts are brought into the Environmental Assessment process?*

A5.3.1. The upgrade will result in the railing of increased tonnages of iron ore through the Port. Traffic associated with other primary trades through the Port is expected to remain at current levels.

Iron ore is railed in open rail wagons. Loose dust in the rail wagons is blown off the wagons in the first few kilometres after leaving the mine site. Iron ore trains travel through Esperance at low speeds which further reduces the potential for dust emissions. A rail car water spray system has been installed over the rail line which is operated when necessary, to minimise the generation of dust from empty ore wagons leaving Esperance.

A 1997 study by ERM Mitchell McCotter states that the level of dust emissions in Esperance from Port-related iron ore and nickel activities is minimal (refer ERM Mitchell McCotter, 1997. *Esperance Service Corridor Town Planning Scheme and Industrial Park Location Study*, Perth, Western Australia). To date, dust-monitoring studies undertaken by several different agencies indicate that there is no detectable dust arising from iron ore rail transportation (ERM Mitchell McCotter, 1997. *Esperance Service Corridor Town Planning Scheme and Industrial Park Location Study*).

A study commissioned jointly by the Shire of Esperance and the Port Authority in 1997 makes a number of recommendations on how to reduce the impact of transport operations on residential areas adjacent to the transport corridor (refer ERM Mitchell McCotter, 1997. *Esperance Service Corridor Town Planning Scheme and Industrial Park Location Study*). The Port will continue to work with the Shire of Esperance on the implementation of the recommendations.

Q5.3.2. *The proposed port upgrade is anticipated to increase the number of train movements to and from the Port from 18 to 36 movements per week. Of primary concern is the effect of the increased movements at the intersection of Harbour Road and the Esplanade. This intersection is subject to a high existing level of vehicle conflict due to the frequent turning movement of heavy vehicles entering and exiting the Port, light vehicle through traffic and the location of the rail crossing which effectively bisects the intersection. The Shire Council has recognised the potential hazards which exist at the intersection and has taken steps to commence a joint traffic study of the intersection with key stakeholders (i.e. Esperance Port Authority, Main Roads Western Australia and Westrail.) Section 6.2.7 Traffic (Page 68) of the Public Environmental Review document briefly addresses traffic issues associated with the subject intersection.*

Due to the Port upgrade proposal and its effect of increasing train movements, would Esperance Port Authority be prepared to undertake a detailed traffic study of the intersection utilising a suitable Engineering Consultant? The findings and proposed alternative traffic treatments can then be evaluated by Esperance Shire Council, Main Roads WA and Westrail. In effect, will the Port Authority commit to assuming the principal role in the traffic study and treatment design for affected junctions, given the likely negative impacts on traffic flow within the town as a result of the upgrade? This will reduce the demand on Council resources and assist the fast tracking of the analysis and alternate treatment design process.

A5.3.2. A study of the intersection has been undertaken by ERM Mitchell McCotter (ie. ERM Mitchell McCotter, 1997. *Esperance Service Corridor Town Planning Scheme and Industrial Park Location Study*, Perth, Western Australia). The number of recommendations of the study on how to improve the traffic flow at the entrance to the Port should be further investigated. Responsibility for traffic flow at the intersection is shared between the Shire of Esperance, Main Roads WA and Westrail. The Port will continue to work with all parties on solutions to the problem.

Q5.3.3. What options have been considered to manage traffic around rail/road intersections? Can the Port Authority provide details now of potential solutions as an assurance to the community that the problems can be overcome and to ensure that there is no increased risk to the community associated with these traffic junctions?

A5.3.3. There are 10 rail/road crossings along the transport corridor: on the South Coast Highway and Goldfields - Esperance Highway into Esperance and on local urban and rural roads. Urban rail crossings include The Esplanade, Watson Street, Pink Lake Road, Sims Street, Collier Road and along Harbour Road near the Esplanade Power Station. Rural crossings include Sims Street, Button Street, Collier Road, Stearnes Road and Patersons Road.

The South Coast Highway and Goldfields - Esperance Highway crossings are potentially hazardous due to relatively high volumes of traffic, high vehicle and train speeds, road alignment, and the impact of the sun on visibility. Flashing lights have been provided at the South Coast Highway crossing and at the Goldfields - Esperance Highway crossing. It has been suggested that road bridges over the rail crossings should be considered, but the associated costs may be preclusive.

The Esplanade - Harbour Road urban rail crossing is potentially hazardous due to the high level of activity around this crossing, the location of the Port access, the large percentage of heavy vehicle volumes, and the limited sight distances. Flashing lights have been installed as a protection measure at this crossing. A joint Shire of Esperance, Port Authority and Main Roads WA effort is currently underway to determine the best option to ensure better traffic flow and management at the Esplanade - Harbour Road crossing. This is likely to involve a revised road alignment and traffic redirection (refer A4.6.2 and A5.3.2).

The Pink Lake Road urban crossing is potentially hazardous due to the high vehicle and pedestrian volumes (particularly school children) and the queuing of vehicles across the rail line waiting to enter Harbour Road. The installation of boom gates and provision of pedestrian control facilities (to restrict pedestrian movement across the rail line to a single or limited number of locations) have been recommended. Pedestrian control facilities have since been installed, and Pink Lake Road has been re-alligned to improve traffic flow.

The Watson road urban rail crossings is considered to offer an adequate level of protection.

The rural rail crossings are considered to have an adequate level of protection with stop signs or flashing lights provided at each crossing, with the exception of the Button Street crossing. Signs that indicate whether vehicles should stop or give way have been installed at Button Street.

The Shire of Esperance is using the 1997 management measures suggested by ERM Mitchell McCotter (refer A5.3.2) as a planning tool to manage rail/road crossing safety, and will initiate further action as necessary in conjunction with Main Roads WA, Department of Transport and Westrail.

Q5.3.4. *The Port Authority propose to transport rock from the existing granite quarry located on Merivale Road to the east of Esperance. The subject quantity of rock to be transported for the construction of the breakwater extension, etc should be quantified. The transport of large volumes of rock from Merivale Road Quarry to the Port will impact upon Council roads and the determination of the actual tonnage of rock required will enable Council to impose appropriate conditions to protect road infrastructure, etc.*

A5.3.4. Noted. The volume of additional sea rock required to be imported to the Port via trucks will be minimised because rock core and armour from the existing breakwater will be reused in the new breakwater, and because the new breakwater will be built on a dredged sand base.

Q5.3.5. *Will the upgrade put additional stress on the existing infrastructure or will the expected increased activities be catered for solely with the new facilities? This includes the existing rail handling facilities, conveyors and storage facilities which will all be subject to increased usage.*

A5.3.5. In part, existing infrastructure at the Port will be used (eg. railing and train unloading infrastructure). Management measures of the increased usage will include increased house keeping, maintenance, staff and monitoring. Refer A4.4.21. For management measures of traffic around rail/road intersections, refer A5.3.3.

Additional infrastructure will be constructed to handle the proposed increase in iron ore tonnages (third berth, additional iron ore ship outloading and handling equipment, and additional iron ore storage shed).

5.4 Public Health and Safety (Risk and Hazard)

Q5.4.1. *The accepted separation distance of the Port to residences is of concern. The risk of oil/fuel spillage is real and has happened before. More ships means an increased risk. What happens if there is an explosion? What assurances can the Port provide in regards of managing this risk?*

A5.4.1. Refer A4.2.5. Ship refuelling rarely occurs within the Port and specific operating procedures for this activity have been developed and implemented. The current and increased number of vessel movements in Esperance Port is relatively low compared to other ports. Management of the risk of an vessel collision is primarily through standard operating procedures for vessel approach, pilotage and berthing operations.

Q5.4.2. *What evidence can the Port provide that it is complying with regulations, conditions, bylaws or other regulatory mechanisms in regards to managing risk, both in terms of emergency spill containment and hazardous chemical containment within the port ?*

A5.4.2. For emergency spill containment, refer A4.2.5.

Small quantities of hazardous chemicals are handled through the Port. The Port operates in accordance with all requirements relating to the handling of hazardous cargoes.

6. OTHER TOPICS

6.1 Environmental Management Plan

Q6.1.1. *Will the Port Authority prepare annual audit/environmental performance reports available for public scrutiny? Will these reports identify areas for improvement where applicable?*

A6.1.1. The Port Authority prepares environmental performance reports which are submitted to the DEP (refer A1.5). These reports are available on demand. The Port Authority is planning to bring out a quarterly newsletter on happenings in and around the Port. The aim of the newsletter is to provide feedback to the community on matters of interest, environmental issues under consideration, and environmental management that is being undertaken.

Q6.1.2. *The Port Authority plans to prepare progress reports to ensure that environmental commitments are met. What methods, funding, timeframes and responsibilities will be specified?*

A6.1.2. The Port Authority has committed to preparing internal progress and compliance reports in order to demonstrate that environmental commitments are met and to verify environmental performance. The Port's Environmental Management Plan (EMP) will constitute the internal progress and compliance report. It is currently in the process of being updated and incorporated into an overall Integrated Risk Management Plan for the Port aimed at ensuring that all risks within the Port are adequately identified and managed. The EMP will be made available on request to the DEP for auditing.

7. OTHER COMMENTS RELATED TO THE PORT EXPANSION

Q7.1. *The assessment of contaminant levels in sediment undertaken for the PER shows elevated levels of nickel close to the existing berths. Clearly the handling of nickel concentrate by the Port is allowing excess spillage into the marine environment. The pollution licence conditions related to the export of nickel concentrate should be reviewed to ensure that nickel levels in the marine sediment do not exceed the ANZECC guidelines.*

A7.1. The location along the Berths of the elevated levels of nickel correlate to spillages in the 1980s and early 1990s (equipment designed in the 1960's and 1970's was being used at the time). Since the construction of the 1992 - 1993 bulk shiploader, nickel spillage has been significantly reduced. Strict house keeping practices for materials handling (of all trades) during loading operations at Berths 1 – 3 will be continued. The Port Authority's objective is to have no spillage incidents. DEP licence conditions on spillage will be applied (refer A3.1.7).

Q7.2. *There is no evidence that the issue of nickel spillage is being adequately addressed and how this and other pollutants associated with the proposed port expansion can and are to be managed to maintain levels within national water/sediment quality guidelines. How does the Port propose to address these issues? Will the Port insist on the use of telescopic loaders for all shiploading operations?*

A7.2. Refer A7.1. and A4.1.1.

With the iron ore, the use of telescopic chutes on the shiploader was found to create dust problems rather than reduce them. A chute is currently used but it is not telescoped down into the vessel's hold.

Q7.3. *Grain dust already covers parts of the town. The increased port capacity indicates an increase in this trade and associated increase in problems. How does the Port Authority intend to address this problem? Whilst measures are detailed for iron ore, what is the Port proposing for management of nickel and grain to prevent off-site impacts associated with dust?*

A7.3. Please refer to PER Table 6.1 for current and expected future trade through the Port. Only iron ore is expected to increase because of the upgrade (nickel trade is expected to decrease). Table 6.1 is based on trade projections that Connell Wagner, an engineering firm, made looking at a 5 - 10 year timeframe (1998 - 2008).

Dust emission management in relation to grain operations fall within the control of CBH which has the responsibility to ensure effective dust control. CBH is currently replacing its grain loading facility (which was originally built as a salt loader in the 1960s) with a state of the art grain loading gallery. CBH is also carrying out a major upgrade of their dust collection systems. These developments is part of the $65 million CBH upgrade and will greatly improve the environmental performance of the grain loading operations.

Q7.4. *The positioning of the proposed sulphur shed sits on the groyne directly opposite and only 1 km from the town. With the prevailing wind being south easterly, this would mean the smell of sulphur would permeate the town. How does the Port Authority propose to manage these types of cumulative effects?*

A7.4. The sulphur handling is a potential development only, dependant on future growth in the mining area. Should sulphur trade become a viable development option, a proposal (including details of the environmental impacts and management of sulphur handling) will be referred to the EPA for determination of a level of assessment under the Environmental Protection Act 1986. Such assessment will involve appropriate community consultation, and a consideration of factors such as smells.

Q7.5. *How does the port intend addressing the issue of odour emanating from the nickel stockpiles?*

A7.5. A program in cooperation with Western Mining Corporation and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) to manage nickel odour is currently being implemented.

Q7.6. *It is acknowledged by both the Port Authority and the DEP that the upgrade will facilitate use of the Port by Panamax size ships for increased grain capacity. Given the potential impacts associated with this, why are these issues not covered in the PER?*

A7.6. Grain operations fall under the control of CBH. The CBH upgrade was covered by a DEP works approval.

Q7.7. *The Nickel Development Institute indicated that exposure to fine dust containing nickel can cause lung and nasal cancer, and skin allergies. What controls on increases in nickel operations, facilitated by the upgrade, will the Port put in place?*

A7.7. The nickel operations at the Port are regularly monitored to ensure that they comply with the requirements of the relevant occupational health and welfare standards for employees at the Port. Such monitoring indicates that the employees' exposure is well within accepted standards and as such it is not considered that members of the public are at risk.

The Port Authority remains committed to meeting the intent of the ISO 14001 (an international standard used in environmental management) objective of continual improvement.

Q7.8. *What evidence can the Port provide that it is complying with regulations, conditions, bylaws or other regulatory mechanisms in regards to requirements under the Town Planning Scheme for residential buffers and setbacks?*

A7.8. A very limited buffer zone exists between the Port of Esperance and surrounding residential areas because of planning decisions taken in the sixties. The Port Authority is acting as a responsible corporate citizen by acquiring properties in close proximity to the Port in order to create a buffer. Refer PER Section 5.3.5.

Q7.9. *Are dangerous goods shipped through the port? Will this increase with the proposed upgrade? Is it safe handling ammonium nitrate so close to residential and business areas?*

A7.9. Petroleum products are shipped through the Port as part of the existing operations. Ammonium nitrate is occasionally shipped through the Port (there has been 5 shipments since 1995). Neither trades will increase as a result of the proposed upgrade.

The handling of the ammonium nitrate is in accordance with the required hazardous cargo standards and Department of Minerals and Energy (DME) requirements.

Q7.10. *Why is a row of large sheds being constructed on the port groyne? These have a significant visual impact. Has this construction been approved? Are they part of the upgrade? Why have locals not been informed?*

A7.10. The breakwater is being used as a laydown and construction area for materials that are part of the CBH upgrade. The shed like constructions will be part of the new CBH shiploading gallery located on Berth 1. An article was published in the Esperance Express explaining the activity.

Q7.11. *Why is a multi-million dollar rail upgrade being considered when long term strategic plans for Esperance have not been discussed? Such an upgrade has severe long term consequences for Esperance and the region in general and could in fact prove counter productive in the long term.*

A7.11. The Government is balancing local, regional and State interests. The upgrade of the Kalgoorlie to Esperance railway line is seen as important to the long term economic development of the Goldfields Esperance Region. It is also part of Government's policy to encourage greater use of rail rather than road heavy haulage operations.

Q7.12. *While it is acknowledged that the ALS, NNTT and AAD have been contacted in regards to the port upgrade, the PER contained no evidence of contacting the local native title claimants. This project has great potential for the involvement of Aboriginal people through employment opportunities, public displays of Aboriginal heritage and history and improved public relations. Aboriginal people are often excluded from community development projects which only serves to further alienate this section of the community.*

A7.12. Noted.

Appendix 9

Regulation 17 Drafting Instructions

Drafting Instructions for Approval to Vary the Prescribed Standard Under the *Environmental Protection (Noise) Regulations 1997* In Relation to Noise Emissions from the Port of Esperance

Authority

Made by the Minister under regulation 17 of the *Environmental Protection (Noise) Regulations 1997*("the regulations")

Citation

This notice may be cited as the *Environmental Protection (Port of Esperance Noise Emissions) Approval Notice 2000*

Interpretation

The following terms will need definition:

"The Applicant" to whom the approval will relate and on whom the conditions will be binding will be the Esperance Port Authority

"The Premises" will be defined as the premises to which the approval relates, that is, the area within the boundary of the Port of Esperance and under the jurisdiction of the Applicant, and which excludes the Cooperative Bulk Handling (CBH) facility.

"Operations" to which the approval will apply will exclude "construction noise" as defined in regulation 13, and will also exclude on and off-site trains, as these are already excluded under regulation 3. It should be noted that as part of the ongoing review of the regulations, a working group is considering possible amendment to the regulations, which would see trains on the Premises being included under the regulations. In this eventuality, the approval may need to be amended to include noise emissions from trains.

"Existing plant" means equipment which would normally have been in use on the Premises immediately before the date of gazettal of this approval notice.

"Proposed plant" means equipment proposed to be installed at the Premises as part of the proposal to upgrade the iron ore throughput to 4 million tonnes per annum.

Approval

The approved variation to the prescribed standard should be as follows:

1. The Applicant must ensure that noise emissions resulting from Operations on the Premises, in Years 2 and 3 of this approval, must not exceed the assigned levels shown in the Table below – (varied assigned level shown in bold type)

TABLE 1: VARIED ASSIGNED NOISE LEVELS FOR YEARS 2 AND 3

Type of premises receiving noise	Time of day	Assigned level (dB)		
		$L_{A\ 10}$	$L_{A\ 1}$	$L_{A\ max}$
Noise sensitive premises at locations within 15 metres of a building directly associated with a noise sensitive use	0700 to 1900 hours Monday to Saturday	45 + influencing factor	55 + influencing factor	65 + influencing factor
	0900 to 1900 hours Sunday and public holidays	40* + influencing factor	50 + influencing factor	65 + influencing factor
	1900 to 2200 hours all days	40* + influencing factor	50 + influencing factor	55 + influencing factor
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays	**40*** + influencing factor	45 + influencing factor	55 + influencing factor
Noise sensitive premises at locations further than 15 metres from a building directly associated with a noise sensitive use	All hours	60	75	80
Commercial premises	All hours	60	75	80
Industrial and utility premises	All hours	65	80	90

2. An additional +3dB variation is to be made for Year 1 only of the approval in the assigned levels shown with an asterisk (*) in Table 1 above, in order to provide time for reduction of existing plant noise.

3. Subregulation 7 (2) specifies a requirement in relation to noise emissions which "significantly contribute to" an exceedance of the assigned levels. The intent of the above assigned levels is that they apply to noise emissions only from the Port of Esperance, in isolation from any other noise emissions that may be received at a premises. The approval may need to specify this intent.

4. The assigned levels as shown do not include any adjustment for tonality, modulation or impulsiveness. Should such characteristics be present in the noise emission, then regulations 7 and 9 would require that they be eliminated as far as is practicable, or else an adjustment would be added to the measured noise level according to Table 2 of the regulations. For the purposes of this approval, the adjustments in Table 2 of the regulations should be varied so as to be zero in all cases.

5. All other noise measurement and assessment requirements would be as per the *Environmental Protection (Noise) Regulations 1997.*

6. The approval should have a three-year life with a requirement for review prior to expiry, but this should not prevent its review at any time as appropriate.

7. The approval should provide for short-term exceedances of the varied assigned levels in the case of genuine breakdowns or like events, without breach of the approval, where the Applicant has notified the CEO of the event within 7 days of its occurrence.

Conditions

The approval should be subject to the following draft conditions and restrictions:

Noise control programme for existing plant

1. The Applicant shall prepare a comprehensive noise control programme to the satisfaction of the Chief Executive Officer (CEO) in relation to existing plant, within 6 months after determination of appeals following gazettal of the approval (or a set date at about the same time).

2. The noise control programme shall be based on a detailed study of existing plant by a recognised acoustical consultant, and is to include, but is not limited to –

    - Identification and ranking of the noise emissions of relevant noise sources;
    - Description of noise reduction options for each source type or individual source as appropriate;
    - Assessment of relevant noise reduction scenarios, including estimates of typical costs and benefits; and
    - Timelines for implementation of relevant noise control measures.

1. The Applicant shall make the noise control programme public as soon as practicable after its acceptance by the CEO.

2. The Applicant shall implement the noise control programme during the life of the approval, with a view to reducing noise emissions from existing plant as far as is practicable.

3. The Applicant shall implement a specific noise management programme for the control of noise from front end loaders in the existing iron ore shed, including reducing the use of reversing beepers as far as is practicable, to the satisfaction of the CEO, within 6 months after determination of appeals following gazettal of the approval (or a set date at about the same time).

4. The Applicant shall provide annual progress reports on the noise control programme to the CEO before the end of each Year of the approval (or by set dates at about the same time).

Noise control of proposed plant

5. The Applicant shall prepare a policy for the procurement of proposed plant to the satisfaction of the CEO by a date 6 months after determination of appeals following gazettal of the approval (or a set date at about the same time).

6. The policy shall be based on a detailed study of proposed plant by a recognised acoustical consultant, and shall include, but is not limited to –

    - Identification and ranking of the noise emissions of relevant noise sources, in particular the new shiploader and conveyors;
    - Description of noise reduction options for each source type, and in particular measures to reduce tonality as far as is practicable;
    - Assessment of relevant noise reduction scenarios, including estimates of typical costs and benefits;
    - Statement of noise emission goals for relevant plant items within the context of foreseeable upgrades at the Premises; and
    - The conduct of technical studies to confirm the specified noise emissions of relevant items of proposed plant.

1. The Applicant shall make the policy public as soon as practicable after its acceptance by the CEO.

2. The Applicant shall implement the policy during the life of the approval, with a view to reducing noise emissions from proposed plant as far as is practicable.

Noise monitoring and complaint response

11. The Applicant shall implement a noise monitoring programme to the satisfaction of the CEO by a date 6 months after determination of appeals following gazettal of the approval.

12. The Applicant shall implement a complaints response programme to the satisfaction of the CEO by a date 6 months after determination of appeals following gazettal of the approval.

13. The Applicant shall provide annual progress reports on the noise monitoring and complaints response programmes to the CEO before the end of each Year of the approval.

14. The Applicant shall make the progress reports on the noise monitoring and complaints response programmes public as soon as practicable after their acceptance by the CEO.