Iron ore export through Esperance

Esperance Port Authority

Report and recommendations
of the Environmental Protection Authority

Environmental Protection Authority
Perth, Western Australia
Bulletin 701
September 1993

THE PURPOSE OF THIS REPORT

This report contains the Environmental Protection Authority's environmental assessment and recommendations to the Minister for the Environment on the environmental acceptability of the proposal.

Immediately following the release of the report there is a 14-day period when anyone may appeal to the Minister against the Environmental Protection Authority's report.

After the appeal period, and determination of any appeals, the Minister consults with the other relevant ministers and agencies and then issues his decision about whether the proposal may or may not proceed. The Minister also announces the legally binding environmental conditions which might apply to any approval.

APPEALS

If you disagree with any of the contents of the assessment report or recommendations you may appeal in writing to the Minister for the Environment outlining the environmental reasons for your concern and enclosing the appeal fee of $10.

It is important that you clearly indicate the part of the report you disagree with and the reasons for your concern so that the grounds of your appeal can be properly considered by the Minister for the Environment.

ADDRESS

Hon Minister for the Environment
12th Floor, Dumas House
2 Havelock Street
WEST PERTH WA 6005

CLOSING DATE

Your appeal (with the $10 fee) must reach the Minister's office no later than 5.00 pm on 23rd September 1993.

Environmental Impact Assessment (EIA)

Process Timelines in weeks

Date	Timeline commences from release of documentation on proposal by proponent	Time (weeks)
20/4/93	Proponent document released for public comment	
18/5/93	Public comment period closed	4
21/6/93	Issues raised summarised by EPA, details of modified proposal received and issues forwarded to the proponent	4
28/7/93	Proponent response to the issues raised in submissions received	5
9/9/93	EPA reports to the Minister for the Environment	6

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The Esperance Port Authority is the proponent for a proposal to export 1.5 million tonnes of iron ore per year through the port of Esperance. The ore would be mined by Portman Mining at Koolyanobbing and transported by Westrail via the upgraded rail link to the port of Esperance for loading onto ships. During the assessment process, the Port Authority substantially changed the proposal, particularly in response to the local community's concerns.

One hundred and eighty six submissions were received by the Environmental Protection Authority on the proposal; 183 public submissions and 3 government agency submissions. The submissions raised numerous issues concerning dust, noise, contingency planning, introduction of exotic marine organisms from ballast water discharges, standard of environmental management, Westrail's operations, shipping accidents, regional planning, community consultation, visual amenity, alternative ports, groundwater contamination, night lighting, health, vibration damage to historic buildings, public amenity, infrastucture requirements, impacts on fisheries and others. These and other issues were considered by the Environmental Protection Authority in its assessment.

Esperance lies on a coast noted for its white beaches, blue water and spectacular, rugged coastline. The main activities in Esperance are servicing hinterland rural industries, port operations, tourism, commercial fishing and retirement/residential living. Many submissions on the proposal alluded to a unique environment and lifestyle, and cautioned against allowing any deterioration of the values that give the town and region its character.

The Environmental Protection Authority has made its assessment of the iron ore export proposal in the belief that the clean air, ocean and beaches of Esperance must be protected. At the same time, the Authority recognises that, due to its particular topography, Esperance has functioned as a port since very early in the history of the settlement. The Authority considers that a viable port operation is a beneficial use of the environmental characteristics of the site.

In the assessment of this proposal, the Authority has made a great effort to enable both the splendid amenity value of the local environment and its usefulness for regional shipping to both be protected. In order to protect both aspects, it has been necessary to require that extremely stringent conditions should be placed upon the proposed new port operations such that they will not impact upon the amenity values of the town's environment.

In its assessment of the proposal, the Environmental Protection Authority considered that the key issues which affected the environmental acceptability of the proposal were: dust; noise; a shutdown provision; ship's ballast water discharges; the standard of environmental management and potential impacts from Westrail's transport operations. **The Environmental Protection Authority has made Recommendations on each of these key issues which it believes would make the management of the issues environmentally acceptable.**

The Environmental Protection Authority considers that, on the basis of its smaller scale and proposed use of better technology, there is little similarity between this proposal and any other iron ore export project currently operating in Australia. As presented initially in the Consultative Environmental Review, the proposal was not acceptable. However, the Environmental Protection Authority considers that the modified proposal incorporates a level of management and technology which is sufficiently high to ensure that the proposal is now acceptable.

The proposal will, in fact, set new standards for materials handling at ports in Australia. For this reason, the Authority considers that the components of the Esperance environment that people value will be protected by the stringent Environmental Conditions and management measures recommended for the proposal, and emphasised through conditions of Works Approval and Licence under the Environmental Protection Act.

Accordingly, the Authority concludes that, with the changes to the proposal and the application of stringent Environmental Conditions derived from its Recommendations, the iron ore export proposal is environmentally acceptable, and makes the following Recommendation:

Recommendation 1

The Environmental Protection Authority concludes that the proposal, as modified during the assessment process, is environmentally acceptable. In reaching this conclusion the Authority identified the key issues requiring consideration as:

- dust;
- noise;
- a shutdown provision;
- ship's ballast water discharges;
- the standard of environmental management; and
- potential impacts of Westrail's operations.

The Environmental Protection Authority considers that these issues have been addressed and are manageable, either by the changes to the proposal, by the environmental management commitments given by the proponent, or by the Authority's Recommendations in this report. Accordingly, the Environmental Protection Authority recommends that the proposal may proceed -

1) in accordance with the description, specifications, plans and requirements contained in:
   - the parts of the Consultative Environmental Review relevant to the modified proposal; and
   - the proponent's description of the modified proposal (Volume 1; abridged in Appendix 1) and response to issues (Volume 2; Appendix 2); and -

2) subject to implementation of:
   - the proponent's environmental management commitments (Appendix 3); and
   - the Recommendations in this Bulletin (as Environmental Conditions or procedures).

The Environmental Protection Authority's Recommendations on the key issues are briefly discussed below:

Dust

The Environmental Protection Authority has concluded that the potential impacts of either airborne dust or waterborne iron ore particles are related to "nuisance" effects (such as loss of visual amenity and staining of property) on people, surrounding land uses and the environment. **The Environmental Protection Authority considers that all areas outside the port boundary and the areas of public amenity and other port uses within the port boundary should be protected from iron ore dust impacts.**

The Environmental Protection Authority considers that nuisance dust limits (1000 ug/m^3) previously used could not guarantee that significant impacts would not occur in the sensitive environments surrounding the port of Esperance, primarily because of the high contrast between red dust and white beach sand. Given this situation, the Authority believes that more stringent environmental standards should be applied to protect the environment.

Recommendation 2

The Environmental Protection Authority recommends that the proponent ensure that there is no visible, airborne iron ore dust, nor staining from accumulations of iron ore particles, outside the port's operations area (as shown in Figure 2 of this Report). (Note recommended Environmental Condition 3-1).

The Port Authority's compliance with this environmental standard will be based on both visual observations and a dust monitoring programme at locations surrounding the port.

Recommendation 3

The Environmental Protection Authority recommends that the proponent ensure that there is no iron ore staining of the ocean and beaches resulting from stormwater drainage discharges. (Note recommended Environmental Condition 3-2).

The Port Authority's compliance with this environmental standard will be based on both visual observations and monitoring of beach sand following research into what constitutes visible staining.

Research

The Environmental Protection Authority considers that the chances of iron ore staining of beaches is very low given the implementation of best available technology and best management practices. However, the Authority considers that it would be prudent for the Port Authority to carry out investigations in advance into what quantity of iron ore particles causes observable staining (colour change) of Esperance beach sand.

From the results of the research, the Environmental Protection Authority would define a trigger level (lower than the level which would cause staining) which, if exceeded, would require the Port Authority to take action, to the requirements of the Environmental Protection Authority, to stop the accumulation of dust leading to visible staining. If further measures could not be taken, for whatever reason, to prevent observable staining from occurring, consideration would have to be given to the shutdown of iron ore export operations.

Recommendation 4

The Environmental Protection Authority recommends that, prior to the commissioning of the iron ore facility, the proponent prepare and implement a research programme to quantify the amount of iron ore particles which would cause observable staining of Esperance beach sand. The Authority recommends that a trigger level, which is below the level which would cause staining, be defined by the Environmental Protection Authority from the research results, and that the proponent monitor Esperance beach during the iron ore export operations. Should monitoring of the beach sand show that the trigger level is exceeded, the proponent must prepare an amendment to the environmental management programme which specifies measures to ensure the source of the staining is identified and corrected. (Note recommended Environmental Conditions 3-3 and 3-4).

Monitoring of dust impacts

The Environmental Protection Authority considers that, to ensure compliance with these environmental standards, the Port Authority will need to monitor the ambient airborne dust levels at representative sites surrounding the port, and identify the composition of the dust, to verify if it is iron ore; also, regular sampling of beach sand to detect accumulations of iron ore particles, which may lead to staining, will need to be done.

Recommendation 5

The Environmental Protection Authority recommends that, prior to the commissioning of the iron ore facility, the proponent prepare and implement a monitoring programme for potential iron ore dust impacts, to the requirements of the Environmental Protection Authority. (Note recommended Environmental Condition 3-5).

The Environmental Protection Authority concludes that, by enclosing the iron ore stockpile and handling facilities, and with the implementation of best available technology and best management practices, the Esperance Port Authority would be able to control iron ore dust to levels which would prevent the occurrence of significant environmental impacts, including staining.

Noise

The Environmental Protection Authority proposes to follow its previous approach for the control of noise, which is designed to ensure that all residents of Western Australia are protected from unreasonable noise.

Recommendation 6

The Environmental Protection Authority recommends that the proponent ensure that the port's iron ore handling operations do not emit noise which exceeds the following noise limits at residences surrounding the port of Esperance:

- **40 dB(A) from 10pm to 7am every day;**
- **45 dB(A) from 7pm to 10pm every day and from 7am to 7pm on Sunday and public holidays; and**
- **50 dB(A) from 7am to 7pm on Monday to Saturday;**

  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. The proponent shall ensure that noise emissions from those activities which solicit complaints from residents do not exhibit tones, amplitude modulation, frequency modulation and impulsiveness of a nature which increases the intrusiveness of the noise. (Note recommended Environmental Condition 4).

The Port Authority's compliance with these noise limits will be based on a noise monitoring programme at locations surrounding the port. The Environmental Protection Authority considers that the Port Authority should implement noise reduction measures at source and, if necessary, at receiving locations such that it would be able to meet the above noise limits at residences surrounding the port.

Shutdown provision

The Environmental Protection Authority considers that the management of dust and noise from the iron ore export operation is crucial to the environmental acceptability of the proposal, and that the enforcement of the Authority's recommended Environmental Conditions must be independent and effective. The Authority recommends that the iron ore handling operations must be temporarily shut down if prevailing meteorological conditions or other circumstances make it apparent that dust or noise pollution is occurring or is likely to occur.

Recommendation 7

The Environmental Protection Authority recommends that the proponent prepare contingency plans to temporarily cease iron ore handling operations when it is apparent that dust standards or noise limits, recommended in Recommendations 2, 3, 4 and 6, are exceeded, or are likely to be exceeded. (Note recommended Environmental Condition 5).

The Port Authority's compliance with the provision to shut down will be enforced by the regulatory powers of the Environmental Protection Authority. An officer of the Authority will be in regular attendance at the port during the commissioning and early operational phases. The Port Authority has committed to prepare contingency plans to shut down, as part of its response to emergency situations, in its Environmental Management Programme.

Ship's ballast water discharges

The Environmental Protection Authority considers that the Esperance Port Authority should comply with the latest procedures of the national agencies which are working on the issue of controlling the introduction into Australia of exotic marine organisms from ballast water discharges. The Australian Quarantine Inspection Service (AQIS) has recently commenced a statewide survey for toxic dinoflagellates, which are readily transported exotic marine organisms. The Authority notes that the Esperance Port Authority has agreed to participate in the survey for the port area.

Other marine organisms are also of concern and the AQIS, together with international quarantine and shipping organisations, are continually monitoring the situation and implementing new procedures to address the issue. The area at risk involves not only the Port of Esperance but the protected waters of the Archipelago of the Recherche.

Recommendation 8

The Environmental Protection Authority recommends that the proponent ensure that all iron ore bulk cargo ships proposing to discharge ballast water in waters under the control of Esperance Port Authority, or within the protected waters of the Archipelago of the Recherche, comply with contemporary procedures of the Australian Quarantine Inspection Service. (Note recommended Environmental Condition 6).

Standard of environmental management

The Esperance Port Authority will need to set new standards for iron ore handling operations in Western Australia because of the unique coastal environment surrounding the port and the proximity of residents. The Environmental Protection Authority has set stringent requirements, as discussed in the previous Recommendations, and the Authority believes that the Port Authority needs to operate under a comprehensive Environmental Management Programme in order to meet those requirements. The commissioning of the iron ore export facility should not occur until the programme has been satisfactorily completed.

Recommendation 9

The Environmental Protection Authority recommends that the proponent prepare an Environmental Management Programme, prior to the commissioning of the iron ore facility, which shows the details of how the proponent will meet the requirements of the Recommendations relating to dust and noise management, monitoring, research, shutdown and the compliance of ships with Australian Quarantine Inspection Service procedures, to the requirements of the Environmental Protection Authority. The Programme should subsequently be implemented and should be regularly updated, as necessary, depending on the monitoring results and environmental management performance of the Esperance Port Authority. (Note recommended Environmental Condition 7).

Potential impacts from Westrail's operations

The Environmental Protection Authority considers that the transport of iron ore from Koolyanobbing to Esperance can be managed in an environmentally acceptable manner. In its response to public submissions, Westrail provided an overview of its operations and addressed the specific issues of dust, noise, scheduling, safety and public amenity. Westrail proposes to operate under an environmental management plan, which will address the concerns of all communities along the route and protect sensitive areas such as Lake Warden Nature Reserve.

Recommendation 10

The Environmental Protection Authority recommends that transport of iron ore from Koolyanobbing to Esperance port 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 procedural statement 3).

Other issues

Other issues raised in the assessment of the proposal are addressed in the Esperance Port Authority's response and in its consolidated environmental management commitments. A key commitment is to establish a community liaison group which will meet as required to ensure that the Esperance community continue to be informed about the port's operations and have the opportunity to voice any concerns.

The Environmental Protection Authority concludes that the proponent provided a satisfactory response to the issues raised in submissions. Accordingly, the Authority concludes that, with the changes to the proposal, the Esperance Port Authority's environmental management commitments and the application of stringent Environmental Conditions derived from the Environmental Protection Authority's Recommendations, the iron ore export proposal is environmentally acceptable.

1. Introduction

The Esperance Port Authority is the proponent for a proposal to export 1.5 million tonnes of iron ore per annum through the port of Esperance. The ore would be mined by Portman Mining at Koolyanobbing and transported by Westrail via the rail link through Kambalda, Norseman and Salmon Gums to the port of Esperance for loading onto ships.

The Portman Mining Koolyanobbing iron ore mining venture was separately referred to the Environmental Protection Authority previously. It was determined that it would be subject to Works Approval and Licencing under Part V of the Environmental Protection Act, 1986, but that it would not be considered until the assessment of the Port Authority's proposal was completed.

Westrail's rail transport operation was not part of the proposal which was referred to the Environmental Protection Authority. However, during the assessment of the Port Authority's proposal, several issues concerning the rail transport operation were raised and the Authority decided that these would be addressed during the assessment process.

The Environmental Protection Authority's assessment process has been unusual in that the Esperance Port Authority substantially modified the proposal to export iron ore from Esperance at the end of the public review period. Hence, a full description of the modified proposal was not available to the public and government agencies during the public review period. The Environmental Protection Authority summarised the issues raised in submissions and concluded that they were generally still valid for the modified proposal.

A full description of the modified proposal was subsequently provided to the Authority in the Port Authority's response to issues raised, although preliminary documentation and oral information was provided during the intervening period. Hence, the Environmental Protection Authority's assessment has been based partly on the proposal as described in the Consultative Environmental Review and partly as described in the Port Authority's response to issues (Volumes 1 and 2), which is publicly available at the Esperance Port Authority's office and at the Environmental Protection Authority's library in Perth.

The Environmental Protection Authority did not specifically seek additional community (or government agency) response on the changes to the proposal. However, the Authority understands that the proponent consulted local people and groups during this time. The Authority also notes that the changes to the proposal were made in response to environmental issues lying within the Authority's jurisdiction.

1.1 Assessment process

The Minister for the Environment nominated the Esperance Port Authority as the proponent for the proposal (Iron Ore Export through Esperance) on 9th March 1993. The Port Authority prepared a Consultative Environmental Review and released it for four weeks public comment finishing on 18th May 1993.

On the last day of the public comment period, the Port Authority modified the proposal, in response to concerns expressed by the local community and due to further planning. The Environmental Protection Authority decided that it would not be necessary for a public review of the changed proposal because the issues previously raised were generally valid for the changed proposal and the changes were largely made as a response to the local community's concerns. Details of the changes were submitted to the Environmental Protection Authority as part of the Port Authority's response to the issues (Appendix 1).

The Esperance Port Authority used a variety of public consultation strategies, including release of a Consultative Environmental Review, displays, establishment of a community liaison group, open days, surveys, specific meetings with interested parties, public meetings and the provision of information to the media. The Port Authority responded to the feedback from the community in making changes to the proposal.

The Environmental Protection Authority considers that, overall, the Esperance Port Authority adequately informed the public and relevant government agencies about the proposal during the assessment process. Environmental Protection Authority members and officers visited Esperance to view the proposal first hand and to discuss the community's concerns.

1.2 Environmental setting

Esperance is a town of 11,300 people (in August 1991) on the south coast of Western Australia, 500 kilometres east of Albany and 400km south of Kalgoorlie. It lies on a coast noted for its white beaches, blue water and spectacular, rugged coastline. The main activities in Esperance are servicing hinterland rural industries, port operations, tourism, commercial fishing and retirement/residential living.

In its assessment, the Environmental Protection Authority was conscious of the range of established activities in Esperance. Based on site visits by Authority members, views expressed at public meetings and concerns raised in submissions on the Consultative Environmental Review, the Authority believes that various groups of people in Esperance value and depend upon a full range of the existing components of the Esperance environment.

Clean air, a clean ocean and white beaches are important components of the Esperance environment which many people value from a lifestyle point of view, or as a prerequisite for the tourism industry. Many people in Esperance and the hinterland also depend on and value the port as a long established beneficial use of the Esperance waterfront.

Esperance has been operating as a port since 1895 and the town has developed in conjunction with the development of the port facilities throughout its history. The modern port was developed between 1958 and 1965, and was recognised in a 1983 Coastal Management Plan as an existing land use which may be subject to further development (Dept. Conservation and Environment, 1983).

The Environmental Protection Authority notes that the port facility is a valuable resource for Esperance and it is reasonable that the port continue its operations provided that they are environmentally acceptable. The Authority considers that the current main activities of the Esperance region could continue to co-exist at agreed standards and that these standards should be described in a regional planning strategy.

The Environmental Protection Authority notes that there is a less than normally accepted separation distance (buffer zone) between the port and nearby residences, with nearly 40 residences located between 150 - 300 metres and over 150 residences (plus a caravan park) within 600m of the port boundary. Many of these residences have been built after the port was established.

The Authority notes the Port Authority's efforts in developing a vegetated buffer zone at the entrance to the port (within the port boundary), and its request to the Goldfields Esperance Development Authority to commission a study into the likely long-term developments for the region and their implications for the port and other transport infrastructure.

Modern planning attempts to include buffer zones of compatible land uses around industrial developments in order to help manage the environmental impacts. The Environmental Protection Authority considers that the Esperance Shire Council, in conjunction with the Port Authority, should take every opportunity to implement a buffer zone strategy around the port.

2. The proposal

The original proposal, as described in the Consultative Environmental Review, was substantially changed as a result of submissions received during the assessment process. The key features of the original proposal and the changes which were made are described below:

Table 1 : Changes to original proposal

Original proposal	Changes
an enclosed railcar dumper facility alongside the proposed stockpile area;	the relocation of the railcar dumper facility 300m further into the port and away from nearby residences; and an extension of the rail line out along the breakwater;
a double-arm stacker transferring the ore to two open stockpiles;	a sealed stockpile shed maintained at negative pressure with a dust collection system;
a water-spray dust control system for the stockpiles and conveyor systems;	a dry dust collection system for the conveyor system rather than water sprays;
an elevated conveyor system in the middle of the stockpiles loaded by two front-end loaders;	a below-ground conveyor loaded by gravity fall or a rubber-tyred dozer;
an enclosed head chute loading ore into the ship's hold; and	a telescopic, conical, shiploading chute with a dust collection system; and
soakage pits to collect water run-off from the stockpile.	a drainage management system to collect sediment prior to discharge; and a rainwater storage facility collecting run-off from the stockpile shed for water supply around the port.

The Environmental Protection Authority considers that the original proposal would have been environmentally unacceptable, mainly because of the potential dust impacts on other port operations, the town and nearby beaches. However, the Esperance Port Authority, in response to concerns expressed by the Environmental Protection Authority, the local community and through further planning, has substantially modified the proposal. The key changes to the proposal are described above (Table 1) and further details are in Appendix 1 and shown in Figure 1. A description of the proposal follows:

Iron ore export proposal

The proposal involves all the loaded railcars being railed into the port, so that they clear the road/rail crossing at The Esplanade, and shunted by locomotive up to the railcar dumper facility. After the first railcar is positioned, the locomotive will be disconnected and moved to one side. The railcars will then be moved through the dumper facility by an hydraulically-driven railcar positioner, which is quieter than a locomotive, and the empty railcars will be pushed out along the breakwater on a new rail line. When all the railcars are empty, the locomotive will be reconnected and will pull the train back out of the port. This operation is expected to take between two and three hours.

The railcar dumper facility will be enclosed in a shed fitted with a dust extractor system. From there the iron ore is transported from the receival hopper by a covered conveyor system to a main transfer point where the ore will either be transported directly out to the shiploader or to the stockpile shed, also via covered conveyor systems. All transfer points are enclosed and will have dust collection systems.

If the ore is to be stockpiled, it will be transported by a covered conveyor to a completely sealed shed, which is under negative pressure. The shed is maintained under negative pressure through extraction of air to a dust collection filter system. To retrieve ore from the shed, the ore

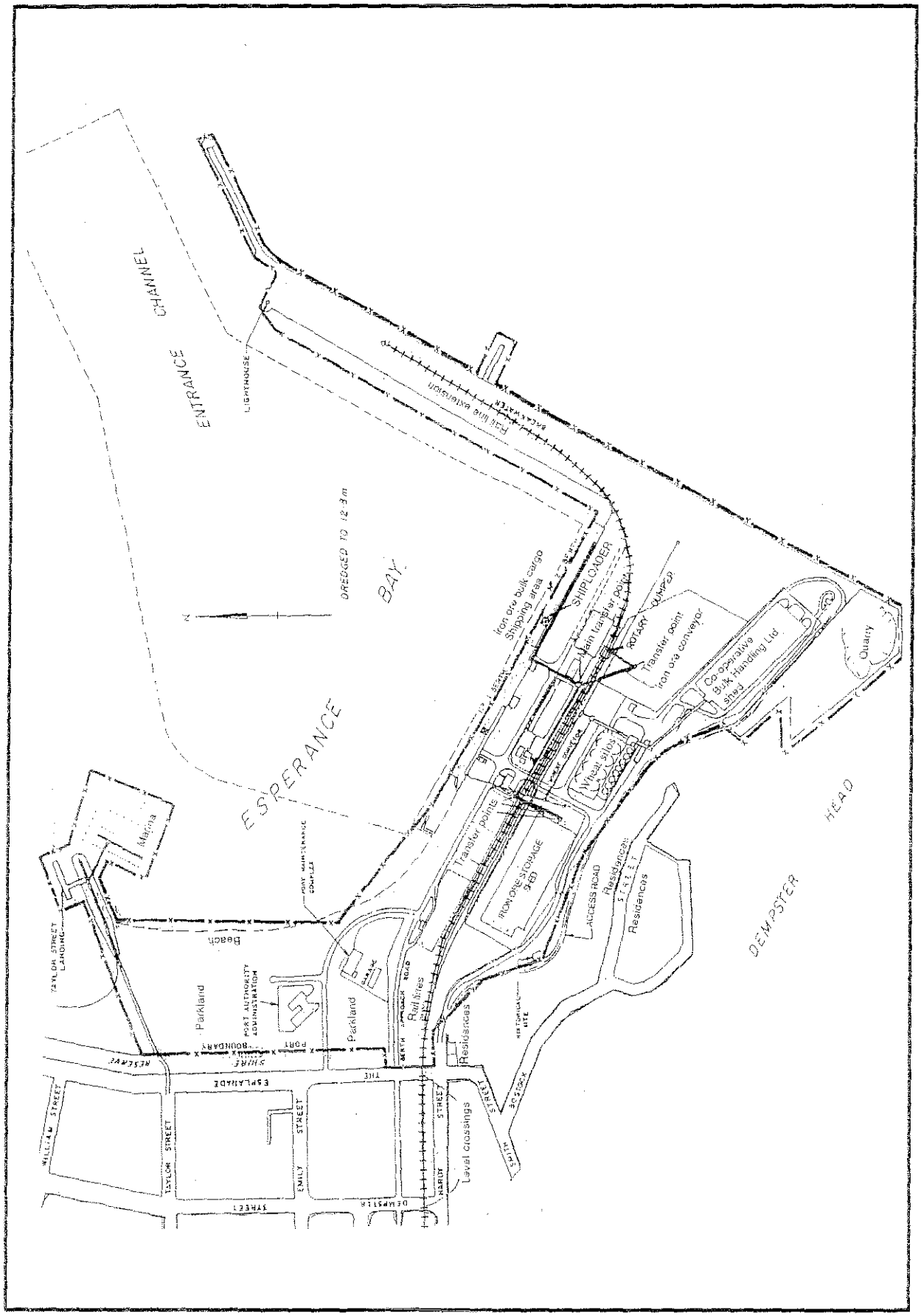

Figure 1. Proposed iron ore export facilities

will mainly fall, or be pushed by a rubber-tyred dozer, onto a below-ground conveyor which will then transport the ore via above-ground, enclosed conveyors and transfer points to the shiploader facility. These transfer points will also be enclosed and have dust collection systems.

The shiploader will use a telescopic, conical chute to place the ore in the ship's hold and the chute will have an internal dust collection system. The chute can be lowered to a level such that there is a minimum distance for the ore to free fall, which minimises dust generation.

The rainwater falling on the stockpile shed will be collected and stored in tanks; it will be available for use around the port for purposes such as dust and spillage control or irrigation of vegetation. A drainage management system will be designed, if required, to contain stormwater and spillages and allow settlement of solids prior to discharge to the harbour.

2.1 Existing environment

A brief description of the pertinent aspects of the existing environment was provided in the Consultative Environmental Review. It included data from ambient dust and noise monitoring surveys around Esperance and extensive meteorological data. A more complete description of the port's existing layout and facilities, surrounding land uses and information about the town's socio-economic character was obtained during the assessment process.

3. Public submissions

A total of one hundred and eighty six submissions were received by the Environmental Protection Authority on this proposal; comprising 183 public and 3 government agency submissions. All submittors will receive a copy of this Bulletin.

From the submissions, the Authority compiled a list of questions, which raised numerous environmental issues, and requested the Esperance Port Authority to provide a response. Some of the issues raised related to Westrail's operations and, despite not being a proponent, Westrail provided an overview of its proposed operations and a response to the specific questions raised, which is included, along with the Port Authority's response, in Appendices 1 and 2.

The Environmental Protection Authority has included a discussion of the rail transport operations in its assessment report because of the community's concerns, although it is not formally part of the iron ore export proposal. A list of 379 questions was submitted to the Port Authority for a response. Forty three of the questions essentially raised the same issue as other questions, and the Port Authority grouped these together and provided a response to 336 questions (Appendix 2).

The questions raised numerous issues concerning dust, noise, contingency planning, introduction of exotic marine organisms from ballast water discharges, standard of environmental management, Westrail's operations, shipping accidents, regional planning, community consultation, visual amenity, alternative ports, groundwater contamination, night lighting, health, vibration damage to historic buildings, public amenity, infrastructure requirements, impacts on fisheries and others.

The Environmental Protection Authority considers it important to recognise the efforts of many of those who made submissions. Many were well prepared and comprehensive and provided the Authority with a great deal of information to use in its assessment. However, the Authority has limitations in the scope of its assessment and many submissions raised significant issues outside the Authority's responsibility. For example, issues relating to property values, aspects of lifestyle, long-term regional development and water and power supplies are outside the scope of the assessment, and should be referred to appropriate planning and service agencies.

Many submissions on the proposal alluded to a unique environment and lifestyle, and cautioned against allowing any deterioration of the values that give the town and region its character, which is crucial to the tourism industry. The Environmental Protection Authority took these

factors into account in its deliberations on the environmental acceptability of the iron ore export proposal, and considered that the impacts from the proposal should not affect the other beneficial uses of Esperance.

In general, the assessment process for this proposal functioned well in that the concerns expressed by the local community prompted the proponent to consider the proposal further and make changes to address the management of the environmental issues.

4. Environmental issues and management

The Esperance Port Authority's response to the issues raised in submissions included substantial modifications to the proposal, as described above, and specific answers to questions, which together addressed the management of the issues (Appendices 1 and 2). The Environmental Protection Authority considered that there were six key environmental issues and that the management of those issues determined whether the proposal could be made environmentally acceptable. The key issues were:

- dust;
- noise;
- a shutdown provision;
- ship's ballast water discharges;
- the standard of environmental management; and
- potential impacts from Westrail's operations.

4.1 Dust

The control of iron ore dust, with respect to both health and amenity aspects, is the most significant issue confronting the proponent. The Esperance Port Authority has addressed the issue by proposing to adopt the best available technology and to design it in to every stage of the iron ore handling procedure. Sufficient details of the technology and handling procedure have been provided to the Environmental Protection Authority for a technical assessment of its dust management capability. The Authority considers that, on the basis of its smaller scale and proposed use of better technology, there is little similarity between this proposal and any other iron ore handling project currently operating in Australia.

From the health aspect, iron ore dust can be regarded as a commonly-encountered, particulate contaminant with no specific toxic impact on sensitive biological species. It is grouped in a category as "particulate matter", according to air quality guidelines recently published by the Environmental Protection Authority (EPA, 1993); these guidelines are based on health-related guidelines established by organisations such as the National Health and Medical Research Council. The composition of the Koolyanobbing iron ore includes minor amounts of silica (av. 3%), which is not significant in health or environmental terms.

The Environmental Protection Authority has concluded that the Koolyanobbing iron ore is not regarded as a toxic substance to any sensitive biological species, including humans. This conclusion is supported by advice received from the Health Department of Western Australia.

The Environmental Protection Authority also notes that the port's operations must comply with the airborne dust limits for the protection of worker's health, administered under the Occupational Health, Safety and Welfare Act, 1984; compliance with these limits on-site will ensure that it is highly unlikely that the concentration of airborne dust outside the port's boundary would have an impact on public health.

Consequently, the Environmental Protection Authority concluded that the potential impacts of either airborne dust or waterborne iron ore particles are confined to "nuisance" effects (such as

loss of visual amenity and staining of property) on people, surrounding land uses and the environment. **The Environmental Protection Authority considers that all areas outside the port boundary and the areas of public amenity and other port uses within the port boundary should be protected from iron ore dust impacts.**

The areas within the port boundary include the vegetated parkland at the entrance to the port, which includes the Esperance Port Authority administration building, the beach, the Taylor Street marina, the extension of the breakwater and the grain handling facility (Figure 1). The impact of dust on adjacent port operations, particularly grain handling, is of concern with regard to quality control, and requires that the Port Authority implement stringent dust management measures and that the level of iron ore dust in the grain products is monitored.

The Environmental Protection Authority considers that nuisance dust limits (1000 ug/m^3) previously used could not guarantee that significant impacts would not occur in the sensitive environments surrounding the port of Esperance, primarily because of the high contrast between red dust and white beach sand. Given this situation, the Authority believes that more stringent environmental standards should be applied to protect the environment.

Any dispersal of iron ore dust or particles would be via two main mechanisms - airborne and waterborne. Airborne dust has the potential for wide dispersal due to the strong winds during dry weather at Esperance. If waterborne iron ore particles occurred in stormwater drainage discharges into the harbour, they may ultimately have the potential to stain the beaches of Esperance. The Authority notes that the Port Authority has briefly studied the behaviour of the iron ore dust in the harbour, and reports that the dust sinks quickly and, hence, may not easily float from the port area along the coast.

Environmental dust standards

The Environmental Protection Authority considered that, to avoid nuisance effects, there should be no visible, airborne iron ore dust being emitted from the iron ore handling operations, nor accumulations of particles leading to observable staining. **The Authority concludes that these qualitative, environmental standards for airborne and waterborne iron ore particles should be set to protect public use areas both within and outside the port boundary.**

In order to achieve the standards, the Environmental Protection Authority considers that the Esperance Port Authority should employ the best available dust control technology and use the best management practices. **The Environmental Protection Authority, via its Works Approval and Licencing provisions under Part V of the Environmental Protection Act, will ensure that the facility is constructed and operated to achieve this objective.**

Hence, the Authority recommends that neither airborne dust nor staining from accumulations of iron ore particles should be observed outside of the port's operations area, as defined in Figure 2. The Authority also recommends that there should be no staining of the ocean or beaches from stormwater drainage discharges. These standards are stringent and will be expected to be complied with or the loading operation shut down.

Recommendation 2

The Environmental Protection Authority recommends that the proponent ensure that there is no visible, airborne iron ore dust, nor staining from accumulations of iron ore particles, outside the port's operations area (as shown in Figure 2 of this Report). (Note recommended Environmental Condition 3-1).

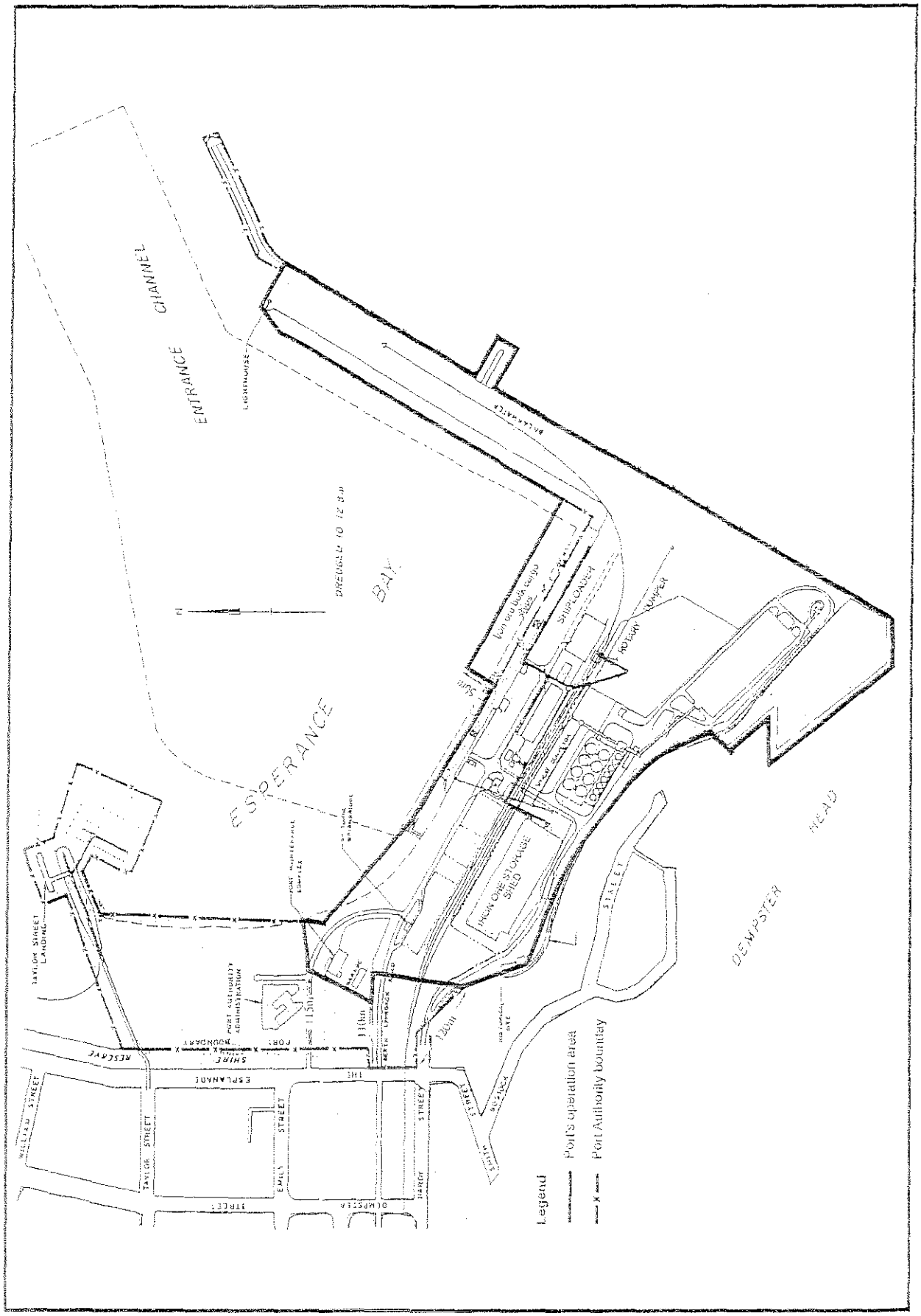

Figure 2. Port operations area

Recommendation 3

The Environmental Protection Authority recommends that the proponent ensure that there is no iron ore staining of the ocean and beaches resulting from stormwater drainage discharges. (Note recommended Environmental Condition 3-2)

Research

The Environmental Protection Authority considers that the chances of iron ore staining of beaches is very low given the implementation of best available technology and best management practices. There are no known quantitative limits for iron ore dust which have previously been used to protect the visual amenity of beaches. However, the Authority considers that it would be prudent for the Port Authority to carry out investigations in advance into what quantity of iron ore dust would cause observable staining (colour change) of Esperance beach sand.

From the results of the research, the Environmental Protection Authority would define a trigger level (lower than the level which would cause staining), which, if exceeded, would require the Port Authority to take action, to the requirements of the Environmental Protection Authority, to stop the accumulation of dust leading to visible staining.

Recommendation 4

The Environmental Protection Authority recommends that, prior to the commissioning of the iron ore facility, the proponent prepare and implement a research programme to quantify the amount of iron ore particles which would cause observable staining of Esperance beach sand. The Authority recommends that a trigger level, which is below the level which would cause staining, be defined by the Environmental Protection Authority from the research results, and that the proponent monitor Esperance beach during the iron ore export operations. Should monitoring of the beach sand show that the trigger level is exceeded, the proponent must prepare an amendment to the environmental management programme which specifies measures to ensure the source of the staining is identified and corrected. (Note recommended Environmental Conditions 3-3 and 3-4).

Recommendation 4 is designed to provide the highest level of control of potential dust accumulations. If further measures could not be taken, for whatever reason, to prevent observable staining from occurring, consideration would have to be given to the shutdown of iron ore export operations.

Monitoring of dust impacts

The Environmental Protection Authority considers that, to ensure compliance with these environmental standards, the Port Authority will need to monitor the ambient airborne dust levels at representative sites surrounding the port, and identify the composition of the dust to verify if it is iron ore; also, regular sampling of beach sand to detect accumulations of iron ore particles, which may lead to staining, will need to be done.

The monitoring programme would be designed to ensure that there is no staining of property from accumulations of iron ore particles, and to detect if any airborne dust is being emitted beyond the operations area at night.

The environmental dust standards will be enforced mainly by visual evaluation, and the monitoring of airborne dust and sampling of beach sand will assist in the enforcement of the environmental standards. Accordingly, to address the requirement for monitoring, the Environmental Protection Authority makes the following Recommendation:

Recommendation 5

The Environmental Protection Authority recommends that, prior to the commissioning of the iron ore facility, the proponent prepare and implement a

monitoring programme for potential iron ore dust impacts, to the requirements of the Environmental Protection Authority. (note recommended Environmental Condition 3-5).

The Environmental Protection Authority concludes that, by enclosing the iron ore stockpile and handling facilities, and with the implementation of best available technology and best management practices, the Esperance Port Authority would be able to control iron ore dust to levels which would prevent the occurrence of significant environmental impacts.

The Authority notes that the Institution of Engineers, Australia, Western Australia Division, has provided advice that it believes that dust abatement technology is available for and capable of controlling dust emissions for this proposal (see in Appendix 2). The Authority also received oral advice from interstate environmental protection agencies to the same effect.

However, the Esperance Port Authority should note that it would need to maintain best management practices in managing the iron ore export operation because a poorly run operation could have significant environmental impacts on the Esperance region and on the economics of the Port Authority's operation, and, ultimately, could lead to prosecution for breach of the Environmental Conditions.

4.2 Noise

The proposed increase in port activities creates the potential for an increase in noise. The levels of ambient noise at residences surrounding the port are largely unknown, though a preliminary survey provided some data for the Consultative Environmental Review. The survey results are not comprehensive enough to allow valid conclusions to be made, though the Environmental Protection Authority notes that some of the noise readings would be considered to be unreasonable noise levels. Some submissions on the iron ore export proposal reported that noise from the grain handling facility is already considered unacceptable. The Environmental Protection Authority will investigate all existing port operations as part of its responsibilities under Part V (Control of Pollution) of the Environmental Protection Act, 1986.

The Esperance Port Authority has committed to carrying out an ambient noise monitoring survey at residences surrounding the port (Appendix 3). Ambient noise levels at some nearby residences may already be relatively high because of their proximity to existing port operations. In order to reduce ambient noise at those residences to the lowest reasonable levels, the Environmental Protection Authority proposes to license existing port operations and to ensure that the Port Authority implements adequate noise mitigation measures for the iron ore export proposal.

The changes to the proposal have lessened the potential for unacceptable noise impacts on nearby residents in that noisy facilities have been moved further away (the railcar dumper) or enclosed (stockpiles shed). However, because of the proximity of residences, the proposal will have to meet very strict noise standards. The Environmental Protection Authority notes that all operations within the port must achieve a noise limit for workers of 90 dB(A) in the workplace under the Occupational Health, Safety and Welfare Regulations (1988).

In order to achieve acceptable noise levels outside the port, the Environmental Protection Authority considers that the Esperance Port Authority should employ the best available noise control technology and use the best management practices. **The Environmental Protection Authority, via its Works Approval and Licencing provisions under Part V of the Environmental Protection Act, will ensure that the facility is constructed and operated to achieve this objective.**

To control noise surrounding potentially noisy facilities, the Environmental Protection Authority has previously adopted a standard approach throughout the State, which involves setting noise limits for different times of the day at noise-sensitive premises. The Authority proposes to follow this approach for this proposal, and makes the following Recommendation:

Recommendation 6

The Environmental Protection Authority recommends that the proponent ensure that the port's iron ore handling operations do not emit noise which exceeds the following noise limits at residences surrounding the port of Esperance:

- **40 dB(A) from 10pm to 7am every day;**
- **45 dB(A) from 7pm to 10pm every day and from 7am to 7pm on Sunday and public holidays; and**
- **50 dB(A) from 7am to 7pm on Monday to Saturday;**
  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. The proponent shall ensure that noise emissions from those activities which solicit complaints from residents do not exhibit tones, amplitude modulation, frequency modulation and impulsiveness of a nature which increases the intrusiveness of the noise. (Note recommended Environmental Condition 4).

The Environmental Protection Authority considers that the Esperance Port Authority should implement noise reduction measures such that it would be able to meet the above noise limits at residences surrounding the port. For example, there are various noise management strategies, at both the source of the noise and at receiving sites, that could be adopted, such as the choice of low sound-power equipment, restricting operation of noisy equipment to certain times of the day and double-glazing of windows at nearby residences.

4.3 Shutdown provision

The Environmental Protection Authority considers that the management of dust and noise from the iron ore export operation is crucial to the environmental acceptability of the proposal, and that the enforcement of the Authority's recommended Environmental Conditions must be independent and effective. This concern was raised in submissions in terms that the independence of Esperance Port Authority personnel, responsible for making decisions about environmental management issues, may be compromised when those decisions affect the economics of the port's operations. For example, it could be necessary to temporarily cease operations under various situations when there is a risk that the conditions for dust and/or noise control may be breached or have already been breached.

The Environmental Protection Authority considers that, in order to be found environmentally acceptable, the proposal must include the contingency plan that iron ore handling operations will temporarily cease if prevailing meteorological conditions or other circumstances make it apparent that dust or noise pollution is occurring or is likely to occur. Accordingly, the Authority makes the following Recommendation:

Recommendation 7

The Environmental Protection Authority recommends that the proponent prepare contingency plans to temporarily cease iron ore handling operations when it is apparent that dust standards or noise limits, recommended in Recommendations 2, 3, 4 and 6, are exceeded, or are likely to be exceeded. (Note recommended Environmental Condition 5).

The Port Authority has committed to develop and implement contingency plans as part of its Environmental Management Programme, which will be to the requirements of the Environmental Protection Authority. Those contingency plans will be required to include appropriate actions in emergency situations, such as ceasing operations. The Environmental Protection Authority is responsible for auditing the Minister for the Environment's Environmental Conditions and will carry out site inspections in order to ensure compliance by the Port Authority.

The Environmental Protection Authority currently has the power to regulate the Port Authority's operations under Part V of the Environmental Protection Act, 1986. The Authority intends to have a regular presence during the commissioning and early operational phases of the iron ore export operation; the frequency of inspections would diminish when the Port Authority gains experience with the operation and its environmental management performance is satisfactory. Under Section 73 of the Act, authorized officers of the Environmental Protection Authority can direct the Port Authority to cease, or take appropriate actions to prevent, a condition of pollution. **The Environmental Protection Authority considers that any airborne iron ore dust or waterborne iron ore particles visible outside the area shown in Figure 2 would constitute pollution in such circumstances.**

The Port Authority is required to obtain a Works Approval for the construction of the iron ore facility and, subsequently, a Licence to operate the facility. The Environmental Protection Authority will ensure that the facility is constructed with best available technology and that appropriate procedures and conditions are applied in the operating Licence.

4.4 Ship's ballast water discharges

Ballast water discharges from ships are known to be a mechanism for the introduction of exotic marine organisms into Australia, many of which pose significant risks to coastal fisheries and marine ecosystems (Jones, 1991). The control of ballast water discharges is a Federal matter under the control of the Australian Quarantine Inspection Service. The Inspection Service has introduced a range of voluntary guidelines for ships entering Australian waters and carries out a random monitoring programme at selected ports around Australia to check compliance.

The Environmental Protection Authority notes that a monitoring survey of toxic dinoflagellates in the harbours and coastal areas of Western Australia has recently been commenced by the Waterways Commission under the auspices of the Australian Quarantine Inspection Service. **The Authority notes that the Esperance Port Authority has made a commitment that it will participate in a monitoring survey for toxic dinoflagellates in the port area, in collaboration with the Australian Quarantine Inspection Service (Appendix 3).**

Other exotic marine organisms are also of concern, and Federal agencies, in conjunction with international quarantine and shipping organisations, are conducting monitoring and research with a view to improving procedures to address the issue. The area at risk involves not only the Port of Esperance but the protected waters of the Archipelago of the Recherche (see footnote)[1]. The Environmental Protection Authority considers that any proposed discharge of ballast waters within the area controlled by the Esperance Port Authority or within the protected waters of the Recherche Archipelago must comply with the requirements of the Australian Quarantine Inspection Service. **The Environmental Protection Authority concludes that the Esperance Port Authority should implement the contemporary requirements of the Australian Quarantine Inspection Service.**

Recommendation 8

The Environmental Protection Authority recommends that the proponent ensure that all iron ore bulk cargo ships proposing to discharge ballast water in waters under the control of Esperance Port Authority, or within the protected waters

[1](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])

of the Archipelago of the Recherche, comply with contemporary procedures of the Australian Quarantine Inspection Service. (Note recommended Environmental Condition 6).

4.5 Standard of environmental management

The Environmental Protection Authority considers that the environmental management of the Esperance iron ore proposal will need to set new standards for port operations in Western Australia because of the unique coastal environment surrounding the port and proximity of residences.

The Port Authority has committed to preparing an Environmental Management Programme specifically for the iron ore proposal, but including all aspects of the port's operations (Appendix 3). The Environmental Protection Authority supports the Port Authority's commitment to improve its current operations.

The Environmental Protection Authority considers that a comprehensive Environmental Management Programme is particularly important to ensure good environmental management of the proposal. For this reason and because of the stringent requirements of the previous Recommendations, the Authority believes that the Programme should be developed, in consultation with relevant Government agencies, to the requirements of the Environmental Protection Authority, and that the commissioning of the iron ore facility should not occur until the Programme has been satisfactorily completed.

Recommendation 9

The Environmental Protection Authority recommends that the proponent prepare an Environmental Management Programme, prior to the commissioning of the iron ore facility, which shows the details of how the proponent will meet the requirements of the Recommendations relating to dust and noise management, monitoring, research, shutdown and the compliance of ships with Australian Quarantine Inspection Service procedures, to the requirements of the Environmental Protection Authority. The Programme should subsequently be implemented and should be regularly updated, as necessary, depending on the monitoring results and environmental management performance of the Esperance Port Authority. (Note recommended Environmental Condition 7).

4.6 Potential impacts from Westrail's operations

The rail transport operation from Koolyanobbing to the Esperance port boundary will be managed by Westrail. Numerous issues were raised about Westrail's operation as part of the assessment of the iron ore export proposal. In its response to the public submissions, Westrail provided an overview of its operations and addressed the specific issues of dust, noise, scheduling, safety and public amenity (Appendices 1 and 2).

The rail transport operation involves nine train movements per week in and out of the port when the mine reaches full operating capacity. Westrail has indicated that it will be scheduling the train movements to distribute the impacts of noise and public amenity in an equitable manner between all of the communities along the route. Because of the less stringent noise limits during daylight hours at Esperance port, Westrail and the Port Authority will be attempting to keep the noisier activities, such as unloading, to those periods. Hence, Westrail will schedule as many train movements as possible through Esperance during daylight hours.

Westrail has indicated that it considers that dust emissions from the railcars will not be environmentally significant, because the Koolyanobbing ore has a very low proportion of fine material and, also, that this material would quickly blow off at the Koolyanobbing minesite. The Environmental Protection Authority notes that Westrail has committed to monitoring dust emissions and, if dust control is required, to implement remedial measures like wetting the ore.

The Environmental Protection Authority notes that Westrail is developing a Statewide environmental management plan and that, for this specific proposal, has committed to the following (Appendix 1):

1. Environmental management - As part of its continuous improvement program, Westrail is committed to good environmental management in all its procedures and operations; that commitment applies to the proposed transport of iron ore from Koolyanobbing to Esperance.

2. Level Crossings - Westrail will submit details of the proposed Portman Mining rail transport project to the Railways Crossing Protection Committee to initiate a review of protection requirements at all level crossings. Should any change be required, work will be completed prior to the commencement of rail haulage of iron ore.

3. Public amenity in Esperance - To ensure that rail crossings are blocked for minimum periods, Westrail will arrange the railway tracks to allow the train to proceed directly to the unloading facility so as not to block level crossings with stationary trains; operating instructions will be prepared to ensure that this is achieved.

4. Noise emissions - The procedures to be adopted by Westrail will be directed to minimising noise. Westrail will monitor its operations and will take remedial action where necessary and practical.

5. Dust - Westrail will monitor the Koolyanobbing to Esperance operation and will take remedial action where necessary and practical.

The Commissioner for Railways has written to the Environmental Protection Authority committing Westrail to the following (Appendix 4) :

- Prior to the start of transport operations, Westrail will prepare an environmental management plan, in consultation with the Environmental Protection Authority, which addresses, amongst other things, the issues of dust, noise, scheduling, safety and public amenity.
- Westrail will implement the plan and monitor the potential impacts from the transport operation, and report to the Environmental Protection Authority annually.
- Westrail will implement appropriate remedial action where necessary, in consultation with the Environmental Protection Authority.

The Environmental Protection Authority supports Westrail's commitments to good environmental management and concludes that the environmental impacts from the rail transport of iron ore from Koolyanobbing to Esperance could be satisfactorily managed if those commitments were binding and to the Authority's requirements. Accordingly, the Authority makes the following Recommendation:

Recommendation 10

The Environmental Protection Authority recommends that transport of iron ore from Koolyanobbing to Esperance port 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 procedural statement 3).

The Environmental Protection Authority proposes to include a procedural statement in the recommended Environmental Conditions which implements the Recommendation above (see procedural statement 3 in the recommended Environmental Conditions). The Minister for Transport is a decision making authority for the iron ore export proposal and, hence, needs to reach concurrence with the Minister for the Environment's Environmental Conditions, including the procedures, in order for the proposal to proceed. In agreeing with the Conditions

and procedures, the Minister for Transport would assume responsibility for Westrail's compliance with the procedure covering the rail transport operations.

4.7 Other issues

The public submissions raised numerous questions about the environmental and other issues concerning the proposal. The Environmental Protection Authority compiled a list of questions paraphrased from the submissions and requested a response from the Esperance Port Authority. Apart from the key issues discussed above, the questions raised numerous other issues concerning shipping accidents, regional planning, community consultation, visual amenity, alternative ports, groundwater contamination, night lighting, health, vibration damage to historic buildings, public amenity, infrastucture requirements, impacts on fisheries and others (see Appendix 2).

The Environmental Protection Authority considers that the Port Authority has made appropriate commitments (Appendix 3) or has made an appropriate response to address the issues raised (Appendix 2). **The Environmental Protection Authority concludes that the proponent provided a satisfactory response to the issues raised in submissions.**

Five issues, relating to shipping accidents, regional planning, community consultation, visual amenity and alternative ports were of particular interest to the Environmental Protection Authority and are discussed below.

Shipping accidents

The protection of the marine environment from the potential impacts of shipping accidents, such as the *Sanko Harvest* incident, was raised in submissions. The Environmental Protection Authority notes that the Harbour Master is in charge of the ship whilst it is in port and that pilotage is compulsory for all ships entering and leaving the port to the requirements of the Department of Marine and Harbours.

The Environmental Protection Authority also notes the recommendations of the Standing Committee on Transport, Communications and Infrastructure's Inquiry into Ship Safety (Commonwealth of Australia, 1992 - Ships of Shame), which involve actions at the national level co-ordinated by the Australian Maritime Safety Authority. The Environmental Protection Authority has obtained a commitment from the Port Authority that it will comply with the Australian Maritime Safety Authority's requirements (Appendix 3).

The Environmental Protection Authority considers that the potential for shipping accidents, such as the *Sanko Harvest* incident, is very low if ships are manned by competent crews and follow agreed procedures for marine navigation.

Regional planning

Many submissions raised issues concerning regional planning matters, such as limits on the future expansion of the current port, alternative ports in the Esperance region, infrastructure requirements and buffer zones around industrial facilities such as ports. Since these are essentially planning issues, the Environmental Protection Authority considers these matters should be referred to the appropriate planning and service authorities.

The Environmental Protection Authority notes the Port Authority's advice that it has no short-term plans for any other expansions of the port's facilities or operations. In the medium-term, the only possible future expansion of the port's operations is the export of nickel concentrates from the Mt Keith mining venture, commencing in 1995, which could be accommodated on the existing site.

Community consultation

The Environmental Protection Authority considers that the proponent adequately informed the community about the project, including the modified proposal. The Authority notes that a community liaison group had been established and that the Port Authority has committed to use a similar group as a mechanism for keeping the community informed (Appendix 3). The Environmental Protection Authority endorses this approach to community consultation.

Visual amenity

Many submissions on the Consultative Environmental Review expressed concern about the effect of the proposed development on the public's visual amenity from viewsheds in Esperance. The Port Authority has committed both to colouring the shed to blend with the backdrop and to shielding the area with a vegetation screen (Appendix 3). The Environmental Protection Authority will require details of these and any other measures to minimise the effect of the proposal on the public's visual amenity to be included in the Port Authority's Environmental Management Programme.

Alternative ports

Many submissions raised the issue of the alternative use of port facilities at Kwinana rather than at Esperance. In the Consultative Environmental Review, the Port Authority reported that Portman Mining had considered both options. The Environmental Protection Authority received advice from the Department of Resources Development that the bulk cargo port facility at Kwinana, which was previously used for iron ore export, is currently owned by The Broken Hill Proprietary Company Limited, and that an agreement regarding repairs and upgrading of the facility was unable to be reached with Portman Mining. With the rail link to Esperance being upgraded and with the competitive port charges able to be offered by the Esperance Port Authority, Portman Mining assembled a development proposal for the Koolyanobbing iron ore project involving the use of the port of Esperance.

Hence, the preference by Portman Mining for the use of Esperance port over Kwinana is based on commercial and practical considerations. Nonetheless, the Esperance Port Authority, as proponent of the iron ore export proposal, is obliged to show that its proposal is environmentally acceptable.

5. Conclusions and recommendation

The Environmental Protection Authority considers that, on the basis of its smaller scale and proposed use of better technology, there is little similarity between this proposal and any other iron ore export project currently operating in Australia. As presented initially in the Consultative Environmental Review, the proposal was not acceptable. However, the Environmental Protection Authority considers that the modified proposal incorporates a level of management and technology which is sufficiently high to ensure that the proposal is now acceptable.

The proposal will, in fact, set new standards for materials handling at ports in Australia. For this reason, the Authority considers that the components of the Esperance environment that people value will be protected by the stringent Environmental Conditions and management measures recommended for the proposal, and emphasised through conditions of Works Approval and Licence under the Environmental Protection Act.

Accordingly, the Authority concludes that, with the changes to the proposal and the application of stringent Environmental Conditions derived from its Recommendations, the iron ore export proposal is environmentally acceptable, and makes the following Recommendation:

Recommendation 1

The Environmental Protection Authority concludes that the proposal, as modified during the assessment process, is environmentally acceptable. In reaching this conclusion the Authority identified the key issues requiring consideration as:

- **dust;**
- **noise;**
- **a shutdown provision;**
- **ship's ballast water discharges;**

- the standard of environmental management; and
- potential impacts of Westrail's operations.

The Environmental Protection Authority considers that these issues have been addressed and are manageable, either by the changes to the proposal, by the environmental management commitments given by the proponent, or by the Authority's Recommendations in this report. Accordingly, the Environmental Protection Authority recommends that the proposal may proceed -

1) in accordance with the description, specifications, plans and requirements contained in:

- **the parts of the Consultative Environmental Review relevant to the modified proposal; and**
- **the proponent's description of the modified proposal (Volume 1; abridged in Appendix 1) and response to issues (Volume 2; Appendix 2); and -**

2) subject to implementation of:

- **the proponent's environmental management commitments (Appendix 3); and**
- **the Recommendations in this Bulletin (as Environmental Conditions or procedures).**

The recommended Environmental Conditions which implement Recommendations 1 to 10 are detailed below.

6. Recommended environmental conditions

The Environmental Protection Authority considers that the following recommended Environmental Conditions are required for the environmental acceptability of the proposal.

Iron ore export through Esperance (781)

Esperance Port Authority

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 and providing that the commitments are not inconsistent with the conditions or procedures in this statement, 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 environmental management commitments which are consolidated in Environmental Protection Authority Bulletin 701 as Appendix 3. (A copy of the consolidated commitments is attached).

3 Iron ore dust

The proponent must 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 staining from accumulations of iron ore particles, outside the port's operations area as shown in Figure 2 in Bulletin 701.

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

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

3-4 During the operation of the iron ore facility, the proponent shall monitor the level of iron ore particles in Esperance beach sand and, if a trigger level, to be set by the Environmental Protection Authority is exceeded, shall prepare an amendment to the environmental management programme which specifics measures to ensure the source of the particles which would cause observable staining is identified and corrected.

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

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 and 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 Esperance's environment.

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

6 Ship's 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 waters in waters under the control of the Esperance Port Authority, or within the protected waters of the Archipelago of the Recherche (see footnote)[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 the commissioning of iron ore handling operations, the proponent shall prepare an Environmental Management Programme, which shows the details of how it will meet the requirements of Conditions 3, 4, 5 and 6, to the requirements of the Environmental Protection Authority.

7-2 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.)

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[2](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])

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.

Procedures

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 the 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: 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.

7. References

Department of Conservation and Environment, 1983. Esperance District Coastal Management Plan. DCE Report 11, Perth, Western Australia.

Environmental Protection Authority, 1993. A discussion paper on proposed ambient air quality guidelines for Western Australia.

Jones, M.M., 1991. Marine organisms transported in ballast water. Bureau of Rural Resources Bulletin 11, Australian Government Publishing Service, Canberra.

Commonwealth of Australia, 1992. Ships of Shame - Inquiry into Ship Safety. Australian Government Publishing Service, Canberra.

Appendix 1

Details of modified proposal

OVERVIEW

The Esperance Port Authority exists to serve the community of the Esperance region, the community of the Goldfields region and the community of Western Australia, in that order.

Those people are the stakeholders in the Esperance Port Authority.

In proposing the export from Esperance of about 1.5 million tonnes of iron ore a year, the Port Authority is honouring its moral and statutory obligations to foster economic development for the benefit of the community — and without detriment to the community.

With that in mind, and as a first step in the preparation of its Consultative Environmental Review (CER), the Esperance Port Authority began a community-involvement process in conjunction with the Social Impact Unit of what is now the Department of Resources Development.

The major concerns expressed by the community had to do with **dust** and **noise.**

The perceived potential of the project to create additional dust and noise became the basis for widely expressed misgiving — in varying ways and with varying emphasis — that Esperance would be spoilt as a tourist destination and as a pleasant place in which to live.

In response to those community concerns, the Port Authority sought and received co-operation from Portman Mining and Westrail to modify the export proposal dramatically, at an added cost of about $2.5 million.

The changes were made in consultation with the Environmental Protection Authority.

For ease of reference they are summarised and presented graphically at the end of this overview.

In the light of those changes, many of the 336 questions and comments, to which the Port Authority has been given the opportunity to respond, are no longer pertinent to the project.

Others seek unqualified guarantees that unforeseen events will never occur. And some others, such as those dealing with discharge of ballast, cover areas in which the Port Authority cannot presume to give definitive answers. Like every other port in Australia, Esperance is reliant on international codes and practices and the policing of those codes and practices by the Commonwealth.

Even so, the Esperance Port Authority believes that the strong community response to its CER (in about 200 submissions) reflects not only the desire of the community to maintain the values of Esperance, but also the value of the community-involvement process.

Accordingly, the Port Authority has responded as fully as possible to all questions and comments, in the order in which they were compiled by the Environmental Protection Authority.

The Esperance Port Authority is conscious that approval of the project, and the conditions applied to it, will depend ultimately on whether the Environmental Protection Authority believes that the Esperance Port Authority has the will and the credibility to honour its undertakings.

In that respect the Esperance Port Authority has an exemplary record of continuous improvement of its practices and management.

Moreover, while being confident that its original (CER) proposal provided for effective management of environmental and social impacts, the Port Authority modified the proposal extensively in response to community concerns.

But there are two other spurs to meticulous observance of whatever licence conditions might be imposed by the Minister for the Environment:

One is that the employees of the Esperance Port Authority are part of the community to which it has made a commitment to be a good corporate citizen.

The other is the commercial penalty to which the Port Authority would expose itself if it failed through negligence to perform according to its licence conditions, and as a consequence the export operation were disrupted. It would not only breach its contract with Portman Mining; it would also jeopardise the future business of the port.

ORIGINAL PROPOSAL

The original proposal, as detailed in the CER, would have seen the iron ore unloaded from railway wagons at a rotary car-dumper about 400 m from the port entrance.

The ore would have been transferred from the dumper by conveyor belt to two open stockpiles capable of storing a total of 98,000 tonnes. Two smaller stockpiles (each of 4000 tonnes) were proposed for back-up in the event of a coincidence of ship loading and train unloading.

Reclamation of the ore for ship loading would have involved the use of two Caterpillar 992 (or equivalent) front-end loaders serving a portable feed hopper, from which the ore would have travelled by ground-level and elevated conveyors to the ship loader.

It was proposed to suppress dust (wind-blown from the stockpiles or created by ore handling) by managing the moisture content of the ore with water cannon and sprinklers and by wetting the bunded work areas.

Run-off from rain and from the use of water for dust suppression would have been directed to three soakage pits.

The water required for dust suppression would have come from the Water Authority of WA borefield.

CURRENT PROPOSAL

The current proposal has been made possible by the high levels of co-operation that the Esperance Port Authority has received from Portman Mining and Westrail in seeking to address relevant community concerns about the project.

The major change is the proposal to house the stockpiles in a shed 210 m long by 60 m wide and 19.25 m high — and sealed to enable dust extraction through bag houses.

The two stockpiles will hold a total of 144,000 tonnes of ore, which will be reclaimed through an underground tunnel system.

It is estimated that, in a standard shipment of about 35,000 tonnes, about 22,000 tonnes will rill into the tunnel system without mechanical assistance, with the balance being pushed in by a rubber-tyred bulldozer.

The immediate benefits of the proposed shed are:

- Elimination of all but a small fraction of the potential for creation of dust and significant reduction of noise.
- Ability to store (and use for further dust suppression or other Port purposes) an estimated 800,000 litres of rainwater from the shed roof.
- Elimination of the need for soak pits to handle run-off.
- Visual improvement.

In addition, Westrail has been able to relocate the rotary car dumper farther within the port area by extending a new section of railway line on to the breakwater.

This will extend by about 300 m the distance between the dumper and the main residential areas and allow complete trains to enter the port area, instead of breaking them at the rail yard.

The major changes in the proposal are depicted graphically in the following pages of this section.

SUMMARY OF DUST AND NOISE CONTROL

Environmental-management strategies to be implemented at the Port of Esperance in relation to dust and noise, can be grouped into:

- Engineering controls
- Procedural controls, and
- Environmental monitoring

Procedural requirements will be outlined in the Port's Environmental Management Program (EMP).

The EMP will be formulated in discussions with, and to the satisfaction of, the EPA and will include strategies for compliance with EPA licence conditions, in addition to Port Authority environmental procedures.

DUST

In engineering terms, effective dust control will be achieved at this stage through the use of dust extraction and filter equipment. Dust extraction will be fitted to each loading, discharge or transfer point in the overall loading system, which includes any existing facilities for loading of ore.

The storage shed will be suitably sealed and maintained under negative pressure through air extraction, which will direct dust-laden air to a reverse-pulse filter baghouse. The baghouse will remove dust from the extracted air prior to release to atmosphere.

Similarly, reverse-pulse filters will be used to clean extracted air from the conveyor system (which will be completely covered), the rotary car-dumper shed and the telescopic chute feeding the ship's hold, if required. All filters will be fitted with pressure-drop alarms to the control room, to indicate wear or damage to the bags.

The conveyor system will be fitted with scrapers and hoppers to ensure the spillage does not occur from belt carry-over of iron ore. Each conveyor will be interlocked so that failure of any conveyor automatically stops the operation of other conveyors in the system. Interlocks will also be fitted to dust-extraction systems to ensure that loading operations are automatically ceased, should failure of extraction systems occur.

Details of the proposed filtration systems are given in *Appendix A.*

In connection with the rotary car-dumper, the Port Authority has made inquiries in Tasmania, where a similar dumper (without filtration) handles zinc/copper concentrates at the Port of Burnie. Though the dumper is only 30m from the Port office, the Burnie Port Authority says it has not experienced dust or noise above ambient levels. The Devonport office of the Department of Environment and Planning says that the dumper has not been a matter of complaint or concern.

Employees at the Port of Esperance have a major role to play in ensuring effective dust control. Procedures related to dust control requirements will be outlined in detail in the Port's EMP.

The EMP will include procedures related to response to abnormal operating conditions, spillage clean-up, and damage of equipment. Each employee will be formally trained and assessed in these procedures prior to commissioning of the facility.

A dust-monitoring program to determine the effectiveness of dust-control measures (as approved by the EPA) will also be detailed in the EMP.

The dust-monitoring program will utilise three HiVolume Air Samplers. At this stage, it is intended to position one sampler on the NW boundary of the Port, another in Bostock Street, and the third sampler at the Council Offices.

The samplers will be operated for a 24-hour period, once every six days, in line with the requirements of the Australian Standard.

Results will be compared against baseline results, which will be obtained during the period prior to commissioning of the facility.

A visual-inspection program will also be undertaken, during the operating life of the facility, to monitor any cumulative impact of dust emissions on property, vegetation and beaches within Esperance. Details, and a schedule for this program, will also be outlined in the Port's EMP.

Monitoring of results will be made available to the community in a form that will provide a true indication of the effectiveness of dust-management measures at the Port. In the unlikely event of unacceptable monitoring results, additional dust-control measures will be implemented to achieve the desired level of dust control.

NOISE

Noise impact within the Port will be minimised to a best-practicable degree through purchase of equipment with low-sound-power levels, and installation of noise-attenuation measures where noise is likely to impact unreasonably on near neighbours.

They would probably include silencers for exhaust vents, acoustic chambers for fans and motors and noise-absorbing material at conveyor transfer points. These attenuation measures will be outlined in the Port's EMP for the information of Port Authority employees and review by the EPA prior to licence approval.

A noise review will also be undertaken during the construction of the facility. The review will identify sources of noise where improvement may be warranted. The noise review will include a review of employee procedures which may cause unreasonable noise impact on near neighbours.

Employee noise-minimisation procedure will also be detailed in the EMP. Every employee will be formally trained in those procedures prior to commissioning of the facility.

A baseline and ongoing environmental noise-monitoring program will be outlined in the EMP and will comply with the requirements of the EPA. Results of this monitoring will also be made available to the community.

In the event of unreasonable noise within residential areas, further noise reduction measures will be implemented where practicable.

WESTRAIL POSITION

Westrail is conscious that its commercial future depends on its ability to compete in a deregulated land-transport market.

A major competitive advantage is the acknowledged superiority of rail transport in terms of environmental protection and environmental management.

Thus Westrail has a commercial spur, in addition to philosophical and social considerations, to behave in a environmentally responsible way.

As part of its continuous-improvement program Westrail is committed to good environmental management in its procedures and operations.

It is engaged at present in developing an environmental-management strategy for the whole of its network. This will result in a statement of policy, procedures for assessing the environmental impacts of Westrail activities and procedures and guidelines (set out in a manual) for environmentally responsible operation..

In providing information to the Esperance Port Authority for its responses to matters raised by the Environmental Protection Authority, Westrail has been conscious that some requirements cannot be defined in detail or addressed in detail till the project is in operation. Hence the proposals for monitoring and the taking of remedial steps where necessary and practicable.

Westrail has been conscious also that it is owned by all the people of Western Australia and has a duty to its owners to serve the State well.

The railways have played an important role in the economic and social development of Western Australia and rail transport is simply a part of the daily life of scores of country towns through which the railways pass.

Rail transport is not something new that is being imposed on the community of Esperance.

The iron ore is another product to be carried on the existing railway to the existing port.

Westrail and the Esperance Port Authority are committed to minimising and managing the environmental and social impacts from transport of a particular product to a particular location.

However, Westrail cannot operate a service to Esperance in isolation from other standard-gauge and narrow-gauge operations.

In seeking to address questions and concerns raised by people in Esperance, Westrail must be careful not to jeopardise the interests of people in other communities.

The bulk of the matters raised in connection with Westrail operations are inconvenience at **level crossings**, questions about **noise** in the town and **dust** from the ore wagons.

LEVEL-CROSSINGS (PROTECTION)

The level of protection provided at the intersection of roads and railways throughout the State is managed and controlled by the Railway Crossing Protection Committee.

This committee is chaired by a representative of the Main Roads Department and has members from Westrail, Country Shire Councils Association and the Police Department.

The committee has the responsibility for determining the level of protection required at level crossings so that appropriate levels of protection are in place to ensure the safety of users of the level crossings.

The guidelines for the committee and the criteria used to determine levels of protection are set out in the document "Report on Railway Level Crossing Protection in Western Australia 1968".

The committee sets the level of protection of new level crossings and keeps under review protection of all existing crossings within the State to determine the level of protection required at individual crossings, according to considerations such as :

- The potential level of conflict between trains and vehicles
- Site conditions
- Any other relevant local conditions

For existing crossings the committee reviews the level of existing protection in the light of any proposed change and, as necessary, sets new levels of protection.

Westrail will submit details of the proposed Portman Mining project to the Committee to initiate a review of protection requirements. Should any change be required, work will be completed prior to the commencement of rail haulage of iron ore.

A number of questions relate to the need to initiate a public education programme to ensure motorists and pedestrians are aware of the planned changes in train operations and obey traffic regulations when crossing level crossings.

LEVEL CROSSINGS (INCONVENIENCE)

Westrail operates freight train services throughout the South West corner of WA and operates the suburban service within Perth.

The CER quotes a typical time a train would occupy a crossing as two (2) minutes. This figure is based on a 700 metre train travelling at 30 kph and includes a 20 second flashing light warning period and was calculated as follows:

Train speed	30kph or 8.33 metres/second
Train length	700 metres
Flash light warning time	20 seconds

Crossing occupied = warning time + time train is on crossing

$$= 20 + \frac{700}{8.33}$$

$$= 20 + 84$$

= 104 seconds or 1.73 minutes - say 2 minutes

The length and frequency of delays at a particular level crossing depend on a number of factors including the length of trains, speed of trains and number of train movements for the day.

Freight-train lengths vary considerably with the shortest train being 300-400 metres and the longest train approx 1800 metres in length. Train speeds over level crossings vary considerably, ranging between 5-10 kph to 100 kph. The number of trains per day over a level crossing varies between less than one (on average) to 25-30 per day.

For an individual train movement the period of time that a train occupies a level crossing depends on the length and speed of the train.

For the Portman project the train length is approx 700 metres with train speed varying over the length of the journey. Typical train speeds will be between 30 and 60 kph.

Level crossings in the Esperance region such as Ravensthorpe Road, Kalgoorlie Road, and roads within the town site area not affected by specific conditions, are likely to be occupied for the typical period of two minutes.

The time individual vehicles may be delayed depends on exactly when a vehicle arrives at a crossing. Should a vehicle arrive at a crossing at the same time as a train then the vehicle will be delayed for the full period that the train occupies the crossing. Similarly if a vehicle arrives just as a train completes crossing then it may not be delayed at all. Therefore, any vehicle subject to a delay could be delayed between 0-2 minutes (for typical train movement) and on average vehicles could be delayed for one minute.

The level crossing at the entrance of the Port Authority is a special case. Here trains will be reducing speed in preparation for stopping at the wagon-unloading facility within the Port. Westrail has undertaken a number of simulations to determine the typical time of occupancy of this crossing. Results of this work indicate that the crossing will be occupied for between 4 to 6 minutes. Vehicle delays will therefore be 2 to 3 minutes on average.

To ensure that road vehicles are blocked for minimum periods, Westrail will arrange the railway tracks to allow the train to proceed directly to the unloading facility. Also, operating instructions will be prepared to ensure that this is achieved.

These track and operating changes will improve the availability of the crossing when compared with the current situation.

TRAIN MOVEMENTS

The Portman Project will involve operating 2 trains between Koolyanobbing and Esperance on a regular schedule. The schedule is such that there will be 9 movements in and out of Esperance each week or, on average, just over 2 movements over level crossings per day.

Currently Westrail operates 3 services in and out of Esperance on a year-round basis and for a 2 month period runs an additional 5 grain services in and out of Esperance each week.

With iron-ore exports there would be 12 services per week for 10 months of the year and 17 services for 2 months. Of these services, 3 will terminate at the Esperance rail yard and will not cross level crossings between the rail yard and the Port.

This level of train operation is at the low end of the scale. Elsewhere in the State, Westrail operates up to 150 services per week over specific railways.

The level of train operation will have a very low impact on the movement of those people using railway level crossings.

For example, level crossings in the Esperance area will be blocked 18 times/week by the proposed service.

Using the typical time that a crossing is expected to be blocked (2 minutes) then each crossing will be blocked for a total of 36 minutes per week or 0.6 hours in 168 hours.

If a motorist attempted to use a specific level crossing at the exact time that the 18 train movements occurred and was delayed for the average delay of one minute then that motorist would be delayed a total of 18 minutes per week.

The statistical probability of this occurring is extremely low and therefore individual motorists are likely to be delayed much less in any one week.

NOISE EMISSION (OPEN RAILWAY)

Westrail's freight role is focused on transporting minerals, grain and timber products for export.

A high proportion of the total transport task of some 26 million tonnes a year relates directly to transporting products to ports for export to world markets.

Westrail transports between 50% and 100% of tonnages exported by the various industries in the South West.

Thus Westrail is the vital transport link between the major shippers' facilities and ports. Shippers of all products are competing on world markets for sale. Rail transport costs for export products represent between 3% and 60% of total costs for export

products and it is therefore important that the rail transport industry works hard to keep costs down and to reduce costs where possible.

A railway is a major arterial transport corridor. It ranks with freeways, highways and other major roads. In the case of a railway there is only one corridor (or route) to a specific location, unlike road networks where a number of alternative routes exist.

To meet the needs of its major clients, Westrail operates train service throughout the State on a 24 hour/day basis. In conjunction with clients, trains are scheduled to maximise the efficiency of the operation and train loading and unloading activities. In this way the lowest-cost operation is achieved.

At the time the CER was prepared, and in response to concerns expressed regarding noise levels of train movements at Esperance, Westrail developed train schedules for the Portman Project that resulted in train movements in the immediate Esperance area being planned to occur between approximately 0700 and 2200 hours. Elsewhere train movements were to occur over the full 24-hour period.

As a consequence, and while it had been possible to schedule the trains to address sectional interests in Esperance, this had been achieved at the risk of increasing the level of inconvenience of others living in close proximity to the railway between Koolyanobbing and Esperance. For example, about 50% of the trains were scheduled through Kambalda, Norseman and Salmon Gums between 2200 hours and 0700 hours.

The capacity of the transport system under this proposal had also been affected. Although Portman Mining's requirement to export about 1.5 million tonnes a year would have been met, the potential capacity of the system was reduced by 10%.

Westrail has reviewed the train schedules submitted in the CER and has concluded that it cannot undertake to limit train movements within the Esperance area to specific times.

In general, limiting train operations to specific time periods in response to concerns from residents in specific towns could eventually result in Westrail being unable to continue operations anywhere in the State.

In the case of the Portman Mining Project, trains are planned to operate on a 36-hour round trip (approximately) and would be unable to complete the journey if restrictions were placed on hours of operation through all towns along the route.

Also it is likely that, by not restricting the train operations, any inconvenience to residents in towns along the route will be more evenly spread than would have been the case under the proposed operation.

One of the environmental advantages that rail offers is that large tonnages are moved with each train, which limits the number of noise incidents. For example, the proposed trains for the Portman Mining Project will carry approximately 4,000 tonnes or iron ore, which is equivalent to approximately 100 truck loads. Therefore the rail-based transport proposal will generate 100 times less noise incidents than would a road-based operation.

Westrail will monitor its operations and will take remedial action where necessary and practical.

The sounding of locomotive horns at level crossing is a mandatory safety requirement

Within the Port

Westrail operations within the Port area will be controlled by the requirements to be outlined in the Port's EMP.

The current proposal has a number of features that reduce the impact of noise from rail operations.

Repositioning the unloading facility some 300 metres east has two impacts:

- The unloading activity is located 300m farther away from the main residential area.
- The need to carry out shunting activities within the Port has been eliminated.

The proposal now includes a train repositioner at the unloading facility. This eliminates the need to use the locomotives to reposition the train during the unloading operation.

DUST EMISSION

Westrail currently hauls coal and bauxite in open wagons. Two projects in the past involved hauling iron ore in open wagons: Between 1968 and 1982 Westrail hauled 1.8 million tonnes per annum from Koolyanobbing to Kwinana and from 1960 to 1971 hauled 0.3 million tonnes per annum from Koolyanooka to Geraldton.

Based on the experience gained on past and present projects, Westrail does not believe that dust emissions from wagons will cause problems to those living adjacent to the railway reserves. There is no record of any complaint relating to the previous iron-ore projects.

The project involving the haulage of iron ore through Geraldton caused considerable concern to residents during the planning phase. As part of Westrail's commitment to ensuring the project was environmentally acceptable, an offer was made to install train-watering facilities on the outskirts of the town. The railway passes many houses within Geraldton and runs parallel to the beach for about 3km. However, over the 11 years of the project, it was not necessary to install the watering facilities.

Westrail will monitor the Esperance operation and will take remedial action where necessary and practical.

Appendix 2

Response to issues in submissions

Responses to questions/comments presented by the Environmental Protection Authority.

Though a good many of the following questions/comments are no longer germane (or do not apply) to the iron-ore export proposal, the Esperance Port Authority has responded to all but a few, which have been referred to other responses.

The questions/comments are given in italic, in the form and order, and in the categories, in which they were received from the Environmental Protection Authority.

The Port Authority's responses, in consultation with Portman Mining and Westrail, are in bold type.

The Port Authority has numbered the questions/comments for ease of reference.

The format has been chosen to assist notation.

GENERAL

1. The CER states that Esperance is a port and tourist town foremost, this is not entirely true. Esperance community see their town as a farming/fishing/tourist town set in a very beautiful environment, and until now the port has been of very little consequence. It is a small supplier of labour, and its main activity has been to support agriculture by importing fertiliser and exporting grain. In this role it has the support of the community, but the export of iron ore is completely different. It has the potential to change the desirability of the town to live in, to retire in or to attract tourism.

The Port has a major impact on the activities of the town. It has been calculated using a standard multiplier that the Port of Esperance is worth in the vicinity of $20 million per annum in economic terms, a figure exceeding 10% of the total value of the South-East Region's economic activity.

These figures have more meaning when it is considered that without the Port there would not be a CBH grain-export terminal in the town, there would not be a fertiliser works, there would not be a major fuel depot and it is likely that the rail would have long ceased to be viable.

The Port is one part of the South-East Region's transport industry. Esperance has a large, efficient road-transport operation which is based on grain and fertiliser haulage. The standard-gauge railway line to Kalgoorlie and the north-east Goldfields is also an integral part of the transport network.

While rural products continue to be the major source of the Port's trade the Port handles significant volumes of fuel, it is again exporting nickel concentrates, as it did in the 1970's and 1980s, and this trade is expected to increase.

Over the years the Port has handled a variety of other cargo such as copper, zinc and pyrite concentrates, magnesite, salt, gypsum, LP gas, petatite, livestock exports, soda ash, ammonium nitrate and occasionally general cargo.

The Port Authority directly employs 20 people. Two of the major employers in the town, CBH and CSBP have operations directly related to the Port. To suggest that the Port is a small employer of labour is erroneous.

2. It is not luck that we live in Esperance. It is our choice. We are not a mining controlled town, and I believe we have every right to place stringent conditions (financially and ethically) on any company or authority who want to share our town and environment with us. I find myself asking why should it always be the developer claiming progress, who wins the day?

The Port has over the years handled many hundreds of thousands of tonnes of mineral products. This has not in the past led to Esperance being considered a mining town and there is no reason to believe it will in the future.

The Esperance Port Authority, Westrail and Portman Mining agree that stringent operating conditions must be applied to the iron-ore export development.

We are, as a group, totally committed to the protection of the environment and social values of Esperance.

Esperance will not be a mining-controlled town. Our proposal to transport and export iron ore is not a mining venture. Property within Esperance is not owned by any mining company.

It is the objective of the Port Authority, as always, to remain a good corporate citizen. We recognise that Port activities must remain compatible with other activities in Esperance and we will pursue that goal.

3. Our unpolluted beaches and archipelago, and the dolphins, whales, seals and birds that visit, make a unique environment. In twenty years time an unpolluted place like this will be even rarer. Should we blow that now for a small shot in the arm for the town's economy?

The environmental-control measures that will be implemented at the Port will ensure that pollution of the beaches and archipelago does not occur.

The Port is committed to development of an Environmental Management Program (EMP), which will outline a variety of strategies that will be used to ensure protection of the environment. Engineering and procedural controls will be outlined in the EMP together with an audit and environmental-monitoring program which will confirm the effectiveness of environmental-control measures on an ongoing basis.

Additional measures will be incorporated into the design during construction and operation, if deemed necessary or required by the Environmental Protection Authority.

We believe, and this must be confirmed by the EPA, that the proposal can be operated in an environmentally acceptable manner. The economy of Esperance will be improved significantly as detailed in the CER. The environment or social values of Esperance will not be significantly affected. Therefore the overall economic gains must be advantageous to the community.

4. Stimulating exports through our Port is not necessarily good for the community at large. Whilst some sectors of our community may enjoy economic benefits from this proposal, it is questionable as to whether the community as a whole will benefit. The tourism industry.and the retirement industry will not.

In any development of this nature, the "hidden benefits" are perhaps not easily identifiable. There will be significant benefits to the community of Esperance, as summarised in the CER. Other "hidden benefits" in addition to those listed in the CER relate to local labour requirements for ongoing maintenance of the facility, local materials and spare parts requirements for the facility, and increases in revenue to local retail outlets from purchases made by crews of the vessels visiting the Port. We believe strongly that, as a result of our proposed environmental-management measures, tourism will not be affected. Port operations have not affected tourism to date and this will remain the case.

5. Why should the residents of Esperance who have opted for the unique lifestyle we enjoy here, put up with this project for the sake of Portman Mining and their shareholders? The few jobs created from it would be overtaken as tourism increases.

As described in (4) and in the CER, the benefits of the proposal do not relate only to Portman Mining and its shareholders. Any increase in employment opportunities is of significant benefit, in this town and in these economic times.

Tourism will continue to increase and will not be adversely affected by the development which will be operated in an environmentally and socially responsible manner.

6. We have been named in the National Geographic as one of the beauty spots of the world. Why spoil this reputation?

The Australian Geographic produced an article in its July 1992 edition on the Recherche Archipelago and noted the beauty of the region.

We are committed to maintaining the natural beauty of Esperance.

7. We settled in Esperance a year ago because of the clean air here. Will our relatively unpolluted environment be threatened?

The procedures and engineering controls implemented at the Port will ensure that air quality is maintained within the Esperance townsite. The Port Authority, Westrail and Portman Mining are totally committed to achieving this goal. In the unlikely event of unacceptable dust emissions, additional control strategies will be implemented as part of the Environmental Management Program (EMP).

8. When the superworks came to Esperance in the sixties, people were against it. They were wrong then and could be wrong again today.

The argument over the opening of the superworks was quite divisive within the community. Now, 25 years down the track, many residents and the majority of visitors to the town would be unaware of its operations.

It is natural for some sections of the community to react adversely to industrial development. We believe strongly that our commitment to environmental protection will ensure that fears prove to be unfounded as was the case with the superworks.

9. Will the Government provide a guaranteed "clean industry status" for imports and exports if Esperance Port remains in its present position?

Nowadays, all new industrial developments must comply with strict environmental controls. The level of environmental control required is generally dependent on the beneficial use of the surrounding environment.

The environment of Esperance is recognised as being special, being utilised for such activities as fishing, recreation, water sports and tourism. The level of control must protect those beneficial uses. The Government guarantees this in general, by requiring developments to adhere to the requirements of the Environmental Protection Act 1986 and to the operating-licence conditions that are applied under that legislation.

10. The Minister responsible for the Port, Mr Eric Charlton, has indicated that between 1.5 and 3 million tonnes will be exported annually (Esperance Express March 23, 1993). What is the set maximum tonnage of iron ore to be shipped through the Port annually?

The current proposal is based on export of about 1.5 million tonnes per annum. Any increase would require Environmental Protection Authority approval. About 1.5 million tonnes per annum is the limit of the available rail infrastructure.

11. The document states that 1.5 million tonnes of iron ore is to be exported. The West Australian of April 27 1993, states that Koolyanobbing would have a total capacity of 2 million tonnes a year, although it would start at an initial rate of 1.5 million tonnes a year. The consequences of a 33.3% increase need to be evaluated. Will the stockpile increase in size, requiring

more groundwater and dust suppression, or in height increasing visual impacts, will train movements be increased from 9 to about 12, or will the length of the trains be increased, from 65 to 86 wagons, thus increasing delays at crossings, and will shipping be increased from 35-40 to 46-53?

The Koolyanobbing mine operations will be developed with plant capable of producing 2 million tonnes per annum.

If an increase in exports to 2 million tonnes per annum were to be sought it would not increase the size of the stockpiles. There would be some extra use of water for dust suppression. Visual impacts would be unaltered.

Since there are a number of operational constraints on train lengths, it is unlikely that train lengths would be increased. A more likely scenario is that additional trains, with fewer wagons, would be used.

Ship numbers may increase, although an increase in tonnage could well be accommodated through the use of larger ships.

12. This project may be acceptable in its present form ie 1.5 million tonnes, but unacceptable at 2 million tonnes. Will quantities for the duration of the project be accurate, and will limits be clearly defined? Should future expansion of the project be proposed, will the Port Authority be required to consult the Environmental Protection Authority and the Esperance community?

Any expansion beyond the present proposal would require approval of the Minister for the Environment. The Environmental Protection Authority would decide the level of community involvement at the early stages of any expansion proposal.

13. Nine trains carrying 4,000 tonnes is 1,872,000 tonnes. Is 1,500,000 tonnes the correct quantity? How much iron ore will be shipped through the Port initially, and will this quantity increase?

If all train wagons were available to Westrail a train movement would equate to 65 wagons each carrying about 62 tonnes. However, given that at any time a number of wagons will be out of service for repairs and maintenance and that trains will not be run on certain public holidays, Westrail estimates the capacity of its proposed operations at about 1.54 million tonnes per annum.

14. Portman's report for Department of State Development indicates that the stockpiles will be of 80 thousand tonnes each. Which is the correct figure 59 + 40.2 x 80?

Under the revised covered stockpile proposal there will be two stockpiles, each with a capacity of about 72,000 tonnes.

15. If there are unforeseeable delays to shipping where would the additional iron ore be stockpiled?

There is no capacity in the Port to stockpile additional iron ore. If a problem developed with delays to shipping, rail operations would have to cease until such time as there was space in the shed to receive the iron ore.

16. If the amount of ore exported is increased where will the additional ore be stockpiled?

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

17. We have no on farm storage for grain. What effect would additional exports through the port have on the farming community during harvest and peak loading times? What guarantees will farmers have if there is a loss of grain storage space? Will it interfere with other proposed local exports such as the live sheep trade.

There will be no effect on grain-export operations. Grain is handled over a separate ship-loading facility and the total receival and shipping operations is independent of the iron-ore operations. There will be no loss of grain-storage space.

There is no reason why a live-sheep trade and the iron-ore trade could not operate simultaneously.

18. A double arm stacker which directs ore along the length of each stockpile in a north-south, south-north direction. Shouldn't this be an east-west/west-east direction?

Because the precise axis of the stockpiles would be undecided till the construction phase, the direction provided in the CER was an approximation only. It would have been more accurate to say that the stockpiles would lie in a south-east to north-west direction. Of course, the open stockpiles are no longer proposed.

19. Portman in its report to DSD indicated that the mine is expected to be decommissioned in about 15-20 years, but in the West Australian Mr Copeman of Portmans indicated a minimum mine life of 25 years. What is the expect life of the project?

At present the measured, indicated and inferred resources at Koolyanobbing are about 66.5 million tonnes calculated in accordance with the requirements of the Australasian Code for Reporting of Identified Resources and Ore Reserves.

Additional exploration will be carried during the course of operating the mine to define the boundaries of the ore bodies and to upgrade indicated and inferred resources to measured resources and proven reserves.

If all resources in the indicated and inferred category are able to be upgraded to the measured category, the mine could have an expected life of 44.33 years at about 1.5 million tonnes per year. Obviously if less than 100% of those resources are able to be upgraded to the measured category, then the mine would have a correspondingly shorter life.

The establishment of ore reserves that dictate mine life is also influenced by many other factors, not the least of which are economic, mining, metallurgical, marketing, legal, environmental, social and governmental factors.

Thus it is impossible to be definitive with regard to the mine life. However, with current reserves, and current economic and market conditions, we can expect a mine life of between 15 and 25 years.

20. If the stockpile is enclosed in a shed, it would allow more effective mist sprinklers to be used for dust suppression, and runoff from stockpiles would be eliminated. Rainwater could be collected in tanks for dust suppression, and the percentage of water content in the ore could be more easily regulated. Sludge pits would be no longer needed.

This suggestion has now been implemented as a result of community concern, in regard to the stockpile area in particular. The advantages described have also been recognised and will be acted upon. Rainwater will be collected in tanks for dust suppression or other port purposes, such as irrigation of vegetation. Sludge pits will also not be required. There are also a variety of operational advantages that can be gained from the construction of a shed, including greater control of water content of the ore.

21. What is the composition of the iron ore? What proportion will be iron ore chunks, and what proportion will be fines? Would the iron ore be checked for asbestos content and what would be done if any was found?

Two products will be exported from Esperance.

Lump ore, which is >6mm <30mm and fines ore, which is <6mm.

Portman Mining expects approximately 60% of its total tonnage to be fines and 40% lump.

The approximate chemical composition of typical Koolyanobbing ore is as follows:

Iron	Fe	63.00%	(Iron occurs as FeO & $Fe_2 0_3$ which gives a total iron oxides of 90%)
Alumina	$Al_2 0_3$	1.060%	
Silica	SiO_2	3.000%	
Phosphorus	P	0.085%	
Sulphur	S	0.015%	
Calcium	CaO	0.010%	
Manganese	Mn	0.020%	
Titanium	TiO_2	0.030%	
Potassium	$K_2 O$	0.003%	
Loss On Ignition		5.810%	

The geological setting at Koolyanobbing is dominated by iron oxides (hematite, limonite, goethite) and silica. Portman's geologists have advised that this setting precludes the possibility of asbestos in the ore.

22. At what point does the Port Authority take over environmental responsibility for the transport of ore? Are the impacts of ore transport such as dust and noise on other centres the railway passes through the responsibility of Westrail or Portmans?

Westrail is responsible for the control of environmental effects from the transport of ore to the Port boundary. The Port Authority takes over responsibility at the Port boundary. Ongoing liaison will take place between Portman, Westrail and the Port in regard to all issues, including environmental issues.

23. Could the Port Authority provide information on materials and tonnages handled in recent times, so that a comparison between the present and proposed levels of activity could be drawn?

Trade statistics for the past ten years are given in *Appendix B* attached.

24. The CER states that the size of operations at Esperance as being 1% of those of Port Hedland. This is misleading, the actual amount exported through Esperance is nearly 4% of that exported through Port Hedland.

The size for the stockpile area was quoted as approximately 1% that of Port Hedland. That figure is accurate and does not relate to the throughput of iron ore.

25. Portman Mining had negotiations with BHP over a period of 9 months about exporting iron ore out of Kwinana. Portman would have had to build a tippler, conveyor belt system, a stacker and a loader. Is it the cheaper rate which is influencing the ore export out of Esperance?

During protracted discussion with BHP Minerals on the use of facilities at Kwinana, Portman had an evaluation of the facilities carried out by an independent consulting engineering group. Following receipt of the engineering report Portman concluded that the cost of the necessary upgrade of the facilities would be prohibitive. In fact the cost was many times that required at Esperance, even with the proposed covered stockpile and track works.

Charges proposed by the operator of the Kwinana facilities equated to more than double those proposed by Esperance.

26. Does it allow for the cost of added environmental requirements, such as placing the stockpile in a shed, and extending the railway line out onto the breakwater? Is the cost of the upgrade at Kwinana any more than the additional facilities now being considered at Esperance? Would additional rail wagons be required for Kwinana? What are the additional fuel costs and Westrail staff hours for exporting from Esperance?

See No 25.

Westrail's costs in connection with specific contracts are commercially confidential to Westrail.

27. Could an assessment of the relative environmental impacts or benefits of the two alternatives Kwinana and Esperance be made?

A thorough assessment of the economic benefits of the two sites has been made by Portman Mining. Esperance proved to be economically advantageous. Environmental impacts of new developments are required to be managed to an acceptable degree for any industrial development at any location within WA. Portman Mining, Westrail and the Port Authority believe strongly that the high level of environmental management required at Esperance is achievable. Therefore the most economically advantageous site has been chosen.

The Environmental Protection Authority will further assess whether the environmental-control measures proposed are adequate to protect the many beneficial uses of Esperance.

28. Given the limited availability of current rolling stock, assuming that the trains could only average 50 kms per hour both ways, as presented for the Koolyanobbing/Esperance line, 10.5 trips could be made to Kwinana each week for the same financial outlay. Could there be additional trips because of the superior state of the Kwinana rail line?

Westrail was able to meet Portman Mining's requirements for transport of iron ore to either Kwinana or Esperance.

29. A previous Government upgraded the Koolyanobbing to Fremantle rail line for freight of this same iron ore, only to find that it later become unfeasible. Is there a likelihood that it will once again prove to be uneconomic in Esperance?

The comment and question are speculative. All parties concerned have confidence in the project.

30. What is the difference between the size of ships and the port service at Kwinana, Esperance and Geraldton ports? What are the berthing facilities at Kwinana and the draft of vessels which it can accommodate?

Esperance is able to load a vessel to draft of 11.5 metres. The largest vessel loaded at Esperance to date took just over 44,000 tonnes of grain.

Geraldton has a draft restriction of 9.2 metres. While it can handle ships of the same size as Esperance, it cannot load them to capacity.

Kwinana has a number of berths with different capacities and drafts. The berth at the BHP facility has a similar draft to Esperance but the berth length is somewhat shorter at 183 metres versus 213 metres at Esperance.

31. Are there any problems with carting 1.5 million tonnes of ore into Kwinana?

The BHP Facility at Kwinana is in a poor state of repair and would require a major upgrade to receive and export iron ore. Other wharves at Kwinana are not adequately equipped to handle exports.

32. CER p5 states that a total of 35-40 ships will be loading iron ore. Esperance Port is only a 30,000 tonnes port so 30,000 tonnes divided into 1.5 million tonnes, works out at 50 ships per year or almost one per week. 33% more than stated in the CER.

Esperance is able to load vessels up to 11.5 metres draft and a length of 200 metres. The largest vessel loaded to date took 44,000 tonnes of grain.

PORT AUTHORITY BOUNDARIES

33. Where is the Port boundary that the dust won't go over? Does it stop at the fence around the Port Authority building and wharf, or does it go further inland, eg to the Esplanade, and how far along the foreshore does it extend?

The Port Authority is committed to ensuring that iron ore dust emissions are contained within the Port boundary to a level which ensures protection of the Esperance environment. The facility will be operated to ensure that present dust levels outside the boundary are not exceeded.

The Port Authority recognises that the beaches or property or general air quality must not be adversely affected from the development, either in the short term or cumulatively.

In addition to engineering and procedural control measures, ongoing monitoring will be undertaken to confirm the effectiveness of control measures.

A baseline air-quality survey within Esperance will be (undertaken immediately following approval of the project) to establish existing dust levels for comparison purposes.

This monitoring program, together with an ongoing monitoring program, will be designed in consultation with the EPA prior to implementation. Visual inspections will also be undertaken as an integral component of the EMP for the Port. Results of all monitoring will be reported to the Community Liaison Group.

See *Appendix C* for a plan showing the Port's boundaries.

34. *Why doesn't the Port Authority have a Green Belt or Buffer Zone as is required under Town Planning or Environmental Regulations? Does the lack of a green belt indicate that only non-noxious traffic was expected to be transported when the land backed wharf was built in the sixties, nearly 70 years after the town? Why is there an extensive buffer around the Fertiliser Works which was built in the same period as the wharf, when the pollution expectancies from that industry are minor compared to iron ore dust?*

The Port Authority has endeavoured to create a green belt around the Port through the development of its Port parks and associated tree-planting programs.

The sub-division in the Bostock Street/Panorama Place area behind the Port was opened up after the development of the Port. The Shire was responsible for approving the sub-division.

DISTANCE TO HOUSES

35. *The houses on the corner of Hardy Street (on the harbour side) and the Esplanade, are they not closer to the proposed stockpile than the Bostock Street houses?*

The houses in Bostock Street are closer by about 10 metres to the stockpile/shed.

36. Isn't the nearest residence in Hughes Road and isn't it approximately 100 metres from the stockpile site? Isn't the caravan park approximately 220 metres from the stockpile? The CER states that "the nearest other residence is a caravan park .... approximately 300 metres from the stockpile". Aren't there 14 residences at 150m and 38 residences plus a caravan park at 300m.

The nearest residence is in Bostock Street about 130 metres from the stockpile/shed. The Hughes Road residence is about 140 metres from the stockpile. The caravan park is approximately 280 metres from the stockpile. These estimates are based on a 1:500 plan.

37. Can the proposed shed be situated near the breakwater to the east of the grain silos? This will remove impacts an additional 500m from the nearest houses and provide benefits.

There is no suitable land available to locate the shed east of the grain silos.

METEOROLOGY

38. Although the port is in a relatively sheltered position, it is still subjected to very strong winds throughout the year because of the windy nature of the area with winds coming from all directions at varying times.

Esperance, like many coastal areas in Western Australia, is subject to strong winds throughout the year. The technology that will be incorporated to control dust from loading of iron ore will ensure acceptable dust control in worst-case meteorological conditions. Our decision to enclose the stockpiles in a shed will alleviate many concerns of the community in that regard.

Interlocks or alarms are under consideration to automatically stop loading operations should wind speeds exceed a critical level for dust control. The results of studies to establish critical wind speeds will be incorporated into the dust-control-system design.

39. Bureau of Meteorology reports 1969-1990 show that from September to April, 20-45% of strong winds are from South East. Wind speeds exceed 10km/hr during the afternoons for 90.5% of the time. During the winter strong winds are experienced from Westerly through North West to Northerly. The CER p8 says being in the lee of Dempster Head for South to South West winds only provided protection for the Port for 16-28% of the time. In fact the eddy effect of wind over Dempster Head has a far more detrimental effect at the wharf rather than providing any protection.

It is likely, as stated, that a cavity effect (a counter rotating eddy) will be induced within the Port boundary by Dempster Head. Though eddies will be produced, wind speeds within the lee of Dempster Head will be significantly reduced, thus providing some degree of protection during south to south-west winds.

The dust-control system will provide protection against wind-blown dust during all wind directions and wind speeds.

40. Dempster Head creates a venturi effect, which is evident when grain and superphosphate are being moved. What is the venturi's potential to cause widespread dispersal of any fugitive iron ore dust?

The cavity (see No 39) created by Dempster Head will extend three to ten hill heights downwind of Dempster Head. Increased wind speeds are generally experienced outside this cavity area. The length of the cavity zone depends on details of the topography of Dempster Head.

The dust-control system will cater for worst-case meteorological conditions and will be designed to control dust during all wind directions and wind speeds.

41. The relationship between wind speed and direction and potential dust transportation, and the implications for the management of dust impacts is not explored in the CER.

The relationship between wind speeds/wind direction and dust transportation will be explored during the final design of the dust-control system to ensure that the system is capable of controlling fugitive emissions during worst-case meteorological conditions. The overall system and any related studies undertaken will be developed in consultation with the Environmental Protection Authority.

42. The wind rose (CER figure 3.3) gives only an annual overall assessment of wind direction, and does not take into account wind speeds or the extremes of climate which Esperance experiences, such as long periods without rain or rain deluges. Aren't annual averages deceptive in an area with extremes of climate?

The dust-control system will be designed to ensure acceptable dust control during all meteorological conditions experienced in Esperance throughout the year. Studies will be undertaken in this regard during the final design stages of the dust-control system, eg wind-tunnel studies.

43. The CER omits data on the strength of the South Easterly sea breeze in summer, the driest months. Forty per cent of winds on summer afternoons are from the South East, and of these

- *42.5% are in the range of 31-40km/hr;*
- *15.0% are in the range of 41-50km/hr;*
- *with gales of over 50km/hr not unusual.*

See No 42. Interlocks or alarms will also be provided to automatically cease loading operations when pre-determined critical wind speeds are exceeded, if the studies show that is is necessary to meet environmental commitments. The critical wind speeds will be determined during design of the dust-control system.

44. Wind speeds and direction can vary considerably from that forecast by the Bureau of Meteorology in Perth, some 770 kms away. The variation in daily weather patterns and unreliable wind forecasts, (concerns raised by the Bush Fires Board, the Esperance Bushfire Brigades Advisory Committee and the Department of Conservation and Land Management on numerous occasions during fire wash-ups,) could present problems in programming the personal computer, which is to be used for activating dust suppression equipment.

The Port Authority will utilise a meteorological tower to activate alarms or interlocks if these are proven to be required for strong-wind effects on dust emissions. The cut-off point for loading operations will be preset below the critical wind speed to ensure that loading is ceased prior to the critical wind speed being reached.

45. I used to live in Bostock Street. There is no way the stockpiles will be sheltered by Dempster Head from all strong winds. Our pole house suffered sever erosion around the concrete foundations supporting the poles. If the sea breeze can more sand this way, what can it do with iron ore dust?

The stockpile water cannons were to be designed and positioned to maintain a certain moisture level within the stockpiles to prevent dust lift-off from eddies created by Dempster Head. However, a decision has now been made to enclose the stockpile area in a shed. The stockpile area will therefore not be exposed to eddies.

46. The gorge-like gap between the grain silos and Dempster Head causes a wind tunnel during South Easterlies which enhances the power of the wind. We saw vegetation wind damaged this way and this is the sheltered side of Dempster Head.

Any wind-tunnel effect would have been designed into the water-cannon system. However, a decision has now been made to enclose the stockpile area in a shed.

WATER SUPPLY

47. The Regional Manager of the West Australian Water Authority stated that Esperance drinking water being drawn from the western aquifer was being stretched to its limit. The Esperance wellfield is currently drawing groundwater at a rate that exceeds the estimated sustainable yield for the field. Water Authority readings indicate a salinity level of 750mg/litre and calcium levels around 380mg/litre. What will be the impact of an extra 49,000 kl/year (based on 1.5 million tonnes of iron ore) and its effect on the quantity and quality of the Esperance water supply?

The decision to enclose the stockpile area in a shed and utilise roof run-off for dust suppression, or other purposes , has negated the requirement to draw large amounts of water from the WAWA borefield. Without the shed, WAWA would need to ensure that water quality from the borefield would remain acceptable for consumption in accordance with drinking water quality standards.

48. How much water will the Port Authority require for dust suppression? Has WAWA stated that there is adequate water supply available for the proposed dust suppression equipment?

It is proposed to utilise run-off water from the shed for dust suppression and other purposes. The collection tanks will be designed to ensure that water is required from WAWA on an irregular basis, if at all.

The final design of the system will determine water requirements. The small amount of water that may be required is not expected to impact on groundwater at the borefield. In any event, WAWA approval would be needed for any additional requirement.

49. If the Port Authority uses water from its own bores, how much draw-down is likely and what effect will this have on the vegetation reliant on this water?

Extra bores will not be required for dust-suppression purposes as a result of the decision to enclose the stockpiles in a shed, thus negating the requirement for water cannons on the stockpile area and significantly reducing demand on the WAWA borefield.

POWER SUPPLY

50. Esperance encounters several black-outs each year and does not have a back up supply. I believe this would hamper the use of computer technology to operate the dust control system. In the event of a power failure (most likely to occur when wind and weather conditions are unfavourable,) the back up system may be totally inadequate. The damage (marine, aesthetic, environmental) would be irreparable. Has SECWA been consulted on its capacity to meet the extra demand? If it cannot meet it, will the port reduce its proposed operation? In the even of a power shortfall what is the potential impact on Esperance consumers?

Discussions have taken place with SECWA as to its ability to meet the increased power requirements at the Port.

SECWA is evaluating a number of options to ensure adequate supply for the Port. These include upgrading the transmission line into the Port and possibly bringing forward by a year or two the planned increase in generating capacity at the Esperance power station.

Any computer-based operating system used for dust suppression will have a standard battery-backup system.

DUST

51. The Port Authority has not been able to contain other forms of dust such as nickel, soda ash or grain, and therefore to claim that iron ore dust will not impact upon the community in either an environmental or a health sense is quite irresponsible.

The Port Authority acknowledges that some of the operations within the Port do generate dust. The suggestion that nickel and soda ash dust has impacted on the community has not (to our knowledge) been demonstrated with hard evidence.

In the early 1970's during the days of Western Mining Company's (WMC) nickel exports through the Port there was considerable controversy in the town as to the health of the Norfolk pines along the foreshore that were supposedly dying due to nickel dust. WMC went to considerable lengths to ascertain if this was the case and could not come up with any conclusive evidence. The Norfolk pine trees continue to thrive along the foreshore.

Grain dust from the Co-operative Bulk Handling (CBH) terminal remains a problem. CBH is continually working on methods to improve its dust collection techniques.

52. Iron ore dust does not wash off in the rain or hose off easily as it tends to crust.

The dust-control system will ensure that iron-ore dust does not impact on property within Esperance. Interlocks or alarms will be utilised if required, following the results of further studies to ensure that loading is not undertaken during meteorological conditions which may give rise to dust lift-off. The overall system will be designed in consultation with the Environmental Protection Authority. Regular inspections of property will be undertaken to ensure the effectiveness of dust-control measures.

53. I owned a hotel in Port Hedland. I now that iron ore dust stains the exteriors of buildings, permeates the interiors, and leaves a stain in every crevice where a window-sill, skirting or ledge joins a wall, crevices in white light fittings, and grout between tiles in the bathroom - all pink-red. Car windows got dust in them, which shook down into the doors, and when the doors were washed the water went down and mixed with the dust and caused the doors to rust. My concern is the dust's effect on the houses, the vegetation along the railway line, and our lovely green Dempster Head.

The operations at the Port cannot be compared to operations in Port Hedland, the more so now that the Esperance stockpiles are to be enclosed. There are no crushing, screening or blending operations carried out at the Port. The dust-control system will be state-of-the-art and will be fitted with interlocks or alarms, if required, to ensure that operations do not result in adverse impact on property in Esperance.

Port Hedland operations were commissioned in an era when environmental-control requirements were not as rigorous as those required nowadays. Port Hedland has gradually improved dust control over recent years, with a view to eventually achieving appropriate dust-control standards.

Dust-control standards required by Esperance will be achieved immediately upon commissioning of the iron-ore-export proposal. It has been a requirement for acceptable environmental standards to be achieved for any industrial development approved following the introduction of the Environmental Protection Act 1986. Protection of houses, vegetation and Dempster Head will be achieved as a result of environmental-control measures.

54. Esperance is too white to stand dust levels which might be acceptable in the Pilbara ports. Any iron ore dust will be obvious on our white sand, so dust standards in operation elsewhere will not be of a standard sufficient for here.

Dust levels which are presently acceptable at Pilbara ports will not be acceptable to the Esperance Port Authority, Westrail or Portman Mining.

55. I worked in the mining industry for thirty years, and worked in a lot of mining towns throughout Australia, and have never seen one of them that did not have problems with the dust and noise that goes with dumps of ore. How can this project be different?

The stockpile area will now be enclosed in a shed. Even so, dust from open stockpiles of iron ore and finer materials has been controlled elsewhere. The relatively small size of the Esperance operation improves the efficiency of dust-control measures, which can be implemented with reasonable capital outlay.

The impact of noise will be greatly reduced as a result of the decisions to enclose the shed (providing extra attenuation), to revert to a bottom-feed system (eliminating the need to use front-end loaders) and moving the rotary car-dumper farther towards the breakwater (farther from residential development).

56. I have professional qualifications appropriate to and work experience in the iron ore industry. There is no way that iron ore dust can be contained within the Port land. Firstly because this dust is very evasive, due partly to the way in which it is processed. It is crushed in a series of size reducing stages. The final product has a range of particle sizes ranging from almost microscopic to large (normally 15 to 20cm). These smaller particles are extremely difficult to contain, and they even float on water. Secondly because Bureau of Meteorology data shows that Esperance has an average of 28 days per year when there is a SE wind in excess of 41kph. These are strong winds capable of moving large amounts of dust during ship loading. The state of the art system may work on the majority of days. But Esperance is renowned for its sudden changes in wind direction and temperature, which is not reflected in the long term data. Iron ore material may only escape on the odd occasion under these extreme conditions or because of mechanical failure. In most other ports this may go unnoticed, but on our white beaches, our clear green water and in our clean town, it will be extremely obvious. This will affect our lifestyles and the tourist industry.

The dust-control system will be designed to maintain a moisture level sufficient to control dust at any stage during the loading operations. If required, as a result of further studies, interlocks or alarms will be installed and operated prior to wind speeds reaching a level where unacceptable fugitive-dust emissions will occur. This system will be supplemented by an ongoing independent monitoring program which will use three HiVolume Dust Samplers

located at strategic positions within the Port and town. Regular, scheduled visual assessments will be made to verify that the dust-control methods are effective. In the unlikely event of problems being experienced, additional dust-control measures will be implemented.

57. At the point of transfer into the ship's hold, a plume of dust rises from grain transfer. Will the same happen during ore transfer?

It is not possible to use water to control dust from grain transfer. Iron ore can be treated with water to ensure control of dust from the ship's hold. The ship's hold has been identified as a potential source of dust emission. Dust from this source will be managed through provision of a dust-extraction system or by maintaining an adequate moisture content in the iron ore and by the use of a telescopic loading spout.

58. What does manual methods of control mean?

We are presently investigating methods of manual control of dust in the event of failure of the installed dust-control system. This may involve the use of manually operated water sprays fed from an emergency water supply. Any manual method chosen must be approved by the EPA prior to commissioning of the facility. In any event, the Port Authority and the EPA must be assured that manual methods can be as effective as the fixed automated system.

59. How much dust is "acceptable"? How will these levels be monitored and from where?

In regard to dust emissions from the iron-ore operations, both health and environmental aspects require consideration. The Environmental Protection Authority uses recognised international and national guidelines in respect of health standards, as appropriate. At present, dust levels within the air environment for residential areas are recommended to be maintained at below 90 ug/m^3 (annual mean NHMRC) and 260 ug/m^3 (24-hour mean, only to be exceeded once per year, US EPA.) (For total suspended particulates.)

It is not possible to establish a set level for other impacts on property or beaches. This information cannot be ascertained and is therefore not available. The Port Authority will initiate a visual-inspection program as a component of its Environmental Management Program. The EMP will outline an inspection-monitoring program of property and beaches to ensure that dust-control measures are effective.

The results of the inspection program will be available to the community. In the unlikely event of problems being experienced, additional environmental-control measures will be implemented.

In any event, the Port Authority, Westrail and Portman are committed to maintaining dust levels at a level consistent with those experienced in Esperance at present. An intensive baseline dust-monitoring program will be implemented following approval of the project to ensure that sufficient data are available prior to commissioning of the facility. This monitoring program will utilise three HiVolume Air Samplers as per the requirements of AS 2724.3.

An ongoing dust-monitoring program will also be implemented. Data from the ongoing program will be compared against baseline results to determine if this commitment is being achieved.

All results will be made available to the community.

60. For dust sampling a 24 hour average figure has been quoted. With rapidly rising sea breezes, the town could be dusty before a high reading was obtained. The Port Authority has promised no dust outside Port land. To get this there would have to be a very rapid shut-down system, but who or what would trigger this shut-down?

A rapid-shut-down system will be installed should studies indicate that dust cannot be controlled adequately during high wind speeds. If required, a meteorological tower at the Port will be pre-set below the critical wind speed and alarms or interlocks will be utilised to shut down the loading system prior to winds reaching the critical wind speed. Studies will be undertaken to determine if a critical wind speed exists for production of wind-blown dust from iron ore.

61. Water from the sprinklers, will allegedly go into drainage areas, but these will need to be emptied and where is the sludge to be deposited? Just outside the town, or will it go back to the original site?

As a result of the decision to install a shed over the stockpile area, water cannons will no longer be required. Any water sprays attached to the conveyor system will be atomised sprinklers, which will be preset to maintain a fixed moisture level in the ore without creating sludge run-off from the conveyor system.

A number of options are being examined for the disposal of iron-ore residue, sludge, dust etc. It may well be recycled back into the stockpile. Interest has also been expressed as to the possibility of its being utilised by farmers wishing to improve the iron content of their soil. This proposal is being examined by the Department of Agriculture .

62. There is only one place the wet ore dust will go during loading from the wharf onto the ship and that is into the bay. Already the water in the bay is polluted by grain and its debris. It is the inability to guarantee no risk which frightens myself and other residents of Esperance. How can the Port Authority guarantee that the handling of the ore can be a cleaner process than that currently used for other commodities?

A loading chute will be installed on the shiploader to ensure that ore goes directly into the ship's hold. Unlike many commodities handled at the Port, iron ore can be moistened if necessary to control dust. Other commodities, such as grain and soda ash must be loaded dry.

The present spillage of products such as grain and soda ash into the bay is environmentally benign as a result of the properties of the materials and the massive dilution effect of the bay. However, the Port Authority and its lessees (CBH, Agdirect and Outokumpu) are investigating improvements in dust control for existing operations as a component of the Port's Environmental Management Program.

63. This would have to be a unique venture as it would be the first dust free ore loading port in Australia, and not one mistake would have to occur in what is a very windy township!

Effective dust control during loading of ores, minerals sands and alumina has been achieved at Geraldton, Cockburn Sound and Bunbury. In addition, the relatively small size of the Esperance operation enhances the efficiency of dust control.

We believe strongly that the engineering technology is available to guarantee protection of the Esperance environment. That view was confirmed in a recent letter in The West Australian, from the Executive Director of the Institution of Engineers, Australia.

A copy of the published letter and a further confirmatory letter to the Port Authority are attached as *Appendix D.*

64. It is obvious that absolute guarantees cannot be given that there will never be any pollution ever. If expensive equipment is installed and cannot control the dust, what happens then?

In the unlikely event of the dust-control system being ineffective, additional measures will be implemented until the required degree of protection can be achieved.

65. Will surplus dust from the facility, the wharf or the decks of vessels be hosed or dumped into the harbour or ocean waters at any time? If the ships are to be taken out to sea before removing the dust, how will this requirement be enforced?

Ongoing training of Port personnel will be undertaken in this regard, as a component of the Port's Environmental Management Program. Compliance with this requirement and others will be reviewed internally, on an ongoing basis, and externally by an independent consultant during the Port's annual environmental audit.

Iron ore spillage and/or dust will be removed from the wharf through the use of a road broom and hand-held brooms. Any spillage on the decks of a vessel is shovelled into the hatch.

The wharves of the Port are periodically hosed down with fresh water, which goes into the ocean. This is done only after the wharves have been swept clean with a road broom and hand-held brooms.

66. With open trucks of fine iron ore being shunted in the railway yard, there would soon be a layer of fine dust covering the yard. As the yard has been used for storage of some grain, where will this now be stored?

The current proposal removes the need for shunting in the railway yard. Previous arrangements for grain storage would be unaffected.

67. Will iron ore dust contaminate other commodities shipped through the Port, such as wheat?

Iron-ore dust will not contaminate other commodities handled in the Port.

See also No 97.

68. Will the Port Authority accept responsibility for iron ore dust spread from the Port onto adjacent roads by vehicles using the Port?

We are not expecting significant amounts of dust-spread to occur on roadways. Should this prove to be a problem, a vehicle-wash station will be installed to prevent dust carry-over outside the Port boundary. The Port will accept responsibility for this measure, if it is required.

69. All deliveries, handling and ship loading should be stopped immediately dust pollution occurs or appears likely to occur beyond the Port boundary, and this should be legally binding on the Port Authority.

Shiploading will be stopped immediately should dust pollution prove to be a threat to the Esperance environment. This will be a formal Port operating procedure.

70. The dust survey (8-27th March) was conducted over such a short period that it may not have been sufficient to give an accurate report. Even in that short period of the survey the acceptable dust level was exceeded during the unloading of soda ash. This operation took place during 10-25 knot winds (not unusual for Esperance), and therefore the transportation and loading of iron ore without dust must be questionable.

It is recognised that the period over which the dust survey was conducted was insufficient to provide comprehensive data.

Unlike iron ore, soda ash must be kept completely dry at all times. The problems experienced with soda ash resulted from a loose-fitting grab. At the early stages of loading, a decision was made to cease loading operations till a close-fitting grab could be obtained.

71. The baseline dust studies provide limited information due to the short period over which the data was collected. Consequently annual mean values for Total Suspended Particulates, on which the National Health and Medical Research Council goals are based, could not be calculated. The study results for the four locations tested were based on sequential testing, and thus it is not possible to relate dust generated by port activities to dust levels at other monitoring points. It is relevant to note that the highest daily rainfall recorded during the dust monitoring period (20.4mm) occurred on 19.3.93, the same day that the highest dust level was recorded. The benefits of local climatic factors such as rainfall and humidity as aids to controlling dust must be questioned.

The short time available to undertake the dust study prior to scheduled release of the CER was recognised at the time as being insufficient for a baseline survey. The objective of the study was to provide an indication of baseline dust levels in Esperance and present dust levels around the Port boundary. We agreed the data obtained were insufficient to ascertain a reasonably accurate figure for an annual mean for Total Suspended Particulates.

The Port will implement a baseline dust-monitoring program using three HiVolume Air Samplers soon after receiving approval to proceed with its proposal. The program will be developed in consultation with the Environmental Protection Authority as previously stated in our responses.

Soda Ash must be handled in no-rainfall conditions. For that reason the soda ash was unloaded (19/3/93) during periods when no rain was falling. The effect of rainfall on dust control for soda ash cannot be considered as an aid to dust suppression.

72. Do the results of tests in the baseline survey in the vicinity of the Port Authority show dust levels for other commodities occurring above EPA guidelines? If so, how can the Port Authority claim that there will be 0 dust emissions for iron ore at its boundaries?

The baseline monitoring survey to be implemented following approval to proceed with the proposal will ensure that Port operations comply with any guidelines.

73. The CER states that the baseline dust survey demonstrates acceptable levels of dust control from present Port activities. It was carried out at the end of the dry, dusty season of summer, and the Port was unusually busy at the time. The recent nickel dust problem could not be classified as acceptable. Acceptable to whom?

The short-duration baseline dust survey provided an indication only of present levels of dust originating from the Port. A detailed survey will be implemented following approval for the project to proceed. There is no hard evidence to suggest that nickel dust has been a problem in the past. The ongoing dust-monitoring program will determine if all loading and unloading operations at the Port are acceptable and comply with EPA and Port Authority criteria.

74. The noise and dust levels quoted give little assurance for the future. Were they designed to indicate that Port Authority activities have already polluted the area? This should not be taken to indicate that the public are happy with present standards, or that they think that Government intervention is unnecessary, or that they are satisfied with the current watch-dog role of the EPA.

To our knowledge, the noise and dust levels quoted in the CER have not been a source of complaint to date. Should noise and dust levels prove to be a problem in the future, and result in justified complaints, additional control measures will be implemented at the Port.

75. Because of its ability to bond both physically and chemically with a wide range of surfaces, iron ore dust tends to be persistent in the environment, and may produce a significant impact when present at quite low levels over an extended period, producing an effect similar in some respects to bore water staining.

An ongoing visual-monitoring program will be implemented at the Port to identify any cumulative impact of dust emissions upon surfaces. The possibility of cumulative impacts is remote — because of the dust-suppression measures to be implemented at the Port.

76. Will the Port Authority inform the Esperance community about the staining as well as the corrosive effects of iron ore dust on clothing, house paint, corrugated iron, copper, brass, vehicle paint and existing rust?

The Port Authority, along with the rest of the Esperance community, is aware of the staining effects of iron ore. For that reason a state-of-the-art dust-control system and appropriate procedures will be utilised during receival and transfer of iron ore to ensure that staining does not occur.

77. With the strong winds experienced in Esperance, the sometimes quoted standard of 0.090mg/m3 may well prove to be unacceptably high.

Appropriate health and environmental dust levels would be set by the relevant authorities.

78. There is no assessment of whether or not the proposed measures are capable of achieving the levels of dust suppression stated in the commitment. As dust control to this level is not presently achieved for any similar operation in Australia, such a study should be undertaken by the Port Authority to support the commitment they have given. What action will be undertaken if the Port Authority is unable to meet the standards it has set itself?

The design engineers are presently reviewing a loading system that relies on dust extraction/filtration systems for the receival and loadout infrastructure. This system is similar to the loadout system being commissioned at Geraldton for loading of synthetic rutile, a black extremely dusty material. Should this system prove to be unsuitable (based on experience at Geraldton) consideration will be given to use of a water-spray system or a combination of both extraction and spray systems where dust extraction is not feasible.

In the unlikely event of problems being experienced during commissioning, additional measures will be implemented.

79. The only way iron ore exporting would be acceptable to us is if the ore was completely sealed at all stages. This means rail carriages dumped into a sealed shed, stored in a shed, conveyed on sealed conveyor and loaded into a hooded/covered bin on the ship.

The measures suggested will be implemented at the Port, with the exception of a hooded/covered bin on the ship. Loading of the ship will utilise an automatically adjusted chute and dust-extraction system or water sprays.

80. If the stockpile is placed in a shed, what dust suppression methods will be used on the stacker and conveyor systems?

In the current proposal dust extraction to a baghouse is being considered for dust suppression on the conveyor and stacker systems. Extraction points will be fitted on each transfer point, in the rotary car-dumper shed and on the shiploader. Water sprays may be utilised when dust extraction cannot be successfully implemented.

Filter baghouses will also be fitted with alarms to the control room to indicate any damage to the filters.

81. Will any spillage occur when conveyor belts are used?

Scrapers will be fitted to the conveyor system to eliminate the product being returned on the underside of the belts.

Should any spillage occur during the conveying operations a work procedure will be in place to ensure that the spillage is cleaned up immediately.

82. How will dust emissions be prevented when a conveyor belt tears, or during routine maintenance of the conveyors?

There may be infrequent events when the conveyor system will fail, resulting in abnormal dust generation. Formal procedures will be developed in this regard to ensure quick response to any incident of this nature. A preventive maintenance/inspection procedure will be instigated at the Port to minimise occurrence of these events.

Each conveyor will be interlocked to ensure that failure of one conveyor results in an immediate shut down of each conveyor in the load-out system.

83. What mechanisms will be used for the collection of run-off containing dust from wash down areas and from the wharf area?

Interceptor traps will be used on the wharf, if required, to prevent iron ore entering the marine environment.

84. Will the Port Authority be required to report failure of dust suppression systems and spillages promptly? To whom?

A log will be kept by Port Authority personnel. The log will be provided to the EPA if required.

85. Will there be dust generation from the ore wagons and the rotary dumper in the revised proposal?

Rotary car-dumpers have been viewed by Port Authority representatives. The dust-suppression system to be installed at the Port will ensure control of dust from this source.

86. I have extensive industrial experience in the Goldfields, particularly at Fimiston Mill, which services the Super Pit. The Mill incorporates the latest methods of dust control on the conveying system, including covered belts, dust extraction fans, water sprays, enclosed stock piles and fine ore bins. Despite all these precautions, large quantities of dust escape from the belts and the transfer points, which include head and tail chutes, and stock pile feed points. The nearest residence to Fimiston Mill is approximately 3 kilometres and dust is still a problem. Esperance Port is wrongly designed and situated for handling iron ore, as the nearest residence is approximately 150 metres away. This situation is totally unsuitable and should not be considered further.

We are not familiar with the operation at the Fimiston Mill, but are aware that dust from other conveyor systems can be controlled. However, recognising the environmental sensitivity of Esperance, additional measures will be incorporated in the unlikely event of problems being experienced.

87. The CER has not been able to demonstrate that the Port Authority has the capacity, within its modus operandi, to protect our environment against fugitive dust escaping from the confines of the Port land.

The Port Authority is committed to maintaining dust within Esperance at its present level. Engineering methods are available to achieve this objective and will be utilised in the design of the system and following commissioning.

88. When nickel from Kambalda was exported, the dust problem at Esperance was very great, and there were thick layers of dust all over our furniture. This was despite the fact that the Nickel was freighted to the Port in sealed wagons, and unloaded into an enclosed shed before export.

Nickel is currently being exported through the Port. It is loaded over the Port Authority's new bulk-ore loader. While it is acknowledged that there were problems with the initial shipment that was loaded over the CBH loader there has been no dust problem with subsequent shipments. The Port Authority and CBH offices are located within the Port. We have not experienced dust problems in those buildings.

89. I have worked on numerous mines in the North, and there was no problem with dust while ore was moving on the conveyor, but at the transfer station from one conveyor to another quite considerable dust was given off. Will this happen at transfer points at Esperance?

We believe our proposed system will control dust at transfer points. At the present time, a dust extraction/filter system is being considered at those points. A combination of water sprays and extraction may be warranted, dependent on the results of further studies.

90. Due to the quantity of Nickel dust lying on the leaves and branches, the upper branches of large Norfolk Pines on the foreshore were denuded, and the trees started to die.

The suggestion that nickel dust was causing the town's Norfolk pines to die was seriously examined at the time of the WMC's nickel exports during the 1970's. One of the Norfolk pines on the foreshore has for many years had denuded upper branches. There are many theories put forward for this, including nickel dust. However, during the 15 years that nickel was not exported through the Port there was no noticeable change in the condition of the tree.

91. In Dampier the iron ore travels from the pallet plant to Finucane Island by closed-in conveyor belts. I have driven alongside this belt, and there is approximately two inches of dust all over the road, and up to nine inches deep under the belt itself. When the belt breaks down, the iron ore is spilt from the belt to the ground, where the wind takes it into the ocean, thus covering all the rocks and beaches along the area near the boat club, which is approx 2 km from Finucane Island. How is the Esperance Port Authority going to contain the dust within the Port boundaries when the conveyor belt breaks down?

Neither the design nor the procedure at Finucane Island (Port Hedland) can be compared with operations at Esperance.

If the conveyor belt breaks down there will be no iron ore being moved by conveyor and hence no dust. Any spillage caused by the breakdown will be cleaned up immediately.

92. The Mayor of Hedland has very strongly advised us against accepting the proposal because of the dust problem there has not been managed there successfully. Why should it be different at Esperance?

The advice of the Mayor of Port Hedland is based on the experience of dust control at Port Hedland. Neither the operation at Hedland nor the methods of dust control there can be compared with the operation or dust-control system to be implemented at Esperance.

There will be no screening, crushing or blending operation carried out at Esperance and the sizes of the operations are vastly different. In addition, the total dust-control system at Esperance will be fully implemented prior to commissioning of the facility, following studies and design work to ensure that control will be effective.

93. Dumping the iron ore in a rotary car dumper together with dust extraction techniques is quite good, but dust does escape from the open ends. Dust also billows up from the pit as carriage is dumping, and settles on the carriage, which will shake off at some future point. I have seen this in Port Hedland, and especially in Dampier, where there are high winds similar to those in Esperance. Will this dumper have open ends? If so, now will the dust be prevented from escaping during high winds? How will the dust on the wagons be removed?

The rail-car dumper will be enclosed in a building, which will be constructed from standard steel sections and will be covered using colorbond sheeting of a colour compatible with other buildings in the port area.

The rail openings at each end of the building will be to the Westrail "minimum clearance" diagram.

The dust extraction system will be designed around the use of standard DCE Vokes "Dalamatic" fabric filters and will be sized to accommodate the tipped volume of material from each wagon plus system losses associated with the design of the dumper.

The system will be located inside the building above and to one side of the dumper, so that it forms an integral part of the dumper unit without the requirement for extensive ducting and a separate filter unit external to the dumper building.

The dumper will be enclosed by a sheet-metal cowl which allows a negative pressure to be applied to the whole dumper area. Within the unit, dust plates are incorporated so that, when at the normal position, the hopper will be effectively sealed to the extraction system and any fugitive dust prevented from escaping.

Dust collected on the filters will be automatically cleaned and solids returned to the hopper via angled chutes from below the dust-collector units.

Damage to bags will be indicated immediately by alarm to the control room through continuous monitoring of pressure drop across the bags.

94. Will dust monitoring be carried out visually as well as using the monitors?

Dust monitoring will be carried out visually at the actual operation and within residential areas surrounding the Port boundary. There will be a set frequency and reporting procedure for those inspections outlined in the Port's EMP. Visual inspection of the loading operations will be carried out on an ongoing basis. Before commissioning of the facility all employees will be fully trained in identifying emissions. Fixed monitors will also be used at the boundary of the Port and in Esperance townsite.

95. Apparently a tunnel loading system does not work well with fines as their angle of repose is very steep, and the fines do not run very well. Is this the system to be used at Esperance? If so, how will this problem be overcome?

Engineering advice indicates that approximately 22,000 of a 72,000 tonne stockpile will rill without mechanical assistance on to the tunnel load-out conveyor. A rubber-tyred bulldozer will be used to push the balance into the tunnel.

96. How will dust spilt on the decks of the ship be controlled?

All employees at the Port will be trained in procedures for minimising spillages of iron ore on to the decks of ships. This training will include minimising spillage into the ocean during loading and clean-up operation.

The loading of ships will be carried out via an automatically activated telescopic chute, which will protrude directly into the hold. It is intended at this stage that the chute will be fitted with dust extractors.

97. Grain growers are docked for any contamination in their sample. Will the Port Authority pay compensation if grain is contaminated with iron ore dust during its transport, storage or loading?

Grain will not be contaminated by iron ore. The grain is transported into the Port in covered trucks and unloaded directly into sealed silos. It is outloaded into ships via a dedicated, covered conveyor.

98. A "state of the art" dust control system similar to Port Kembla is to be used at Esperance. Yet Port Kembla does not have the constraint of 5% moisture limit because it imports rather than exports iron ore. Although it has improved over the last few year, Port Kembla still has a dust problem, and it is much further away from residential areas.

A requirement for a Port Kembla-style dust-control system will not be necessary with the Esperance stockpiles now being housed in a shed.

99. How is the Port Authority going to control the dust when the ore reaches its 5% moisture limit?

The use of water to control dust will be minimal now that the ore is to be stockpiled in a shed. The 5% moisture limit was set for commercial reasons. If the situation had demanded, for dust-control reasons, that the limit had to be exceeded on occasions it would have been done. As a result Portman would have incurred a financial penalty.

100. We live in close proximity to the Port. Without a zero dust level guaranteed by the Esperance Port Authority, our car, home, clothes and garden and our boat moored in the bay will be stained by iron ore dust.

The Port Authority is committed to ensuring that dust levels outside its boundary fence are not increased beyond those levels experienced in Esperance at present. We believe strongly that the dust-control implemented will achieve that. In the unlikely event of problems being experienced, additional measures will be implemented to ensure that we achieve the goal.

101. Will our roofs, gutters and rain water tanks be polluted by the iron ore dust?

There is a variety of existing sources of solids (such as road dust) which enter rainwater tanks at present. Dust control will ensure that iron ore does not enter rainwater tanks.

102. Will our Norfolk Island Pines in the town be affected by dust?

Dust-control measures will ensure that Norfolk Island pines in the town are not affected by dust emissions. The effectiveness of dust-control measures will be monitored on a regular basis through visual inspection of property, beaches and vegetation, including the Norfolk Island pines.

103. I worked as a waterside worker for a long time. After seeing dust from other cargoes including grain going into the ship's hold, I do not believe iron ore dust will be controlled from coming out of the ship's hold. I also believe that a build up of dust sticking on the conveyor belts from moisture will drop off on the underside of the belts to the ship's deck and the wharf apron.

Iron ore is a much heavier commodity than grain. Grain has a weight of approximately 0.8 tonne per cubic metre, whereas iron ore is approximately 2.6 tonnes per cubic metre. When loading grain the hold is filled to capacity. With iron ore, it is likely that the hold will only be one third to half full. This will make it easier to control dust because the loading spout of the shiploader will be located well down inside the hold at all times.

The iron ore will be loaded at a moisture level below 5%. The new bulk-ore loader is currently handling nickel concentrates with a moisture level of up to 14%. The type of belt scrapers installed are ensuring that the belts are kept clean. The Port Authority is confident that the design of the new loader will ensure that iron ore will not be dropped off from the underside of the conveyor belt.

104. Washing down the wharf area after loading or spillage will result in iron ore entering the sea. Will iron ore discolour the beaches and damage the aquatic habitat?

Spillage will be minimised through proper design. The wharf area will be hosed down only after iron-ore dust or spillage has been swept up by broom. Interceptor traps will be installed if necessary.

105. Mr Stewart of the Port Authority stated that iron ore dropped onto the deck of a ship being loaded would stay there until the ship was out to sea. Wouldn't the spilt ore be blown directly onto the beach if the wind was blowing in the appropriate direction, or would it fall into the harbour and be washed onto the shoreline?

All spillage on the deck will be reclaimed, disposed of at landfill or used for agricultural purposes if possible. There will be no disposal of iron ore to sea. Decks will be cleaned prior to the ship leaving port. Procedures will be formulated in this regard and training/inspections will be undertaken to ensure compliance.

Regular reviews of the effectiveness of procedures will be undertaken by Port staff and by an independent consultant during a yearly environmental audit.

106. If there is a heavy rain, will the dust from the ship and conveyor belts escape in the form of a slurry into the ocean, even with covered conveyors?

The conveyor belts will be completely covered along the length and at each transfer point. Spillage of slurry is therefore unlikely to occur. In the event of small spillages iron ore will be collected, dry or wet, through the use of interceptor traps if necessary.

107. Will air jets be used to remove dust from external ledges of rail wagons? If not how will this dust be removed?

During the unloading of the wagons by the rotary car dumper all ore and dust is collected from the wagon, be it located in the wagon or on its external ledges.

108. When a ship is in for loading, then the ore has to be loaded regardless of weather conditions or breakdowns in dust suppression systems. If the iron ore is coming in daily and the proposed storage is limited, then the ore must be loaded. What does the Port Authority propose to do when this situation occurs?

The ore does not have to be loaded regardless of weather conditions. Vessels are often delayed due to inclement weather. Similarly ships are occasionally delayed due to breakdowns in equipment and machinery.

In the event that the breakdown or weather delay was of a magnitude that resulted in there being no storage available at the Port, rail operations would have to cease until the problems were overcome.

109. Mr Stewart stated at the Public Meeting that "the dust measure was gained when a known body of air was passed over a filter for 24 hours every six days." Does this mean that the dust is only going to be measured on 60 days of the year?

The details of the dust-monitoring system have yet to be finalised in agreement with the EPA. Only preliminary discussions with the EPA have been held to date.

At this stage, the Port is proposing to utilise three HiVolume samplers. One sampler will be positioned at the north-west boundary of the Port, one in the vicinity of Bostock Street and the remaining sampler at the Council offices. The normal procedure is to run all samplers for a 24 hour period once every six days in compliance with the Australian Standard method. This will be the frequency of sampling following commissioning of the facility.

However, in order to obtain sufficient baseline data prior to commissioning of the facility, this sampling frequency will be intensified over a three-month period, following approval of the project, to ensure that sufficient information regarding present dust levels is obtained.

110. An iron ore train travelling at 30km/hr into a strong south easterly sea breeze at 50km/hr would experience a total effective wind speed of 80km/hr. Will plumes of dust from the open wagons reach residential properties under these circumstances?

Based on previous experience with iron ore transport Westrail does not expect problems with dust from wagons However, the situation will be monitoried.

111. The CER lists eight places that dust can escape. It then states that dust will be contained within the Port Authority boundary to the satisfaction of the EPA and the Port Authority. What exactly is the "no-dust" situation to which some citizens begrudgingly gave their support?

The CER listed eight places where there was potential for fugitive dust emissions. It then went on to explain management measures which will be implemented to ensure that dust is contained within the Port boundary. The Esperance Port Authority is committed to ensuring that present dust levels within Esperance are not exceeded.

112. As far as the Environmental Protection Authority is concerned, "no dust" in the air has an acceptable upper limit. The Authority has indicated that this acceptable upper limit for Esperance will be that tolerated for Port Hedland. It seems anomalous that only the EPA and the Port Authority have to be satisfied on the dust issue. What about the local residents? An EPA letter to the Town Clerk of Port Hedland indicated that "it is not a requirement of the EPA that BHP undertake dust monitoring, rather it is an initiative by the company to undertake this monitoring programme in Port Hedland. Will our Port Authority be allowed similar conditions?

The relevant Government agencies will establish dust limits for the ambient environment. The Esperance Port Authority has committed itself to a dust-monitoring program.

These figures do not relate to any standard that may have been quoted for Port Hedland. Additionally, the EPA will require dust emissions to be controlled to a degree that protects property and the environment from staining and other adverse impacts.

The Port Authority proposed a dust-monitoring program prior to release of the CER. The EPA will require dust monitoring to be undertaken.

The Port Authority has stated in the Summary of the CER that the environment of Esperance will be protected to the satisfaction of the Port Authority, the EPA and the community of Esperance.

"113. A dust monitoring programme will be instigated to provide a realistic assessment of the success of dust control measures." Is this a realistic assessment in line with the no dust promise? Judging by letters to the editor in the Esperance Express, the public believe that the whole project would be closed down if monitoring shows that dust was found? Is this the case?

The HiVolume dust monitoring program will establish if dust levels within Esperance are being maintained at their present levels. The visual-inspection program will monitor any cumulative staining effect within the town or on the beaches.

114. Dust monitoring elsewhere can be very difficult, and is based on an annual basis, which when averaged out on a daily basis, still falls within EPA limits. I understand that in Port Hedland, the Company will not let the Dust Abatement Committee look at the figures, and that it was hard to mount legal action. Will dust monitoring be on an annual basis, and will figures be released to the public in Esperance?

Dust monitoring elsewhere is usually undertaken in compliance with AS2724.3 - 1984 (at a frequency of one 24-hour period every sixth day). The results are then averaged to establish the annual-mean figure.

At Esperance a 24-hour mean figure will also be established.

All monitoring results will be made available to the community in a form that provides true indication of performance in dust-control.

115. Twice daily monitoring and recording of dust levels at the Port and within the townsite would be a minimum requirement. Will there be daily monitoring just outside Port area and will it be made public?

Sampling will be undertaken in line with AS2724.3 - 1984 (at a frequency of once every six days). The frequency of sampling will be intensified initially for the baseline dust survey. There is no basis for undertaking twice-daily sampling.

In addition, a twice-daily sampling frequency rate for three monitors would require the employment of one person full time to manage the program. This is neither feasible nor warranted.

116. The CER mentions vehicle wash stations (p17) but are the rail wagons to be washed? Why would vehicles need washing and not rail wagons?

Under the original proposal vehicles that had a legitimate requirement to travel in the open stockpile area would need to pass through a vehicle wash-down station upon leaving the site.

All ore and dust will be evacuated from the rail wagons by the rotary car dumper operations. This will be monitored and if residue dust is found a washing facility may be installed.

117. Could a build up of dust and its corrosive nature reduce the expected life of buildings within the Port Authority boundary?

A visual program will be implemented to monitor this. But impact of this nature is not expected.

118. The CER p17 states a street sweeper will be used if iron ore dust occurs on the roadways within the Port area. This shows that the Port Authority has little understanding of the nature of iron ore dust, as it is such a fine dust that the street sweeper would little more than make the dust airborne, only to land back on the road ready to attach itself to the tyres of the next vehicle, or to become airborne again with the next gust of wind.

The street sweeper currently used by the Authority has a water spray to assist in the collection of road dust.

1198. The worst problems at Port Kembla are fugitive dust and that, according to BHP and EPA (NSW), will be Esperance's big problem, especially with empty trains leaving the rotary dumper. The wash down bays at Port Kembla are very efficient. BHP have calculated that an average 17kg of dust is washed off each truck going through the system. How much dust will lift off the empty wagons at Esperance? How will dust lift off from the wagons be controlled?

During the unloading operations all the ore and dust in or on the wagons is evacuated by the rotary-car-dumper process.

120. Does monitoring of dust at Port Kembla (the port compared to Esperance by the Port Authority) require complying to standards of limited dust or to the "no dust standard" guaranteed at Esperance?

The Port Authority at no time set out to compare the Port Kembla operations with the Esperance proposal.

The Port Authority visited Port Kembla to witness first hand an open-stockpile dust-suppression sprinkler system similar to that being proposed for Esperance.

The Port Authority has consistently stated that it will comply with a dust standard that is judged by the Environmental Protection Authority to be appropriate for this operation.

121. The many statements on dust obviously rely on the human element, yet experience from Port Hedland would indicate that any one escape of dust has the potential to permanently damage the interior and fittings of a house as well as staining the outside, and aggravating the rusting of corrugated iron roofs. Will this happen at Esperance?

Dust-control measures and procedures to be implemented at the Port will ensure that this type of scenario will not occur. The operations at Port Hedland cannot be related to those proposed at Esperance. The size and type of activities undertaken at the two sites and dust-control measures utilised are not comparable.

122. The public has a right to be informed of the dust figures on a weekly basis via the local press and radio. Will the Port Authority provide these figures on a daily basis?

The HiVolume Dust Monitors provided by the Port will be operated, and the results analysed, by an independent organisation.

The Port Authority is happy for the dust figures to be made available on whatever basis is deemed necessary and practicable.

123. Will the operation be closed down if the dust levels cannot be met once the iron ore is being exported? Will the Port Authority be fined if dust levels cannot be met? Will it be cheaper for the proponent to pay the fines than spend large amounts of money to install the technology to overcome the problem - if it exists?

The Port Authority will not continue operations if there is any potential for dust problems outside its boundary.

The Port Authority can be fined under the Environmental Protection Act 1986 if standards are proved to have been exceeded.

The Port Authority, as a matter of corporate responsibility, does not intend to be in a situation where it could be prosecuted for causing pollution.

124. The current proposal with two front end loaders tipping into an elevator must produce a lot of dust. The solution is a covered stockpile and loading, and dust extraction.

The stockpiles will now be covered and fitted with dust extraction as suggested.

125. The Port Authority's no dust guarantee rests on the assurance of Spraytech to that effect. At Port Hedland where similar technology is used, substantial quantities of dust leave the port boundaries in high winds. Until the system is trialled it cannot be certain it will be effective. Therefore does the Port Authority's guarantee have any real foundation?

A crusting agent will not be required for covered stockpiles.

126. Water suppression of dust does not work under all conditions. Sprays do not stop dust coming off the stacker in high winds and it was also obvious at Dampier with huge amounts of dust blowing off the stockpile when I visited. Dust is also caused by the wheels of front end loaders moving back and forth, from slides of ore down the face of the stack and in dumping the ore.

The ore will now be loaded into a shed in preference to open stockpiles. The shed will be sealed and maintained under negative pressure by extracting air from the shed through an air filter. In addition, front-end loaders will not now be used. A bottom-loading system will now be installed.

The design engineers are presently considering use of dust extraction on the covered conveyor system, or a combination of water sprays and extraction, in order to ensure effective dust management and compliance with EPA and community standards.

127. The CER mentions a crust on the stockpile. How can a crust be maintained when the stockpile is "live", ie constantly being moved. I am informed that a crust takes several days to form. The stockpiles hold 2 shiploads of ore, and with 1 ship loading per week, the stockpiles will not be still long enough to form a crust.

Because of the decision to enclose the stockpiles in a shed, crusting of the stockpile is no longer required.

CHEMICAL CRUSTING AGENTS

128. Will a full detailed analysis of any proposed chemical likely to be used around the port on the iron ore be made available to the public?

The proposal does not require chemical additives.

NOISE

129. As a background study the KENRAC report provides only limited data on noise levels in the vicinity of the port and on the relationship between specific port activities and their contribution to overall noise levels. Could more information on this relationship be supplied?

The Port Authority is in the process of developing an Environmental Management Program for its overall operations. One of the many components related to the development of this program is the identification of unacceptable noise sources and implementation of strategies to control noise.

A similar process is being carried out in regard to the iron-ore proposal. Various pieces of equipment, such as motors and extraction fans, which may cause annoyance to near neighbours will be required to comply with specific noise-output requirements.

During the final design stages of the proposal, each moving piece of equipment will be reviewed in respect of noise output. Where noise intrinsic to the equipment cannot be minimised to the required degree, the best practicable attenuation measures will be applied to the work area.

130. The loading of the ships and the unloading of the rail wagons cause mechanical noise, with squeaky elevators, clanging of machinery and th hoot of reverse warning on motor vehicles.

The Environmental Management Program for the Port will outline strategies to minimise or eliminate of noise from sources of this kind.

It is possible to obtain an exemption from the use of reversing beepers operating in the vicinity of built-up areas.

131. The empty train leaving the port at 2100 hours seems to be the one that would be likely to cause the most noise problems within the town area.

An empty train can be hauled with the locomotive operating at low power and the train will be travelling at slow speed. Both these aspects will be an advantage in noise-control terms. Noise levels from train movement are similar to those from passing trucks. The duration will be longer, but not as repetitive.

132. Is a fully enclosed sound-proofed operation of moving the iron ore from the stockpile, over the ship's side and into the hold possible? Is placing the ore quietly within the ship's hold at all possible?

A fully enclosed sound-proof operation is not warranted in respect of the conveyor system. Conveyor systems are not a source of excessive noise because of their high-quality bearings.

It is not possible to reduce noise during loading of iron ore to the ship's hold. The most noise generated by this activity is when the first ore falls from the chute on to the tank-top in the bottom of the hold. Once the bottom of the hold is covered with ore, the noise level decreases.

133. Emphasis should be placed on the frequency (pitch) of the sound as well as on the volume. the Community is faced with sound of unkonown duration, volume and pitch four times per day. What are its impacts?

An ongoing noise survey will be undertaken by an independent consultant following commissioning of the facility. One of the objectives of the survey will be to identify any tonal components or other characteristics of noise that have potential to cause annoyance. Measures will then be implemented where required, and if practicable.

Suppliers of specific equipment (fans, motors) for the project will be requested to supply data in this respect.

134. Houses are in close vicinity to both the rail line and the port. Isn't a home owner entitled to enjoy the quietness of their home for day-to-day living as well as for recreational purposes after working hours and during weekends?

The Port Authority recognises that activity within the Port boundary has a noise impact upon residences abutting its boundary, but lack of complaints implies the the impact is not considered unreasonable. The Port Authority is committed to minimising noise impact from its activities where practicable, through purchase of equipment with low-sound-power rating and through installation of noise-attenuation measures where required. Other existing noise sources will also be identified as a component of the Port's Environmental Management Program.

135. "The proposal will result in a localised increase in noise ... within the Port". An increase in noise has been acknowledged, but how will it be confined to within the Port?

Current Port activities contribute to the ambient-noise levels of the site and of the town, in the same way as the town's activities contribute to ambient noise.

Iron-ore export would also contribute to ambient noise. But all the Port's activities are unlikely to be taking place at the same time, and noise minimisation will be a major objective in the Port's overall Environmental Management Program.

136. Noise levels associated with iron ore transfer can be expected to be higher, particularly for the transfer of lump ore, than for finer grain materials such as nickel, fertiliser or wheat. The rotary car dumper and ore stacker operations will be new to the port, and will be additional noise sources. Stacking and loading operations will also be conducted on a more frequent basis and over longer periods than current port activities.

The project will result in noise increase within the Port. The Port Authority is committed to minimising the increase in noise as far as is reasonably practicable. With appropriate controls, and minimisation of existing noise sources, any increase in noise is not expected to be a source of annoyance to near neighbours.

137. The reflection of noise from Dempster Head has also been observed, and this may affect noise levels in parts of Esperance, either generally or by focussing and amplifying noise levels in particular locations, depending on the locations of the equipment to be constructed.

The Port Authority is not aware of any ongoing adverse noise impacts upon residents in parts of Esperance. The increased activities within the Port are not likely to result in unreasonable noise increases in any area surrounding the Port boundary.

The Port Authority is not aware of any observation of the noise-reflection characteristics of Dempster Head.

138. What level of impact from noise can be anticipated?

Anticipated noise levels will be established during preparation of the Port's EMP. Experience with loading of other materials at the Port would indicate that noise increase will not be significant from operation of the conveyor system. Noise from other sources, such as movement of rail cars through the rotary car-dumper, is being reviewed at present. Attenuation will be fitted into the shed if necessary. Other pieces of operating equipment will be purchased following review of sound levels to ensure that noise impact is minimised in the design stages of the project.

139. I've watched the rotary car dumpers at Port Hedland. There is quite a lot of noise each time the carriages are stopped by the hydraulic arm. There is an individual "bang" as each carriage bumps into the preceding one. Will there be similar noise levels from this operation at Esperance? What are they?

The Port Hedland dumper/indexer system is 3 wagon lengths, which is equivalent to a distance of 31.08m and takes 70 sec to cover.

The Esperance indexer stroke is 10.65m (1 wagon) covered in 45 sec and relates to a speed of approximately 53% of the Port Hedland indexer.

Therefore acceleration forms will be less and the noise associated with the wagons bumping will be minimised.

A similar dumper, which has no dust extraction at all, is operating at Burnie, Tasmania. No reports of nuisance from the zinc/copper concentrates being dumped are known. In addition noise readings taken recently indicate that at 6-10m from the building the general background noise is higher than the noise generated by the dumper.

This information (and the absence of dust problems at the Burnie dumper) was confirmed with the Burnie Port Authority and the Devonport office of the Tasmanian Department of Environment and Planning.

140. We live less than 1km from the Port, near the railway line and we are worried about the increased noise. We are already woken by train noise. Trains are presently entering the Port as early as 4.30am.

As a result of the increase in frequency of train movements, noise will be experienced more frequently. Noise levels as such will not be increased. Noise levels from rail movement of iron ore are likely to be lower than those experienced by many other residents living in close vicinity to the rail line in Western Australia — because of the slow speed of travel through Esperance.

Westrail has recognised the sensitivity of many residents to increases in rail movement and will strive to minimise movement during late evening and early morning hours.

141. How stringent will the guidelines controlling train movements be? Will the curfews placed on the trains or will they have two hours leeway at either end, thereby making it a possibility that we only get four hours sleep?

A railway is a major arterial transport corridor. Westrail operates on a 24 hour/day basis throughout the State. It is not proposed to restrict the hours of rail operations for the Portman Mining project.

See also, Volume I, pages 14 & 15 Westrail Overview — Noise Emission (Open Railway).

142. The CER does not mention the number of residences within close distance of the stockpile, or the number of citizens affected or the proximity of the Esperance centre. The Port Authority is admitting to increased noise pollution. What are the numbers of people so affected?

Noise from the stockpile area will not be a major concern as a result of the decision to enclose the stockpiles in a shed and to use a bottom-feed system for iron-ore loadout in preference to front-end loaders..

The new bulk-ore loader reflects the Port Authority's efforts to ensure that noise is kept to a minimum.

143. Vehicle noise is already unacceptably high, as a number of trucks using the route into the port have no effective exhaust muffler systems. The comment is made in the CER that train noise at the caravan park was similar to vehicle noise. How can unacceptable noise produced by vehicle movement justify the train noise as acceptable?

The comparison of train noise against truck noise, was made using data supplied by KENRAC. To our knowledge, truck noise was assessed using trucks with effective muffler systems. Many caravan parks are situated on main highways and are subject to noise from vehicle movement.

Existing truck noise is part of the ambient enviroment of Esperance and is outside the scope of the Port Authority's proposal. Westrail will establish operating procedures to minimise train noise.

144. Different noise impacts will be caused by the loaded trains travelling toward the port, empty trains travelling away from the port and with trains braking, shunting and accelerating. What are the noise levels which are associated with each of these activities?

Noise levels vary widely according to terrain, measuring position and climatic conditions on the day. The information requested could not be provided till the project was in operation.

See also No 146.

145. A commitment by the Port Authority to implement noise control measures, for example the construction of noise bunds, in the event that noise is excessive, should be provided.

Appropriate noise-attenuation measures will be implemented where required, and where feasible.

146. "Trains will be travelling at low speeds (approx 30 km/hr) through Esperance, therefore minimising noise emitted during travel." What is a fast train and how noisy is it? How much noise does a slow train make? How much longer does a slow train go on making less noise?

Noise levels have been determined at 15 metres for a train travelling at 75km/hr. At that distance, the locomotives generate a maximum short-term level 94dB(A). Rail-wagon noise showed a mean of 80dB(A) with a maximum of 82dB(A).

Noise levels within Esperance will be less than those determined from the fast train becasue slower speed through Esperance, increased distance away from the rail line, (in excess of 15 metres) and existence of noise-attenuation structures.

147. I object to the constant use of the words "where feasible" in this section. There are no guarantees to the public that the Esperance Port Authority has a serious commitment to the suppression of noise, and it is obviously going to be limited by the funds available, and I find this highly unsatisfactory. The statement "develop procedures with Westrail" is full of hot air. Exactly what procedures will Westrail take to prevent noise?

It is impossible to prevent noise in railway operations. Westrail seeks to minimise noise by way of driver training and operating policies and procedures and by taking advantage of improved technology where possible.

148. The survey is not a true indication of noise at the Caravan Park as only two days readings were taken. Ninety five per cent of truck and traffic noise is between 8am and 5pm week days only. This project would produce noise almost 24 hours a day, 7 days a week with trains and unloading and loading operations. The only 24 hour operation which affects the caravan park and many residences now is unloading of superphosphate, which is only a few days a year, and should be looked at any way. The noise and dust will devastate the caravan park and force its closure.

We believe that noise reduction at the Port will minimise the impact of the proposal on the caravan park. A baseline and ongoing noise-monitoring program will be used to verify the success of noise-control measures. This program will be a component of the Environmental Management Program for the Port.

The project will not cause noise 24 hours per day. The train unloading operation will take three hours, and on most days will happen once in 24 hours. There will be two days per week when two trains will be unloaded in one day. The trains will pass by the caravan park on their way into the Port and again on their way out. At the most this is expected to take 10 minutes each way.

When loading a vessel noise will be limited to the sound of conveyors, some noise as the lump ore initially drops into the hold and some machinery noise when pushing the ore inside the shed. Any machinery noise will be muffled by the shed. Other noise associated with the loading (ore dropping into the hold) will take place about 800 metres away from the caravan park.

The Port operations have always operated on a 24-hour basis, when required, not just for the discharge of superphosphate as suggested in the question. Grain is regularly loaded around the clock, as has been nickel, salt and gypsum.

The caravan park will not be devastated by the noise and dust. In fact patrons of the caravan park regularly use the Port park immediately opposite. They also fish off the wharves and use the beach in front of the Port offices.

149. Are the hours stated in the CER to be adhered to? If not, why not? Wouldn't 7am to 7pm be more acceptable?

See No 141.

150. When trains and/or ships run late and are unloading and loading late at night and early in the morning because they have schedules to meet, will the noise escalate, remembering that it is not just fines but chunks of iron ore that will be moved as well?

The Port is, and always has been a 24-hour operation. We are not aware that present activities undertaken at the Port are a source of annoyance in this regard, even during the early morning hours. Loading of iron ore is a similar operation to loading of other materials at the Port, and is not expected to be a source of annoyance. Noise-reduction measures will be implemented for the project in regard to types of equipment purchased and other attenuation measures to be incorporated in the overall design.

151. My house is situated above the railway line, and I am concerned about stress induced by noise, and interruption of sleep patterns of my family. If the trains enter the port fast enough to clear the road crossing in 2 minutes, will they have to brake heavily to stop in the port area? Will braking create increased noise problems? Will the general noise from loading activities increase?

Westrail will strive to minimise rail movements during the late evening/early morning hours. Other procedures will be implemented in regard to use of brakes through Esperance with a view to minimising this source of noise through driver technique and a gradual reduction in speed through Esperance.

Since release of the CER, a thorough analysis of train speeds and time taken to pass a stationary point at various speeds, has been undertaken. At the entry to the Port, the train will take approximately 4 - 6 minutes to pass a stationary point based upon a speed of 10 - 15km/hr as it enters the yard and then comes to a stop at the unloading facility.

There will be some localised increase in noise from Port activities. The Port is presently reviewing existing noise sources with a view to minimising overall noise when the iron ore facility is commissioned. In addition, appropriate system design will be used to minimise noise impact from the development.

152. How often will the trains have to sound their horns? How loud is the horn?

Trains must sound their horns for safety reasons when approaching level crossings. The horns will be no louder than at present. However, noise-impact from horns will be monitored.

153. What does "localised noise will be minimised to the best practical degree through design and procedures" really mean?

Localised noise impact has been minimised in many new industrial developments through a variety of measures which, generally speaking, relate to installation of equipment with low noise output, installation of sound-absorbing structures in cases where equipment cannot achieve the desired standard (eg installation of silencers on exhaust vents, and enclosing fans and motors in sound-proof materials).

From a procedural point of view, minimisation of noise will rely on review and formulation of noise-minimisation work procedures (eg avoiding using steel hammers on resonating structures, adoption of specific noise-reduction operating techniques on the loader and other equipment).

154. Will Westrail prepare a noise minimisation plan?

Westrail operates nearly 5600km of track in the southern part of Western Australia and most routes pass through country towns. Westrail's policies and procedures include ongoing efforts to minimise noise.

155. Can the Port Authority construct the proposed shed with concrete or brick panels to deaden internal noise?

The shed will be principally steel framed and clad in colorbond. Concrete bund walls to a height of approximately 1.5 metres are likely to be incorporated in the building.

156. What noise levels can be expected from extractor fans in the rotary dumper and the shed?

Extractor fans that may be installed in the shed or rotary car dumper will be of a type that complies with the relevant Australian standards (AS) and EPA noise levels.

RAIL FREIGHT OF IRON ORE

157. The Port Authority appears to take responsibility for dust control during transport "in discussion with Westrail". How does the Port Authority have the power to direct Westrail's operations outside the port boundary?

The Port Authority does not take responsibility for dust control during the rail-transport operations. The Port Authority will work in co-operation with Westrail to ensure that dust problems do not develop from rail operations.

158. It would appear that if the schedule in the CER is the one adopted, that six nights of the week, Sunday, Tuesday, Wednesday, Friday and Saturday, a train would arrive in Esperance at 6pm crossing 5 roadways within the town en route to the port. It will then unload, and leave at 10pm if all goes well. For people living within hearing distance of the railway this will add yet another noise to deal with. Will the train be required to give a warning sound when approaching a crossing? This would be most disturbing to people who have already retired before 10pm.

See No 152.

Horns must be sounded for safety reasons.

159. The railway crossing at Pink Lake Road and the adjacent intersection with Harbour Road pose a serious safety risk. At 8.30am and 3.30pm when the students are going to and leaving the High School both Pink Lake and Harbour Road are banked up with school buses and cars and sometimes grain trucks. Any hold up by ore trains would cause serious problems. There are five schools in the area, with a total population of over 1,5000 students, and the cycleway crosses the line. At present students hardly see a train. Boom gates plus an attendant or an education programme are required between 8-9am and 3-4pm, until people are familiar with the extra trains coming down the line.

A review of all crossings in Esperance townsite will be carried out bythe Railway Crossing Protection Committee. (See Overview section, Volume I page 10)

160. The Port Authority states that there will be only a 2 minute delay for 65 wagons to pass the rail crossings. It is unrealistic to assume that trains entering the Port will stiill be travelling at 30km/hr (quoted at 2 minutes delay at each crossing) at the Watson and Smith Street rail crossings. The report is misleading by quoting figures for rail crossings distant from the Port, and none for the area were it will have the most impact. The estimate of two minutes delay for crossings closer to the Port is totally inaccurate. Westrail have conceded that it could be a lot longer.

Westrail operates freight-train services throughout the South West corner of WA and operates the suburban services within Perth.

The CER quotes a typical time a train would occupy a crossing as two minutes. This figure is based on a 700 metre train travelling at 30 kph and includes a 20 second flashing light warning period and was calculated as follows:

Train speed	30 kph or 8.33 metres/second
Train length	700 metres
Flash light warning time	20 seconds

Crossing occupied = warning time + time train is on crossing

$$= 20 + \frac{700}{8.33}$$

$$= 20 + 84$$

= 104 seconds or 1.73 minutes - say 2 minutes

161. I timed a train with 17 wagons, and it took 3 minutes to cross the Esplanade. This being the case won't the correct time for an ore train be approximately 10 minutes? In harvest time this would cause a bank-up of approximately 15-20 trucks in Harbour Road causing problems at times, since when the crossing is clear, the Esplanade traffic has precedence over Harbour Road traffic. Won't this crossing need redesigning?

See Nos 159 and 160.

To ensure that road vehicles are blocked for minimum periods, Westrail will arrange the railway tracks within the yard to allow the train to proceed directly to the unloading facility. Also, operating instructions will be prepared to ensure that this is achieved.

These track and operating changes will improve the availability of the crossings compared with the current arrangements at the Port.

162. Will the Port Authority address the interaction of road trains and ore trains?

A committee made up of Westrail, Port Authority, Shire, Main Roads Department and CBH has been set up in the past to address issues of grain trucks entering the Port during the busy harvest period. The committee would be reactivated if a problem developed with unacceptable delays at the rail crossing during harvest.

163. What if the Fire Brigade, Ambulance, or Police have to attend an emergency at Pink Lake or West Beach, and the crossings are blocked by ore trains?

Crossings will not be "blocked" by stationary ore trains — and for a few minutes only by moving trains.

164. A lot of our rail track is not fenced off in any way. Just by taking a drive past the track, you can see numerous tracks where children and adults cross it as a short cut. Could some of the Westrail money be used to provide a barrier between the track and roads, leaving one or two access ways along the track and making the track much safer?

Westrail is committed to making its operations as safe as is possible. It has railways running through many towns throughout the State and has not found it necessary to provide barriers. However, the questioner's concern is appreciated. Westrail cannot encourage the taking of short cuts across railway tracks.

165. Can the rail line on the breakwater be fenced to protect visitors and other users?

Access to the breakwater will be restricted during the three hours that a train is discharging in the Port.

166. Will there be an education programme, especially for children, regarding changes to traffic and other transport impacts in Esperance?

Should it be the view of the appropriate authorities within Esperance that a special education program is required then Westrail will participate in such a program.

167. Are there safety issues at the level crossings between Leonora and Esperance?

Safety is an issue at all level crossings and is addressed by appropriate standards/committees.

168. Warning bells on crossings are not 100% reliable, and on two recent occasions the lights were faulty, and with constant trains won't a fatal accident be a real danger?

Warning devices on level crossings are more reliable when a railway is used frequently.

169. Isn't the assertion incorrect that the upgrading will not be justified if the iron ore export does not go ahead, because the line is being upgraded already and is already in use for the transportation of fuel for Western Mining? Wasn't the Koolyanobbing to Fremantle line upgraded for the freight of iron ore?

The parties concerned have confidence in the project.

170. Would the Government have already begun the programme of $16 million improvements to the rail link between Kalgoorlie and Esperance, if this project had not been seen as a fait accompli?

The Environmental Protection Authority will assess the proposal on its merits. This was always the case.

171. The CER paragraph 4.2.1 sates that dust during transportation has proved not be a concern with other similar operations. Insufficient data has been provided to assume that surface dust will or won't lift off during the rail journey. Which similar operations? As the report acknowledges that this is a potential source of dust, specific examples are required, so informed direct comparisons can be made. The solution to this possibility should also have been documented in the report, so that it could be commented on.

Based on State-wide experience, Westrail does not expect any problems. This experience includes haulage of iron ore between Koolyanobbing and Kwinana for 15 years and between Koolanooka and Geraldton for 11 years. However the situation (as it applies to the Esperance townsite) will be monitored.

172. Dust will blow out of the rail wagons and affect not only Esperance, but farmland, farmhouses and other towns along the route. This could affect crops and stock as well as buildings, rain water tanks and troughs. Agriculturalists have stated initially in small doses iron can be beneficial but in high doses can be toxic. Will the Port Authority or Westrail pay compensation if buildings, stock or crops that are affected?

See No 171. Both the projects operated through agricultural areas without complaint. The Port Authority and Westrail can be sued for damage, if caused by them.

173. How will dust be controlled on the rail wagons between the mine and the port? Surely the crusting agent will have worn away by the time the wagons reach Esperance?

Experience has shown that there will be no problem. As a transport contractor Westrail could not afford to lose payload in transit.

174. Photographs from the Pilbara show a red "fog" about a third of a metre deep above moving trains? Why won't there be a fog above the Esperance trains?

Train speed will be slower than in the Pilbara and very slow in the Esperance townsite. Westrail did not experience these problems on earlier projects - see No 171.

175. If ore is dampened at the minesite, at what time in the "very early stages" will the dust lift off? Does that mean Kalgoorlie or Norseman? Will it cause impacts there? Won't it lift off when the train is at the point where the surface dries?

Westrail does not expect any environmental impact. But the situation will be monitored and remedial action taken if necessary.

176. What are the likely impacts from a rail derailment, particularly in the sensitive wetlands areas such as Lakes Warden, Woody and Windabout? What action would be taken to protect these areas?

The extremely low level of risk associated with derailment of iron ore in an environmentally sensitive area does not warrant detailed study. A variety of goods, including very hazardous materials, are transported by rail through a number of environmentally sensitive areas in WA. There is a formal procedure for notification and response to any derailment, resulting in loss of containment of goods, which ensures efficient response to such incidents. The response is initiated through contact with the Police, who are responsible for coordinating clean-up operations.

177. Will the vibration from the train during travel, shunting and unloading pulverise the larger material thus creating continuous dust emissions?

It is not expected that any train movement will crush the ore in transit.

178. If dust from the trains becomes a problem who will have to respond, the Esperance Port Authority, Portman Mining or Westrail?

All parties are committed to the good environmental management of the project.

179. Why can't the wagons both full and empty be covered during transportation?

Westrail believes that this will be unnecessary. Covering the wagons would add to transport costs.

180. Villages such as Salmon Gums, Grass Patch, Scaddan and Gibson as well as the surrounding countryside must be protected from iron ore dust blowing from the top of the railway trucks. Farmers brining grain to the Port must have their trucks covered to stop the grain dust blowing about. Why not the trains?

Grain trucks are covered for a number of reasons to protect the grain from damage from rain as well as to prevent loss from grain being blown off the trucks. Grain, at 0.8 tonne per cubic metre, is much lighter than iron ore, at 2.6 tonnes per cubic metre, and much more susceptible to being blown off.

181. What effects will there be on vegetation (including declared rare flora) in the railway reserve? Should the potential threat be monitored by the Department of Conservation and Land Management?

Westrail, CALM and the Agriculture Protection Board co-operate already in the management of railway reserves.

182. During periods of heavy rain, water caught in the wagons will form a slurry in the bottom of the wagons, which could pollute the countryside as dust when it dries. Drainage from the rail reserve runs into the Lake Warden wetlands just north and east of Esperance. Pollution of these wetlands may have an adverse effect on local wildlife, particularly fish and birds.

The rotary-car dumper will remove the total contents of the wagons. Any significant wet-weather smears left on the bottoms of wagons would have to be recovered for the same reason that wharfside spills, if any, would be reclaimed.

183. Won't the increase in rail traffic through the town mean an accompanying increase in diesel-fume pollution?

Diesel fumes are emitted from a variety of trucks using roadways within Esperance. The increase from locomotives will be minimal.

184. What will be the extent of monitoring of maintenance work to be undertaken for embankments, drainage works and environmental rehabilitation along the rail line?

The project will have no effect on those works, maintenance of which is a normal part of Westrail's operations.

185. Will the lighting of fires by maintenance crews be prohibited? Will other fire sources (welding, track grinding) be controlled?

Westrail is committed to continuous improvement of its practices and services and to the responsible conduct of its operations.

186. Will there be any impacts on small businesses located along the rail line? Will they be compensated, if necessary?

The project has been designed in such a way that there should be no significant additional impact anywhere along the lines.

187. I have seen photographs of such trains in Port Hedland travelling at slow speed with no wind at all, and the dust is visible for approximately 30 cms above the wagons. Dust also blows off the wagons there in windy conditions. If dust lifts from iron ore wagons in Hedland why won't it lift in Esperance?

Train speed will be very slow and the situation will be monitored. Sprays will be installed if necessary.

188. With heavy laden trains passing through residential areas, won't structural damage be done to homes such as cracks in the walls?

This has not been a problem with rail traffic so far and is not expected to become a problem.

189. The estimated time of crossing is wrong, as the Stop Lights prevent road use for up to two minutes before and after the train crosses, let alone the time taken for a 65 wagon train to cross.

Typically lights activate 20 seconds prior to the arrival of a train at a level crossing and terminate immediately the train is clear of the crossing.

190. If the train is travelling at 30km/hr at the final crossing, it will very likely end up in the sea if there is brake failure, as there is little more than 100m of line left after the crossing. At what speed will the trains enter the Port? How loud will be the noise from the brakes?

There will be approx 1.41km of track within the port area. Trains will enter the port at 10 -15 km/h.

191. The railway line separates the suburbs of West Beach and Nulsen from the town centre. My wife and I and our four children have to cross the railway line regularly to do ordinary daily activities like going to work, the shops, the deli, friends, the beach, school, sport etc. This represents an average of about 8 rail crossings per day for each family member. The potential for inconvenience is obvious, but my main worry is danger to my children. Either bridges or tunnels need to be constructed at the Esplanade, Watson Street and Pink Lake Road intersections to separate the road and rail systems.

See No 159.

There will be only 18 train moves per week.

See also Volume I, pages 11, 12 & 13, Westrail Overivew Level Crossings (Inconvenience), Train Movements.

192. The rail line runs past Lake Warden, and the ore dust from the rail wagons could distribute the dust some great distance depending on the wind strength and direction. This puts at risk the birds which rely on this stretch of water and its surrounds. I understand this Lake comes under an agreement with other countries to be kept in pristine condition for the use of migratory birds.

The attached plan *(see Appendix E)* shows the railway line passing around the western side of Lake Warden Nature Reserve. The lake also has the South Coast Highway along its southern shores and the Coolgardie-Esperance Highway passing to the east. No dust impact is expected.

193. Even if the wagons are covered, the wind will blow the ore when the covers are lifted. Alternatively sprinklers may keep the dust down, but what happens to the water containing the dust? On the railway tracks it will eventually spill over the sides.

This is not expected to happen. If monitoring shows that some sprays are necessary, their performance will be monitored also.

194. How long will it take the whole train to clear the Esplanade if it is completely accommodated within the Port? Are there likely to be any delaying factors within the Port?

Simulations of train operation indicate that the train will take 4 - 6 minutes to clear the Esplanade. There will be no delaying factor within the Port that would result in the rail crossing being blocked by a stationary train.

195. If the rotary car dumper is retained in its original position, and if the train is not split, 25 wagons will protrude into the Esplanade, and allowing about 63.5 seconds for unloading each wagon, the rear portion of the train will take up to 26 minutes to cross the Esplanade.

The extension of the rail line within the Port will ensure that the whole length of the train will be capable of moving directly into the Port without blocking the rail crossing.

196. Will Westrail, the Port Authority and the Shire review road and rail traffic management to determine a strategy to resolve predicted conflicts prior to further increases in road or rail traffic?

Traffic management will be reviewed as a matter of course by all the authorities with responsibility in that area.

See also No 159.

197. If the rotary dumper is moved further toward the breakwater, how long will be the delays to road traffic at the Esplanade crossing?

The train will not be stationary on the Esplanade crossing at any time as a result of the position of the rotary car-dumper.

PORT DRAINAGE

198. The water residue from the drainage system together with heavy rain could pollute the sea.

The design of the overall loading system will minimise the potential for spillage to the marine environment, directly or indirectly (via stormwater runoff). For example, belt scrapers and collection hoppers will be installed at transfer points. However, should there prove to be a potential for unacceptable runoff of iron ore to the marine environment, intercept traps will be installed.

199. The Port Authority states that the pits will be emptied through evaporation. What will prevent overflow into the ocean during winter when there is zero evaporation?

The pits would have been designed to cater for a worst-case rainfall event, based on historical data from Esperance. However, the decision to enclose the stockpiles in a shed has eliminated the requirement for drainage pits.

200. Will the residue from the drainage system will be removed and used as land fill, causing further problems?

Any iron-ore residue will be reclaimed and reintroduced into the system or used for agricultural purposes. Investigations are under way into possible uses for the iron ore residue/dust from the operation. Indications are that it will have beneficial uses for horticultural purposes and may well have application for agricultural operations.

There have been inquiries from people interested in having access to the residue/dust.

There will be minor amounts of residue that may require disposal to landfill. The overall mass requiring disposal — and expected minimal environmental impact of the disposal in comparison with other materials disposed of in landfill — will not be a concern.

201. The CER (3.2) states "stormwater and drainage from the Port's soakage system will eventually leach through the fill material and into the ocean." In direct contradiction is the assurance given in 7.4 where the CER states that drainage from the stockpile area will be contained within the soakage pits, and will not directly enter the ocean. Directly being the operative work, I do not believe this is adequate assurance or sufficient safeguard for marine life, ocean waters or beaches.

Because of the low concentration of dissolved iron in solution in the drainage water, and the dilution capacity of the drainage soaks, problems would not have occurred in this respect.

In any event, the decision to enclose the stockpile in a shed has removed the requirement to dispose of stormwater via soakage pits. Rainwater will now be collected from the shed roof for use in Port operations, including dust suppression if required.

202. What is the depth to ground water under the Port (average Summer depth, and average Winter depth)? What is the direction of groundwater movement? Have pre-pumping groundwater flows been modified by subsequent pumping? What is the storage capacity of the drainage sump(s)? What is the distance between the bottom of the sump(s) and the average ground water depths? What is the expected leaching time from the sumps to the ocean? What are the consequences if the sumps cannot accommodate flash flooding?

The detail requested, with the exception of groundwater movement (which was explained in the CER) normally would be calculated after approval for the project to proceed. The design would ensure that problems did not occur, operationally or environmentally. Drainage sumps will not be required under the revised design.

203. The Port Authority has stated that as the iron ore is to be stockpiled in a shed, large capacity drainage sumps will no longer be required to collect contaminated run-off. How much run-off will there be from the modified proposal, and how will it be collected?

An estimated 800,000 litres of rainwater runoff from the shed will be collected in rainwater tanks for use in the dust-suppression system. Any rainwater overflow will be directed into the stormwater-drainage system.

VISUAL IMPACT

204. The photos from the CER Plate 4.4(a)(ii) and Photo 4.4(b)(ii) have been doctored and are not a true indication of the eyesore the stockpiles have the potential to create. How long will it take to grow a row of trees to look like the photos, given that the iron ore dust will slow the growth rate?

The photographs were used to provide the community with a visual indication of the stockpiles from various locations. Two photographs of each location were provided, (with and without the screening vegetation). Those photographs were clearly labelled as such and cannot be described as "doctored".

The time for growth of the trees is dependent on the species selected and local environmental conditions. Previous experience with tree planting at the Port indicates that trees will be well established by year three and providing screening by year five.

There is no evidence to suggest that stockpiles would impede growth rate.

The stockpiles will now be enclosed in a shed that will be screened by vegetation.

205. If the stockpile is enclosed in a shed, the visual impacts will not be improved because of its size. Trees do not grow quickly beside the seaside, so the shed would be quite exposed for many years. The clumps of trees shown against the stockpile in Plate 41.41(i) are tuarts and are 27 years old.

The size and colour of the shed will be designed so that it would be an insignificant visual problem, even in the absence of vegetation screening. A photographic depiction of the proposed shed is available for public scrutiny at the Port offices.

206. Will vegetation screen the stockpiles or the shed from the Rotary Lookout on Wireless Hill, which is used by locals and visitors?

The Port is not visible from the Rotary Lookout on Wireless Hill.

207. Corresponding photographs for example Plate 4.4(a)(i) and Plate 4.4(a)(ii) are not to identical scale. The visual impact of the stockpile after vegetation screening has been subtly reduced by using smaller scale photographs which may give a false impression of the visual impact, when compared to the before photographs.

A different print was used for views before and after vegetation. No attempt has been made to reduce the visual impacts. If an attempt were being made to reduce impact from viewing the photographs the stockpiles without screening would have been shown at a greater distance than those with screening. This was not the case.

208. Aren't these photos deceptive because they do not show the true residential area? Aren't some houses missing?

A wide-angle lens could have been used to provide a wider view of the Port and surrounding areas. But that would given a false impression of the view of the stockpiles from specific areas in Esperance.

209. It must be stressed that lessening the visual impacts of the project is not an easy task. The target of screening the stockpile would not be achievable (even utilising the fastest growing, tallest suitable native species available, such as tuart) for at least five to eight years. The planting configurations (size, number, species) have not been addressed, and needs to be as it is a difficult site, not especially conducive to successful tree establishment. What are they?

The Port Authority has had a good deal of success in tree planting around the Port, as is evidenced by the Port's parks and gardens and the fact that the Port Authority has won the John Tonkin Tree Award in the past.

210. How long will it take for an effective vegetation screen to be established?

The Port Authority has considerable tree planting experience and expertise. Experience to date indicates that trees will be well established by year three and providing screening by year five.

211. Vegetation in Port Hedland is stained from iron ore dust. Will trees screening the stockpile lose their visual appeal when they become stained and discoloured from iron ore dust?

The installation of the water cannons around the stockpile area, would have controlled iron ore impact on screening vegetation. Dust emission will now be completely contained within the shed, thus eliminating the potential for dust to affect screening vegetation.

212. It will be impossible to screen the stockpile or the proposed shed from properties in Bostock Street, Bostock Close, and Panorama Place. Will the proposed shed disadvantage residents of Bostock Street, Phillips Street and Panorama Crescent aesthetically and financially? Can this be minimised and how? Will nearby residents be consulted about the proposed shed? How?

A photographic depiction of the proposed shed is available for public viewing at the Port Authority offices. The height of the shed has been reduced from an original estimate of 25 metres to 19.25 metres. This will ensure that views of the ocean from Bostock Street will not be affected.

213. Will the Port Authority be in a position to offer compensation for loss of property value due to loss of views? If compensation is not acceptable to the owners, will the Port Authority be prepared to purchase all properties affected at full value?

The Port Authority will not be offering compensation for loss of property values due to loss of view. The shed has been designed with a height of 19.25 metres to ensure that views in Bostock Street are not obstructed. The height of Bostock Street above the stockpile varies from 25.5 metres to 35 metres.

The Port Authority has not considered purchasing houses in Bostock Street.

214. Esperance townsite, and the adjacent beaches and ocean floor are predominantly white, and are so pristine that any quantity of dust emitted will mar the landscape. Smaller quantities of dust will be enough to cause a visual impact, well below levels set by EPA for this type of proposal. Eventual discolouration of beaches is of concern. What dust levels can this type of landscape accommodate without discolouration? If that is not known, how can reasonable levels be set?

The dust-control system to be implemented at the Port will ensure that staining of the beaches and properties does not occur. The beaches are far enough away from the loading operations to ensure that localised minor dust generation does not result in adverse impacts. Regular inspections of the beaches and property will be undertaken. In the unlikely event of problems being experienced, additional control measures will be implemented to ensure protection of properties and beaches to the satisfaction of the community, the EPA and the Port Authority itself.

215. If the buildings in the Port get covered in iron ore dust, they will become unsightly. Who will be responsible for cleaning them?

We expect the proposed dust-control system to prevent staining of buildings within the Port. Staining of buildings within the Port, as with staining of properties and beaches within Esperance, will be deemed environmentally unacceptable.

216. The dust which will accumulate within the port area will substantially detract from the aesthetic environment of the town. At present the wharf is a landmark which blends into the scenery, but won't the stockpiles, buildings and associated infrastructure for this project be covered with red dust, and place this in jeopardy?

It is desirable that the Port blends in with the landscape. The existing silos and associated loading facilities are prominent features visible from all areas of the Esperance townsite foreshore. The shed will be of a lower profile and coloured green to blend with the scenery.

The Port will be subject to similar cleaning regimes as those used at present. They will be outlined in the Port's EMP. Iron ore will be transferred to the ship's hold in covered conveyors fitted with a state-of-the-art dust-suppression system. Therefore spillages and dust emissions will not be a source of concern. Dust-control systems will also be installed in the storage shed, car dumper and during shiploading operations.

Any minor accumulation of spillage from time to time will be removed in conformity with written procedures for removal of spillage from the wharf.

The dust-control system will ensure that staining of buildings within the Port does not occur. Staining of buildings within the Port would indicate that properties outside the boundary might also become stained. This would be unacceptable to the Port Authority, and would require implementation of additional dust-suppression measures.

IMPACT ON MARINE LIFE

217. I and other members of the public have noted that the harbour's water environment has been stained or contaminated by other port export material on a number of occasions.

Grain dust and chaff does end up in the water during the loading of grain vessels. The grain dust floats and is visible. Fishermen at the wharf comment that the grain dust enhances their fishing.

There are occasions when other products are spilt into the water. Every effort is made to minimise those events.

218. On visiting the wharf area yesterday, the Port Authority workers were washing spillage of sulphate of ammonia into the water. Will they do the same for spillage of iron ore?

The wharf areas are washed down with fresh water. This is done after any spillage has been swept up by road broom and/or hand-held brooms.

219. When grain boats are loading the spillage acts as burly - fish are easy to catch. When rock phosphate boats are in - there are no fish around. Will it be the same for iron ore?

There is occasionally some spillage during the discharge of rock phosphate vessels. We have no evidence to suggest that this deters the fish.

220. The runoff from the wharf from sulphur and phosphate causes algae. There is an excessive amount of algae around the wharf now. What practices does the Port Authority carry out now to keep the water clean? What will they do for the iron ore?

The Port Authority has no evidence of excessive build up of algae around the wharf area. The wharf area is inspected regularly by divers in the course of normal maintenance operations. They report no abnormal amounts of algae.

Visibility under and around the wharf area is good. The area under the wharf is notable for the variety of fish that flourish there including groper, angel fish, sweep, skippy, herring, octopus, squid and crayfish. Sealions, dolphins, sharks and even whales have been seen in the immediate vicinity of the wharves.

221. The town beach and the water are already polluted when ships are in. When they are not in, the water is crystal clear and clean. If the Port Authority can't keep the water clean now during loading, how do they expect to do so for the iron ore?

The Port Authority rejects totally the comment that the water is polluted when ships are in. Grain dust does tend to float on top of the water but to suggest that the water does not remain clear and clean is an exaggeration.

The only beach that is affected by grain dust and chaff is the Port beach immediately in front of the office. This beach is within the Port boundary. The grain dust/chaff breaks down quickly and is rarely evident for more than a day or two.

222. The harbour has only just recovered from the last dredging. Fish life has noticeably returned. Will extra ships mean there is more frequent dredging of the ocean floor?

The harbour was deepened by dredge in 1988. During dredging operations there was some inevitable disturbance to marine life. Fishing quickly returned to normal after the dredging.

Maintenance dredging is carried out by the Port's maintenance dredge on an as-required basis.

Extra ships will not mean more frequent dredging of the harbour.

223. Iron put onto a garden can be very detrimental so will it also be detrimental to the marine plant growth? What will be its impact particularly on the seagrasses in the Bay?

Iron is beneficial in some agricultural/horticultural operations. The Agriculture Department is currently examining possible uses for iron-ore residues or dust that may be generated and collected during the storage and handling operations. There is no likelihood of iron-ore spillage on to seagrasses in the Bay.

224. We have seen the detrimental effects some foreign organisms have had on other ports of the world, and we should take heed from those costly lessons. Testing of ships is often done after the ballast has been discharged, and is taken from the slurry left in the holds after berthing. Regular testing is carried out but this can mean once every two to three weeks. How often is testing carried out on the ballast water and on the slurry in ships' holds at Esperance Port? Can the results be supplied?

The discharge of ballast water in Australian Ports is monitored via a voluntary code introduced by the Australian Quarantine Inspection Service (AQIS).

AQIS chairs the Ballast Water Steering Committee which consists of representatives from government, shipping and fishing bodies. This committee has the charter of overseeing and co-ordinating Australia's responses to the ballast-water issues.

A sub-committee of the Steering Committee, the Ballast Water Scientific Working Group has a number of research programs currently directed to the ballast-water issue.

Australia has been instrumental in focusing the attention of the International Maritime Community on this global issue.

Australia has a number of environmentally sensitive marine areas around its coast including the Great Barrier Reef, Torres Strait, the Abrolhos Islands, Dampier Archipelago, Ningaloo Marine Park and Recherche Archipelago. For that reason Australia was one of the first countries to introduce a practice that only clean ballast can be discharged in its ports.

225. The Australian Quarantine and Inspection Services (AQIS) estimates that compliance with the guidelines for ballasting currently runs at about 80% Australia wide. As the proposed iron ore trade will occur throughout the year between temperate ports located north and south of the equator, the potential for the successful introduction of exotic marine organisms to the Esperance waters will increase. Will the Port Authority conduct a base line survey of existing marine organisms presently occurring in the Esperance port? Will regular monitoring of target organisms such as toxic dinoflagellates be undertaken? Will regular monitoring of the quality of discharged ballast water to confirm that it complies with international guidelines and AQIS regulations be undertaken?

Vessels carry sea water as ballast to ensure the stability of the vessel when the vessel is empty or part laden. Ballast is also carried to give sufficient propeller immersion for the safe handling of the vessel.

In the dry-bulk trades, and to a lesser extent in the container/general cargo trades, there is an enormous export shipping-capacity requirement as compared with the import-capacity requirement. Hence most of the ships intending to carry export cargoes from Australia need to arrive in ballast.

In February 1990, the Australian Quarantine and Inspection Service, after extensive consultation with the shipping, trading and fishing communities, introduced voluntary guidelines with respect to ballast water. The guidelines provide ship owners with a range of options to minimise the possibility of ballast water containing exotic species. The guidelines apply to international ships arriving in Australia in ballast.

The guidelines aim to reduce the possibility of introducing species by a range of practices including re-ballasting at sea, disposal of sediment at sea, non-discharge of water in Australian ports, participation in compliance arrangements and taking on ballast in agreed "clean" overseas ports.

Though all countries that have ports would have similar concerns about ballast water, Australia and Canada (in relation to its Great Lakes) were the first two countries in the world to introduce such guidelines (in 1990).

At the Marine Environment Protection Committee meeting of the International Maritime Organisation (a United Nations organisation) held in July 1991, where international matters such as marine pollution and safety are dealt with, a set of draft guidelines was agreed with respect to ballast water.

It is now expected that those internationally accepted guidelines will come into force as a United nations resolution. Those guidelines remain consistent with those put into place by AQIS in February 1990.

The procedures for iron-ore vessels in Esperance with regard to de-ballasting during loading will be entirely consistent with the guidelines and identical with all other vessels loading bulk cargoes, either in Esperance or any other Australian port. Compliance with the guidelines is monitored as a matter of routine by the AQIS inspector as part of the normal arrival procedures.

226. The Master's first loyalty is to his ship's owners, and changing ballast water costs money. Even if ships could be intercepted and the ballast water checked, how could they be sure that their sampling method is effective?

The exchange of ballast at sea is undertaken while the vessel is under way. The vessel is not required to stop to exchange the water and no time is lost, thus it is difficult to understand the direction of this question.

Interception of ships at sea to check the ballast is not necessary because the sampling and testing is done in port.

The sampling method used is that specified by AQIS, the responsible authority.

227. The Archipelago of the Recherche, which surrounds Esperance Bay, is to be declared an Environmentally Sensitive Area by the Environmental Protection Authority. According to the navigational map of the Archipelago, there is a great deal of unsurveyed and inadequately surveyed water in the area. There is a clear channel, but no obligation for ships to use it, the Sanko Harvest being a case in point. The Ships of Shame inquiry in 1992 highlights the problems with current shipping, with the combination of an environmentally sensitive coastline, the nature of our unchartered waters, unpredictable weather and the age of the ships coming into our port. How can Portman Mining and the Port Authority expect the Esperance community to accept the additional risks of oil spills or other maritime accidents posed by the proposed increase in shipping?

The obligation of good seamanship dictates the route a ship's master will select for a voyage. That this practice was not followed was borne out in the official report on the "Sanko Harvest" grounding.

Since the "Sanko Harvest" incident two new charts of the approaches to Esperance have been produced using the most up to date survey information available to the Navy. Warnings of unsurveyed and inadequately surveyed areas on the new charts have been highlighted and the old routes through the archipelago have been expunged, thus further encouraging vessels to use the Causeway Channel approach to the Port.

The risk of maritime incident from an increase in shipping must be regarded as minimal.

228. What remedial or punitive measures are available in the event of non-compliance with de-ballasting in open waters?

Vessels are not required to de-ballast in open waters. Guidelines are in place to encourage vessels to exchange ballast in deep water where doubt exists as to the quality of the original ballast. Failure to do so may result in the vessel being refused permission to load.

229. Tankers have to take their ballast to Kwinana to be filtered, so how can others just dump the ballast into the sea. Can adequate filtering be installed for all vessels?

Operations of tankers and bulk carriers cannot be compared. Tanker ballast is sometimes discharged ashore when an oil tank rather than a ballast tank has been used. Ballast systems are filtered, but due to the large volumes of water involved fine-mesh filters cannot be used.

230. More frequent and stringent tests should be carried out by the Quarantine Authorities to the ballast water carried by incoming vessels, before it can be discharged into the Esperance Harbour. Shouldn't daily monitoring of the marine water around the port should be done as matter of course, whilst any ships are in port? Will monitoring results be recorded and available to the public? If there is a problem with the ballast water, is the water in the ship going to be sent back to where it came from? If not what will be done with it?

Frequency and stringency of ballast-water tests are dictated by the Australian Quarantine and Inspection Service. If a problem exists with ballast water it must be discharged offshore in deep water.

231. Will the Australian sea lion, the New Zealand fur seal and the dolphins, the albatross and sea eagles and the Cape Barren geese all be endangered by the increase in shipping, the release of ballast water and the spillage of iron ore?

No.

232. Will the increase in shipping increase the risk of groundings, collisions, and other maritime accidents and the risk of another disaster along the lines of the Sanko Harvest?

It is impossible to guarantee that marine accidents will not occur but the pollution-control and clean-up methods employed during the "Sanko Harvest" incident demonstrated the effectiveness of the National Plan to Combat Oil Pollution.

233. Will garbage and other effluents be dumped into the sea as the ships near the harbour?

No.

234. am concerned about oil spills in Esperance Bay, and the probability of this increases with an increase in shipping in the area. Will the Esperance Port Authority carry out a thorough review of strategies for any accident or spillage either minor or major, and its possible effect on all marine life?

Esperance Port holds base stocks of pollution-control equipment and has access to all equipment and manpower available under the National Plan. There is regular training of people likely to be involved.

235. The CER (p20) states that a contingency plan will be implemented in the unlikely event of excessive fuel spillage from ships using the Port. What is the Port Authority's area of responsibility? What is the Department of Marine and Harbour's area of responsibility? How is an emergency response co-ordinated? What equipment is there in Esperance right now for any type of fuel of pollution spill? Does a fuel spill have to be excessive before it is cleaned up? What is excessive?

Esperance Port limits are the area covered by a 10 nautical mile radius of the west breakwater of Bandy Creek. Marine and Harbours covers all State waters not controlled by port authorities and equipment and response is covered by the National Plan. All fuel spills having the potential to affect the environment require a response.

236. Because of its isolation and because of the increase in shipping will Esperance be made a strategic location, in which to store resources and equipment to combat excessive fuel/oil spillages?

Resources and equipment are based at Esperance.

237. What is the nature of the ocean floor in the bay. What are the flushing mechanisms in the bay? What is the assimilative capacity of the marine environment to accept iron ore spillages?

A development of this kind does not justify a full environmental survey of the bay. Because of the deep water within the bay, the fact that the bay is exposed to windy conditions during most days of the year and absence of reefs or rocky outcrops, flushing and the assimilative capacity of the area can be assumed to be excellent without need for modelling.

238. What discharges are made from visiting ships into the harbour? Will the discharges contain iron ore slurry?

Ships are permitted to discharge clean ballast only. Garbage and sewage discharges are not permitted. The discharges will not contain iron-ore slurry.

239. What is the depth to the seagrass beds in the harbour and adjacent beaches? What are the species of seagrasses? What reduction in light to the seagrass beds would occur on each occasion an iron ore ship comes through a year? What rate of erosion has been measured prior to the construction of the groynes along the beach? And later? What monitoring does the Port Authority propose to do of the seagrass beds?

As in 237 a detailed study is not warranted for a proposal of this kind, which holds little potential for marine-environment impacts.

The reduction in light reaching seagrasses as a result of shipping passing over seagrass beds is not sufficient to cause seagrass loss. This phenomena does not occur even in areas where boats are moored over seagrass beds for extended periods.

The foreshore along the town's beachfront has been monitored regularly over many years by the Department of Marine and Harbours.

240. Is the marina outside the Port Authority boundaries? What impact will wind blown dust from shiploading have on the boats moored here? If there is any impact on the boats will the Port Authority pay compensation?

The Esperance Bay Yacht Club pens are within the Port boundaries. Wind-blown dust will not occur. The Port Authority would not pay compensation unless directed to do so by a court of law.

241. The beach around Esperance Bay is already eroding. The white sand is dredged up again and carted back to the beach. What colour will the sand be after iron ore has fallen into the sea during ship loading?

Operating practices will prevent iron ore falling into the sea.

IMPACT ON FISHERIES

242. In some weather conditions ships do not deballast a long way from the coast, as they are supposed to do. Contamination of the fishing grounds could result from not following this practice. Will there be any risks to the growing fishing industry from the discharge of ballast water? Will the Port Authority pay compensation if the industry is affected by iron ore export?

There has been no evidence that ballast water is capable of contaminating marine life in open-ocean situations. Since the commercial fishing grounds off Esperance are in open, exposed, deep-water areas, there is little risk of contamination. The Port Authority would not pay compensation to the fishing industry unless it was ordered to do so by a court of law.

243. What (parts of the) food (chain) and fish species will be affected by the moisture from the soakage pits eventually seeping into the ocean?

Enclosure of the stockpiles in a shed removes the need for soakage pits.

244. Will people be stopped from fishing on the wharf and on the breakwater when the iron ore exports go ahead?

Under Esperance Port Authority Regulation 214 the Port Authority is entitled to restrict people from fishing on the wharves. The Port Authority allows fishing from the wharves provided it does not interfere with shipping. This policy will remain.

Vehicular access to the breakwater will be restricted during the three hours that a train will be unloading in the Port.

IMPACT ON HEALTH

245. *Why does the CER fail to address any impact relating to health?*

The present recognised dust guideline (not to be exceeded) for protection of health, is 90 micrograms/m^3 (annual average) and 260 micrograms/m^3 over a 24-hour period (only to be exceeded once/year).

The Port Authority is committed to ensuring that the proposal does not increase any risk to health.

246. A senior doctor in Port Hedland said that iron ore dust is hematite, which causes an increase in asthma, and the over-loading the body with iron causes other problems leading to bronzed diabetes and liver problems. Will breathing iron ore dust cause health problems in Esperance?

We assume that the senior doctor is referring to problems which may be experienced in the occupational environment, where there is potential for excessive dust inhalation if appropriate dust suppression and employee protection methods are not employed.

The Environmental Health Branch of the Health Department of WA states: "The aetiology of asthma is very complex and while dust can trigger off an asthma attack, there is no known scientific evidence that iron ore dust causes asthma."

247. As an experienced pharmacist I have noticed an unusually high incidence of asthma in Esperance compared with other communities. Would it not be prudent to consider the effects of iron ore dust in a population at greater risk?

The Port Authority cannot comment on the present incidence of asthma in Esperance. It is committed to ensuring that the proposal does not increase any risk to health.

248. How will the occupational health of workers in the shed be protected?

Workers will be required to work in the shed only when the rubber-tyred bulldozer is required to provide mechanical assistance to feed the conveyor system. The cab of the dozer will be maintained under negative pressure and filtered air will be fed to it. Personal monitoring will also be undertaken on a regular basis to ensure the effectiveness of dust-exposure control.

Employees will be provided with high-efficiency particulate respirators in the infrequent event of being required to enter the shed.

PUBLIC CONSULTATION

249. It was stated that the Port Authority was having another open day after the release of the CER. When is it?

It was decided — in the light of the attendance at the Public Meeting —that a further public open day was not warranted.

250. It is inconceivable that the Open Day Survey Sheet (see 6.5) should extol public endorsement of the project, based on the questions of this survey sheet. Why have genuine concerns been pacified by general and in some cases unsubstantiated responses?

In the opinion of the Port Authority, the survey sheet did not in any way assert public endorsement of the iron ore proposal. The main purpose of the survey sheet was to determine specific community concerns so that they might be addressed.

251. It was decided at the first meeting of the Community Liaison Group on 10th March, that the group should be used purely to exchange information. The objectives listed on p34 of CER are incorrect. They are the ones originally proposed by the Port Authority. At the second meeting on 25th March, objectives 2 and 7 were rejected and several other objectives were altered. No regular meetings were agreed to and no media releases were authorised.

The objectives of the Community Liaison Group were changed by the Group. Unfortunately it was not possible to incorporate the changes into the CER document. Meetings have not been regular. They have been called, usually by the Chairman, Mr Ross Ainsworth MLA, when there were issues of substance to be discussed. There have been subsequent media releases by the Chairman.

252. Will the Port Authority make a commitment to have community representation on a committee to monitor dust, noise and other impacts? Can such a group be established as part of its monitoring programme? Can dust and noise monitoring be controlled by the Shire of Esperance?

The Port Authority has no difficulty with the Shire being involved in the dust and noise monitoring process. Community representation would be welcome also.

253. The CER (Summary) suggests that 86% of the community were in favour of the project proceeding. The only survey done by the proponent was at the Boulevard Shopping Centre, where 113 (86%) of 132 people filled out a questionnaire in favour of the project proceeding. As approximately 7,000 people went through this shopping complex doesn't this represent 1.6% of Esperance citizens (population 11,300) agreeing to the project?

In the circumstances of a very open public debate on an issue such as the iron-ore proposal, it is difficult to at any given time to assess accurately the community attitudes without an independent scientific community survey.

Possibly a reasonable indication of the community's attitude was evident in the results of the Local Government election held on 1 May 1993. The election was held two days after the large public meeting called to debate the issues, at which it is estimated 800 people attended.

There were three candidates standing for election whose campaigns involved a stance on the iron-ore proposal. One candidate was totally opposed to the project and a second candidate was known to be at least apprehensive about the proposal. Neither of those candidates was elected. The Shire President made it known that he considered the project to be a desirable development. However, his ultimate support was dependent on the stockpiles being enclosed. The Shire President was returned comfortably at the elections.

254. Also para 6.4.1 states that a "small number of community members were sceptical regarding the proposed dust control systems". This is clearly untrue. An estimated 800 people attended the public meeting. Out of 401 people surveyed, 367 or 91% were against the proposal and only 20 or 5% were for it. Over 90% were against the proposal. Similar figures were established by the Local Environment Action Forum in a survey on 30th April-1st May after the public meeting.

Perhaps the answer lies in the fact that community members were requested to complete a survey sheet immediately prior to a public meeting that had been called to discuss the merits and disadvantages of the proposal.

255. To our knowledge there have been 4 articles with input from the Port Authority since January in the local paper. There has been one advertisement. Where are the "regular media articles" by the Port Authority?

The Port Authority has contributed orally or with written releases, to almost every article that has been produced on the iron-ore issue. Since the iron-ore issue was first canvassed in the media in December 1992 there have been approximately 75 articles published in the Esperance Express, Kalgoorlie Miner, West Australian and Sunday Times.

The General Manager has been interviewed on both Radio 747 and ABC Regional Radio concerning the issue on numerous occasions. He has also been interviewed on metropolitan ABC and 6PR radio stations. Both the Chairman and the General Manager have also been interviewed on camera by GWN and Channel 7.

The Port Authority has consciously gone out of its way to be available to the media and to encourage public debate on the issue.

256. The CER 6.3 states that "the overall goal of the implemented strategies has been to allow the community to accurately assess the environmental and social impacts and their management". No detailed Management Plan has ever been presented to the public. Where is it?

It is normal for a CER to precede the Environmental Management Program, which is being developed now and will need approval of the Minister for the Environment, on the advice of the EPA.

257. Many statements by the Port Authority in their articles and letters have not been factual, but rather unsubstantiated claims, such as 0 dust emissions leaving the port boundary. If the sprinkler systems currently in use at Port Hedland and Dampier don't achieve 0 dust levels how can the Port Authority make these claims?

The dust-control system will be state-of-the-art and designed for Esperance's strict environmental requirements. The dust control will be effective. The engineering technology is available to achieve this.

258. The Port Authority has not "responded to all community concerns". There have been 31 letters against the proposal in the local paper between December and May, and only 4 letters in reply from Mr Stewart and Mr Ashton.

See No 255.

259. The advertisement placed in the Esperance Express by the Port Authority on 6 May 1993 gives answers to questions that are either wrong or inadequate. The answer to Question 2 about achieving a nil dust level outside the Port Authority relies on measurements taken on 5 separate days at the Shire Council offices to establish base dust levels, and not at the Port Authority boundary. Results of tests in the vicinity of the Port Authority are not mentioned in the answer, and showed levels occurring above EPA guidelines.

The dust levels determined over the five-day period provided an indication only of present levels of dust in Esperance. Levels determined at the Port boundary under normal operating conditions also provided an indication of baseline levels at the boundary. The Environmental Management Program will address the issue in detail.

260. Question 3's answer about delays at rail crossings is incorrect. Westrail has stated the time delay will be 4-6 minutes, not 2 minutes stated in the Port Authority's answer.

The figure of 2 minutes is the typical time that a crossing will be occupied. The Port Beach Road or Smith Street crossing will be occupied for 4 - 6 minutes.

261. Questions 4's answer is incorrect. The Port Authority cannot guarantee there will be no pollution of the Harbour by ballast water, as the rules cannot be policed. The code is voluntary, and contamination has occurred at other Australian ports.

The Port Authority will continue to ensure that only clean water is discharged in the Port.

262. Question 5's answer is incorrect. The stormwater pits are soakage pits, and water will seep into the ocean carrying with it dissolved iron oxide.

Soakage pits are no longer required.

263. The answer to Question 7 "Will iron ore dust be blown off the top of the wagons?" is incorrect. The level of iron ore in the wagons has no bearing on dust lift off. Train speed combined with the wind speed is the important factor.

The height of the load is a factor, even though train and wind speeds are more important. Trains will travel slowly through Esperance.

264. Question 8's answer is incorrect. The Commonwealth money for upgrading the Leonora-Esperance line will not be withdrawn if this proposal does not go ahead.

In the light of more recent developments this comment is valid.

265. Question 9's answer is naive. The Port Authority is deluding itself if it believes iron ore is just like any other bulk commodity. This over confidence has led it to believe it can do something (controlling dust) which has never been done anywhere else in the world. It is unable to justify this overconfidence with facts, and insults the intelligence of the community by its approach to what are clearly well justified community concerns.

The comment requires no response.

266. I believe the Port Authority's attitude to community consultation and information has been appalling. This advertisement is an attempt to forestall public involvement in the consultative process by attempting to allay public concerns with incorrect information.

The Port Authority sought initial advice from the Social Impact Unit and went to considerable lengths to inform and consult the community and to encourage informed debate.

EFFECT ON HISTORIC ESTATE

267. Dempster Homestead at 155 Dempster Street, just 400 yards from the proposed stockpile or shed, has National Heritage listing. The rail connection to the Port is only a road width away from the Homestead. The equally historic Captain Douglas two storey house in Dempster Street may also be affected by the export of iron ore.

Train and road traffic in the vicinity has not to date affected the historic buildings. There is no reason to believe that the activity generated by the iron-ore proposal will have any adverse impact on the buildings.

268. Will the Homestead and also the Captain Douglas two storey house in Dempster Street be adversely affected by iron ore dust, noise, or vibration? Will any other historic buildings be affected?

No.

EFFECT ON EMPLOYMENT

269. Will the exporting of iron ore through our town relieve unemployment enough to justify the environmental and social problems it will bring about?

The iron ore proposal will not only create employment at the Port Authority, Westrail will increase its employee numbers in Esperance by at least 12. What's more, if the rail line had not been upgraded and increased trade not forthcoming there was a real possibility that 12 of the existing Westrail jobs would have become redundant.

270. After speaking with Government Departments such as Community Services, I understand that few Esperance people would be suitable applicants for the 14-16 positions available long-term. Will jobs arising from the project be offered to Esperance people? Will contracting and tug services go to Esperance people?

The Port Authority has a policy of endeavouring to recruit locally. Advertisements for positions will be placed in local newspapers. We believe that there are people in Esperance with the skills required. However, jobs will not be guaranteed for Esperance people.

The tug is already operated by an Esperance family. This would remain unchanged.

The Esperance Port Authority utilises local contractors and suppliers whenever possible. In 1991/92 the Port Authority spent $646,000 in the local Esperance business community.

271. If this project proceeds, our business would be totally destroyed by train noise, machinery noise and dust during unloading and loading operations. We would not be able to meet our commitments and bankruptcy would be inevitable with the loss of 4 permanent jobs and 2 part-time jobs. Is there any sense in proceeding with a project which destroys some jobs and the environment to create other jobs?

See No 269.

EFFECT ON RETIREMENT INDUSTRY

272. A large percentage of Esperance's population is over 55 years old, and we have an obligation to protect these people's interests and health. Retirement is regarded as an industry and brings in employment and money through the building industry and the provision of services. Esperance is one of the fastest growing towns in WA according to building permits.

The environmental and social values of Esperance will be fully protected. There is no reason to believe that Esperance will not continue to grow and attract retirees to the area. The Port Authority itself is fully supportive of this type of growth in the area and development of the "retirement industry" and will therefore seek to support, not impede, its growth.

Mr H.C. Shippard JP, Chairman of Hakea Retirement Village says: "The iron ore project will represent worthwhile progress to the town bringing expansion and provision of better services. Property values will tend to increase."

273. People have retired here because they believed they had a healthy environment, and houses, retirement villages and nursing homes have been built as a result. Shipping does not create the only work in this town. Why should it have precedence?

The environmental management measures to be incorporated at the Port will ensure maintenance of a healthy environment for all members of the community, including aged persons. The development of the Port has not adversely affected other sources of employment in the town to date, and will not do so in the future.

EFFECT ON RECREATION

274. The most beautiful part of our main beach, the most beautiful part of the bay, was taken from us to be replaced by the port, a huge grey structure. Do we want our beaches, our fishing spoiled by Port activities?

The Port activities do not now spoil the area's beaches or spoil the fishing. In fact it could be argued that the Port provides fishing venues through access to the wharves and breakwater.

The Port Authority does not believe that the iron-ore activities will cause problems at the beaches or for fishing.

275. What impacts will this project have on the foreshore, from where people swim, sail, fish and play?

There will be no adverse impact on the foreshore from export of iron ore — because of incorporation of sophisticated environmental-management measures into the design of the facility and development of procedures specific to the iron-ore facility.

276. The town beach in the wharf area is really the safest spot for swimming. Even if measures are taken, accidents can happen with ore spillage, and won't the beach reservation area become a polluted mess?

The town beach referred to is within the Port boundary. It is currently used for Education Department swimming classes. The beach will not become a polluted mess and will still be available to members of the public for recreational purposes.

The procedures to be formulated and implemented at the Port will ensure quick and effective response to any incident of this nature, thus protecting the environment from pollution.

The Port Authority will implement standard operating procedures for operating receival and loading of iron ore. Employees will be trained in those procedures prior to commissioning of the facility. Those procedures, together with preventive maintenance of the facility, will ensure that abnormal operations are avoided, or occur very infrequently.

277. Will the land adjacent to the Port (from James Street) remain unchanged and available for recreational use? Will the wharf still be available for fishing?

Land adjacent to the Port (James Street) will remain unchanged. Fishing will continue to be allowed from the wharf provided it does not interfere with shipping operations.

278. The shore of the Bay has always been a pleasant restful place. Will the impact of the noise from the dumping, stacking and loading of iron ore destroy this image?

No significant increase in noise is expected at any beach used for recreational activities.

This will be achieved through the implementation of noise-control measures at the Port.

It should be stressed also that loading operations similar to those proposed are carried out on regular basis at present, without creating a source of annoyance to community members or visitors using the beaches for recreation. The major difference from present operations will be the unloading of iron ore into a rotary car-dumper. The dumper will be fitted with noise attenuation if required. The rail wagons will also be positioned over the dumper with a

hydraulic arm — avoiding the use of locomotives in the dumping operation and thus eliminating a possible noise source.

279. The Port Authority beach and foreshore are the most popular locations for many of the water sports engaged in by local people and tourists. The extra 35-40 ships could produce enough wastes to spoil the social amenity of the waters and beaches in the area. As well as the potential impact from dust, will raw discharges from ships' toilets, ablutions and kitchens affect this amenity?

Vessels are not permitted to discharge any products, material, sewerage etc into the harbour.

EFFECT ON TOURISM

280. I have taken people to stay in this quite unspoiled area with its Pink Lake, wonderful beaches, turquoise ocean waters, wild flower covered cliff tops along the Eleven Mile Road, those scenic islands and their wild life including the rare Recherche Cape Baron Geese. The recent oil spill should be a warning to not turn this town and harbour into an industrial one. What will the increased shipping, noise and dust do to this rare jewel on our coast?

It is not the intention of the Port Authority to try to turn Esperance into an industrial town. The Port Authority believes strongly that is activities can be managed effectively without damage to the Esperance environment.

The Port Authority would not proceed with this proposal if it were not convinced that increased shipping, noise and dust could be adequately controlled. The Environmental Protection Authority must also be satisfied that this can be achieved.

Should the iron-ore proposal proceed, Esperance will be handling a similar volume of cargo to that of Geraldton. Geraldton is a tourist town with the port operations and tourism being compatible. There is no reason to believe that the same will not apply at Esperance.

Shipping numbers fluctuate already without impacting on tourism. For example, in 1991/92, 39 vessels visited the Port. In 1992/93, 56 vessels visited the Port. The differences can be explained by a variety of factors:

- An above-average grain harvest
- Increased fertiliser imports due in part to increased cropping
- Generally smaller size vessels visiting the Port in 92/93 compared to 91/92
- Resumption of nickel-concentrate exports.

281. *The Premier in a speech recently commented that the fastest growing area within tourism is tourists looking for natural rugged beauty, which is becoming harder to find. Esperance is fortunate to be in this category. Is this proposal consistent with the Premier's comments?*

The environmental-management measures to be implemented at the Port will ensure that there is no impact on tourism. The proposal is therefore consistent with the Premier's comments. The Port Authority is committed to maintaining the beauty of Esperance.

282. The Esperance environment is ideally suited to cash in on Eco-tourism. The Port Authority argues that the export of iron ore will boost the town's economy and bring jobs. If Esperance picks up the stigma associated with a mining port many millions of dollars and many jobs could be lost.

The effect of iron-ore export on the town's economy and jobs will be significant, as outlined in the CER and this report. Some elements of the public debate had greater potential to create a stigma than the development itself.

The Port has over the years handled many thousands of tonnes of mineral products. This has not in the past led to Esperance being considered a mining town and there is no reason to believe it will be so considered in the future.

283. I think our tourist industry will suffer. I doubt tourists will want to see an industrial port with trains on the breakwater, or red iron ore in the ocean and on beaches, or ore stained ships that have the potential to destroy our marine life and our coast.

The Port Authority has done much in past with its parks and gardens to encourage visitors to the Port. The Port is a popular destination for visitors to the town.

284. Our town has prospered and developed at a tremendous rate over the last decade due largely to the tourism industry, and those wanting to live in a clean environment. I do not believe a guarantee of safety or of no pollution can be given to our town. So much progress could be threatened by just one oversight or accident that the promise of a mere handful of jobs and a better railway cannot possibly be worth the risk.

The benefits to Esperance are significant, as outlined in the CER and this report, and relate to more than jobs and a better railway.

We hope the additional information provided in this report will alleviate concerns about control of pollution and protection of the clean environment of Esperance.

285. Will the project have an adverse impact on Esperance's image as a tourist centre?

The environmental-management measurers to be incorporated at the Port will ensure that tourism is not affected.

Many ports co-exist with the tourist industry. To take extreme examples, Singapore and Hong Kong have in their midst two of the biggest and busiest ports in the world yet remain prime tourist destinations.

286. The CER refers to economic benefits for Esperance, 14 jobs and $1.8 million per annum, most of which will be revenue for the tug service. However, our tourism industry brings in $16 million per year and I believe this proposal will retard its growth.

There will be increased job opportunities at the Port Authority and with Westrail. While the tug operations will benefit, it will not be most of the $1.8 million as suggested. Tourism is an important industry and there is no reason why it should not co-exist with Port operations (as it does now) and continue to prosper.

287. The Table on page 32 Industry by Age Employed Persons does not give recognition to the numbers of persons directly involved in the tourism industry. The CER needs to give more recognition to the numbers of people in tourism, and the revenue value of the industry to Esperance. Will there be any detrimental impacts on tourism?

Tourists regularly make visits to the Port including those in tourist coaches. MacKenzies Boat Tours to the offshore islands incorporate a tour of the Port. The tour is always more meaningful when a vessel is in Port. There is no reason why tourism and the Port should not continue to co-exist as they have done in the past.

288. The tourist season in Esperance coincides with the time when Esperance has strong winds that would pass over the proposed stockpile and blow over the beaches and the town.

The dust-management system will be designed to control emissions during all meteorological conditions experienced in Esperance. If further studies indicate that dust cannot be controlled during very strong winds interlocks or alarms will be used to close the operation down until weather conditions again become favourable.

289. Approximately 40,000 people visit the Esperance Municipal Museum each year, mostly tourists from all over the world. The museum is situated in the town centre, opposite the beach. The museum is a historic building which cannot be lined, and the fine dust could penetrate and contaminate the exhibits.

The iron-ore-export proposal would certainly not be approved if there was potential for this severity of impact on buildings and their contents. There will be no occasion when the facility is allowed operate in such a manner.

290. Bringing iron ore to Esperance could cause it to be perceived as an industry based town, and affect our tourist industry. The "feel" of industry based towns such as Port Kembla, (quoted in the CER as having a similar dust control system to Esperance) or Port Hedland does nothing to entice potential tourists to stay in them.

It is not the intention of the Port Authority to have Esperance perceived as an industry-based town. The Port operations are compatible with tourist development at present, and this will remain the case.

Although the proposed dust-control system at the time of drafting the CER was likened to the system used at Port Kembla, the environment of Esperance was recognised as being more sensitive to industrial development. For that reason the dust-control system proposed for Esperance, though similar to Port Kembla, contained more safeguards to ensure protection of the Esperance environment.

291. A large number of people come to Esperance from the Goldfields regularly to escape their dusty living conditions. Will they come if Esperance becomes dusty?

Air quality at Esperance will not be affected by the iron-ore proposal because of the environmental-management measures to be implemented for the project, which are outlined in the CER and this report. There will therefore be no dust impact on tourism.

292. I am a tour operator, and I take tours around the coastal region of Esperance. I have taken almost every nationality in the world. Without exception they tell me that the coastline around Esperance is the best in the world. If the Port Authority does somehow manage to contain the dust, will it take on other mineral exports? If there is a demand, will the Port be extended? This way Esperance will truly gain an industrial image and lose this unique tourist potential.

The Port Authority currently is operating well below its potential capacity. Berth occupancy is less than 20%. Even with the iron-ore proposal berth occupancy will still be below 40%. Based on an optimum berth occupancy of around 60%, the Port has some way to go before it would need to consider expanding.

293. Will the Esperance Bay Caravan Park be adversely affected by train noise, machinery noise and dust during unloading and loading operations?

The small increase in noise expected from the proposal is not expected to be a source of annoyance to residents of the Esperance Bay Caravan Park. Noise is not expected to be significantly different from that experienced at present. However, there will be more frequent rail movements past the caravan park. Noise from this source will be similar to that of a passing truck but obviously of longer duration.

EFFECT ON REAL ESTATE

294. I live in Bostock Street. The land was sold to us as prime building land, zoned residential and we have been paying premium shire rates for it. Will there be devaluation of our property? Will there be an avenue for taking legal action against Westrail or the Port, in the event of dust pollution reducing the real estate value of my property?

Overseas experience suggests that land in the immediate vicinity of a controversial development may decrease in value initially. However, it inevitably returns to its previous status when the project is up and running and controversy dies down.

If it were shown that the Port or Westrail had been negligent or acted in an illegal manner (did not abide by the EPA licensing conditions) it is possible that damages could be awarded against the agencies.

295. My house is within 50m of the railway line. Will dust will come off the trains, staining the houses and vegetation along the railway line, and will this affect the value of my house?

There will be regular monitoring of the operation and visual inspection of property to determine whether measueres beyond those proposed are required to prevent this happening.

296. 130 houses were built in Esperance in 1992. If this proposal goes ahead, will the present residential growth within our town slow down or even go backwards?

As a result of the effective environmental management measures to be incorporated at the Port, residential growth of Esperance will not be affected. Other factors may reduce or increase the rate.

297. The choicest areas still open to housing development are divided from the business area by the railway line. Will the inconvenience of waiting on trains at crossings make people less keen to build long these lovely beach frontages?

The delays at rail crossings will not be significant as a result of the continuous movement of trains past these points. It is the opinion of the Port Authority that these small delays will not deter people from purchasing land in choice residential areas. We believe the benefits of the proposal significantly outweigh any minor inconvenience caused by delays at the rail crossings.

298. Will the proposed storage shed disadvantage residents of Bostock Street, Phillips Street and Panorama Place aesthetically and financially? Can this be minimised and how? Will nearby residents be fully consulted on the shed's design and construction? How will this be undertaken?

A photograph with an artist's impression of the proposed shed can be viewed at the Port Authority office.

The shed has been designed to have minimum visual impact on the residents of Bostock Street, Phillips Street and Panorama Place. At 19.25 metres, it will be well below the height of the existing grain silos (with heights of 30 metres plus). Residents will not necessarily be fully consulted but the Port Authority will listen to their views and ensure that they are taken into account in planning and design.

299. Who will be liable in the event of action by residents for the effect of loss of aesthetic values on property values, when this loss is caused by wind blown iron ore dust?

As a corporate body the Port Authority can be sued.

300. Paragraph 6.4.6 states that concerns regarding the effect upon real estate values have in the main been expressed by residents in Bostock Street. This is incorrect. All four real estate agents in town express the same concerns.

We believe, because of the environmental-management measures to be incorporated, that there will be no long-term effect on real-estate values. Real-estate values tend to decrease when development is adversely affected by pollution. This will not be the case.

ODOURS

301. The wharf should not have been built in the middle of town in the first place. We already have the odours of the various cargoes drifting over the town when the ships are loading or unloading.

The existing Port was built in the early 1960's. The town has tended to expand around the Port.

The only odour currently noticeable within the Port area is the Xanthate smell of the nickel concentrates. You need to be in the immediate vicinity of the concentrates to be aware of the smell.

COMPENSATION

302. Will the Port Authority pay full compensation for reduced property values and any other adverse impacts such as nuisance pollution which occur beyond the Port boundaries? Who will be liable for any contamination? All dust suppression measures such as a shed, are very expensive. Does this mean the project will be operating so close to the profit margin that there will be no money for any damage claims?

No, unless it can be proved that the Port Authority has a legal liability due to negligence or illegal acts etc.

If a legal claim is found proven by a court of law, the Port Authority, or whichever party is deemed liable, will be required to pay.

The Port Authority carries a comprehensive public liability cover valued at $10 million. This amount is periodically re-assessed by our insurance brokers to ensure that it is adequate.

Legally binding conditions of approval will be issued by the Minister for the Environment and the Environmental Protection Authority. The Port Authority will be bound to abide by those conditions.

The Port Authority is prepared to have all dust and noise monitoring carried out by an independent agency and available for assessment by the Shire Council.

The financial evaluation of the project as a whole has been carried out using normal industry practice and does not include allowance for damage claims. All capital requirements for the project including dust-suppression measures and a shed have been included in the financial evaluation.

303. Will legal agreements be written and signed with the Esperance Shire Council covering compensation claims, breaches of agreement, giving council access to all dust readings, guidelines for future negotiations with Council concerning dust, noise, traffic delays provision for additional water and other relevant matters?

See No 302.

BENEFITS OF THE PROPOSAL

304. The CER (Summary) states "The regional benefits resulting from the upgrade of the Leonora-Esperance rail link are also significant, providing real potential for expansion of development in the northern goldfields regions." The CER (p28) also states that "the benefits to the Port include additional infrastructure which will remain for use for other purposes, following completion of activities associated with iron ore." What are the long and short term plans for exports and imports along the Esperance railway line? Are three any plans to move Lucas Heights facilities to Western Australia? If so where? Has there been any discussion about the establishment of a nuclear waste disposal site in the goldfields region, and is the Esperance rail link in anyway connected with this?

The known likely future utilisation of the Esperance to Leonora railway line is:

- Increased carriage of fuel due to Shell having secured the WMC fuel supply contracts. This increase is already under way. The extent of the increase will be determined to a large extent by whether or not the Pilbara to Goldfields gas pipeline is constructed.
- Nickel-concentrate exports from WMC's Mt Keith mine currently under construction. These exports are expected to commence in 1995 and amount to 70,000 tonnes per annum.
- The potential that the Yakabindie nickel deposit may be developed sometime in the coming decade, though uncertain at present because of low nickel prices.
- There are moves by a group in Kalgoorlie to attract the successor to the Lucas Heights research reactor. Should that eventuate there will be no involvement for the Port in the development, since the quantities of material used are small and transported principally by aircraft.
- The Port Authority has not been contacted about any proposal to develop a nuclear-waste-disposal site in the Goldfields region.

305. What is the real benefit of the proposal to the people of Esperance? Can any of the figures quoted in the document be substantiated?

The CER document prepared by the Esperance Port Authority outlines the benefits of the project to the people of Esperance.

Esperance is a significant transport centre. Increased throughput on rail and at the Port will have many economic benefits to the town.

Figures provided in the CER can be substantiated.

Portman Mining is a listed public company governed by the rules of the Australian Stock Exchange, which does not allow publication of unsubstantiated figures.

306. The CER states that the iron ore proposal was the reason that $16 million was to be spent on the Leonora to Esperance railway line. Isn't this a totally misleading statement, as Carmen Lawrence when announcing the funding stated that the money was for upgrading the line for cartage of general commodities?

The Port Authority believes that the iron-ore proposal was the deciding factor in the allocation of funds.

307. Which group if any will benefit from the lowering of port charges? Is there any guarantee that cost savings from the project will be passed on to other port users? Will the Wheat Board lower its charges to local farmers? Will the importers of fertiliser lower their prices to the local communities?

The Port Authority has estimated that it will be possible to reduce Port charges by 35% to 40%.

The Port levies charges on the two basic activities of the Port. Wharfage is charged to people or organisations using the Port to load/unload cargo and berthage is charged on vessels that visit the Port to collect or discharge cargo. Both those charges will be reduced to make the Port cheaper and more efficient.

The Wheat Board currently deducts from growers' returns the costs of shipping through a port. Any reductions in port costs should be reflected back to growers. Fertiliser suppliers have different prices for their products at different ports, in part reflecting the differing port costs.

308. The EPA should bear in mind the future impact which this decision will have not only on Esperance, but also on the region its Port was established to serve.

The proposed iron-ore exports will have an impact on the region served by the Port. The Port Authority is conscious that during the mid-to-late 1980s trade through the Port was dependent almost entirely on the rural industries. However the Port was established to also serve the mining regions of the eastern and north-eastern Goldfields. The iron-ore proposal will assist in the upgrading of the railway line as well as justifying significant capital expenditure at the Port.

309. The CER states that "additional benefits related to this expansion will follow eg. additional employment, export income, regional and local economic benefits etc". Will the Port Authority quantify these benefits and balance them against the loss of tourism, property values, and the attraction of Esperance as a retirement location?

The Esperance Port Authority believes strongly that there will no loss to tourism, property values, attractiveness of Esperance generally or attractiveness as a retirement location.

310. The CER states that a reduction of 35-40% is expected as result of the iron ore proposal. Will the Port Authority quantify who will feel the benefits, ie shippers, farmers, and precisely how the 35-40% was arrived at?

The potential 35% to 40% reduction in Port charges was estimated by the Port Authority during the process of looking at the budgeting impacts on the Port Authority of the increased trade generated by the iron-ore proposal.

The reduction in charges will benefit shippers and the ship operators. The farmers should see the results of these reductions in the AWB grower returns.

See also No 307.

FUTURE

311. *I do not wish Esperance to be made into an industrial town. Will upgrading the facilities encourage other minerals or other substances harmful to our pristine environment to be shipped our way?*

The suggestion that the exporting of 1.5 million tonnes per annum of iron ore through the Port of Esperance will turn Esperance into an industrial town is unfounded. Should the proposal proceed the Esperance Port will be handling somewhere between 2.3 million tonnes per annum and 2.5 million tonnes per annum of various products. This is a similar tonnage to that handled through Geraldton.

Should other minerals or products (not currently handled through the Port) be proposed, they will be subject to EPA assessment.

312. What are the long term plans for Esperance Port? Does the Port Authority envisage future development of the current site to cater for the growth and development forecast in the Goldfields? Will the current proposed expansion of the Port of Esperance (new wharf and groyne) be submitted for environmental assessment including public review?

The Port is operating well below capacity. It has a berth occupancy of less than 20%. With the proposed iron-ore trade it still remains at less than 40%. Optimum berth occupancy is considered to be around 60%. The Port has no short or medium term plans for new wharves or groynes.

The only known definite development in the Goldfields that will impact on the Port is the Mt Keith nickel project. That development should result in 70,000 tonnes per annum of nickel concentrate being exported through the Port, commencing in 1995.

313. Can the Port Authority commission a study for the identification of a new or second port site to cater for future industrial growth in the region? Can this be taken up as state planning issue as soon as possible?

The Goldfields Esperance Development Authority has been requested to commission a study into the likely long-term developments in the region. The Port Authority would use such a study when considering long-term options for the Port.

314. I believe it is the long term which should determine decisions affecting the use of the Port. Does it make any sense to spend more money, except for minor provision on the present facility, unless the intention is a long term expansion into a full scale industrial facility? A better option would be to use the present facility in its existing form for the duration of its working life, and at the same time begin a long term plan to create a separate industrial loading facility at a site to be selected within 20 kilometres of Esperance, such as Wylie Bay. A rail link could be built north of Shark Lake to connect with the new site. When the life of the grain facility nears its end, this too could be slowly moved to the new port. The old port could gradually revert to increased tourist and recreational use, and all interests would be better served.

See Nos 312 and 313.

315. Butty Head is already a harbour reserved for this purpose and is a natural port with deep water very close to the headland. Will the West Australian government pursue the idea of a new port?

While Butty Harbour may have been nominated as a harbour reserve a cursory examination of the proposal to locate a deep-water port in the area reveals that it would be inferior to the Port of Esperance in almost every way.

The area is unsurveyed (see *Appendix F* for a portion of Australian Chart AUS119). In fact, the only sounding indicated on the chart is one of 12.6 metres, 0.7 nautical miles to the east. This depth is less than the available water within the present port. Therefore it cannot be said to have fewer shipping hazards in the immediate approaches. The area of Butty Harbour is very exposed to south-east and south-westerly winds and is open to the heavy Southern Ocean swells. It could not be considered a suitable anchorage.

Access to deeper water is one of the more important features of the current port. Depths in excess of 20 metres are available within 350 metres of the end of the breakwater. Such depths are not available at Butty Harbour and dredging, far from being minimal and economical, would be extensive —and given the exposed site, very expensive.

Industrialisation of Butty Harbour would be prohibitively expensive. With steep hills and shifting dunes, extensive reclamation would be necessary to establish sufficient area for a port and associated industry. The size of Butty Harbour is less than that of the existing port.

LIGHTING

316. *Measurements of existing lighting should have been obtained. What additional lighting is required?*

There have been no measurements of existing light spill so far, given the acceptability of lighting at the Port at present. There will be a requirement for additional lighting, for safety and security reasons, as a result of the iron-ore proposal.

The Port Authority has made a commitment to provide shielding where lighting has the potential to adversely affect near 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.

ROAD NETWORK

317. *Will the Port Authority review its internal road network with a view to removing the need to cross the rail line outside the port area?*

The Port Authority does not believe it would be possible to modify its internal road network in a way that would eliminate the need for the rail crossing at the entrance to the Port.

RECOMMENDATIONS

318. *A facility away from the town not so close to a residential area should be built specifically for the handling of iron ore and whatever else that needs to be imported and exported, for example the Wylie Bay area.*

The existing Port facility has a current value of $42 million. Duplication of the operation, plus the cost of rail and road connections, could not be justified.

319. As the port is situated in a top rated residential area, I would recommend that a separate loading facility be created away from the town.

The residential area has developed since the Port was developed. The cost of relocating the Port is not justifiable on the basis of existing and projected tonnages.

320. If Esperance is to be an industrial port in the future with a lot more companies and tonnage going through the port, relocate the port elsewhere so as not to destroy the town and its lifestyle. Butty's Head 14km west of Esperance is a perfect natural harbour with sufficient water depth and well sheltered. As the Port Authority has plans for extra berths, a pontoon similar to Cape Lambert is a lot cheaper to set up than the extra land backed berths proposed in the future plans for Esperance Port.

See No 315.

The Port Authority has no plan for extra berths.

321. Put the stockpile in a shed to stop dust and to stop rain turning the stockpile into a slurry and causing drainage problems that could pollute the sea.

Environmental-management measures were to be implemented to ensure that the marine environment did not become affected by run-off from the stockpile area. However, a decision has been made to enclose the stockpiles in a shed, as suggested.

322. A few loads of ore should be brought to Esperance on uncovered wagons as a trial.

Monitoring will be at its most intensive in the early/commissioning stage of the operations

323. Provide a water spray station on town boundary for inbound traffic and in the Port area for outbound wagons, as empty wagons often carry residue which is loose and could create a dust problem.

Sprays will be used if monitoring shows that they are needed to meet dust-control commitments.

324. Use a front end loader to pick up substantial spillage heaps. Use a vacuum sweeper unit to remove ore residue in lieu of washing down.

The Port Authority already uses a front-end loader and bobcat to retrieve spillage. A road broom attached to the bobcat is also used, as well as hand-held brooms. Washing down is carried out only after those methods have been employed.

325. Move the stockpile outside the town boundary, preferably covered up or in a shed?

Positioning of the stockpile to outside the town boundary is not feasible from a operational or environmental point of view. The iron ore would have to be transported through Esperance by road, resulting in (probably) unacceptable social and environmental impacts.

326. The Sanko Harvest disaster proves that grossly irresponsible navigational procedures do occur. Australian pilots should be placed on board ships for at least the last 150 nautical miles into the port.

The "Sanko Harvest" incident occurred outside port limits. The present pilotage arrangements have proved adequate for all shipping using the port. A pilotage distance of 150 nautical miles is a sea pilotage and is outside the jurisdiction of the Esperance Port Authority.

327. If the marine environment can be protected, and if Portman is prepared to pay the cost of substantially reducing the impact on Esperance of their proposal, a district referendum should be held.

A referendum on a proposal such as this would be unwarranted.

328. Because of the noise, the fan extraction units should be run only between 0600 and 2000 hours.

Extraction-fan units have been identified already as a possible noise source. The design engineers are investigating the installation of sound attenuation around the fans and fitting of silencers on exhaust vents if this is required.

Because the iron-ore operation is a 24-hour operation, fans must be operated for 24-hours/day to avoid unacceptable dust pollution.

329. The train tracks should be lowered 3 metres below ground level for the last 50kms to the harbour, and noise bunds constructed and planted with trees for a least 200 metres on each side as far as the town boundary.

Noise bunds and vegetation are potential solutions if necessary.

330. As there is only one safe sea lane into Esperance through the islands, a pilot boat must bring boats in on that lane. Skippers running behind schedule must not be able to take a short cut through the islands. There must never be another chance of a Sanko Harvest happening again.

The most commonly used approach to the Port of Esperance is via the Causeway Channel. The pilot boat does not "bring boats in on that lane". The function of a pilot boat is to transport the pilot out to an arriving vessel. The pilot boards the vessel and brings it to its berth in the harbour. Responsilbe ships' masters do not take shortcuts to save time; they simply radio an amended time of arrival.

331. The assurance that operations will cease until repairs to the system can be implemented, could be treated with scepticism. If economic considerations are involved, for example the loading of a boat, the recent example of the nickel spill would suggest that environmental aspects will be disregarded. Will the Port Authority allow economic considerations to outweigh environmental considerations?

If the loading system is malfunctioning and needs repairs it will be stopped and repaired, especially if the malfunction is likely to cause an environmental problem. Operations at the Port have been stopped in the past for such reasons.

332. Due to the small tonnages, will Portmans and the Port Authority be in a financial position to install and operate to such stringent requirements as a totally dust free operation?

The financial outlay for effective environmental management of the facility does not affect the viability of the project. Additional finance will be available in the unlikely event of problems occuring in regard to environmental management.

333. The dust control systems proposed by the Port Authority have been tried in whole or part by other Ports throughout Australian or the world. What published evidence is there to support the prognosis that Esperance Port Authority is capable of delivering completely efficient dust control?

The enclosing of the iron-ore stockpiles in a shed is to the Port Authority's knowledge a first for Australia. The Port Authority has no doubt that by enclosing the stockpiles it will be capable of delivering an extremely efficient and effective dust-control system.

334. I do not believe current EPA guidelines on dust emissions will have any effect on stopping wind blown dust over the town of Esperance. Firstly as with Hedland, there are no EPA officers station in the region to instigate suspension of activities should weather conditions not be suitable for handling iron ore. Secondly, the current EPA guidelines on dust emission are not exceeded in the Hedland townsite. The readings for the period 11/91 to 10/92 at the Wedge Street location were approximately 115 micrograms per cubic metre. Of the material analysed on the filter papers less than 50% was iron dust. Yet we can still see, feel and taste the iron dust as it permeates our lives.

The onus will be on the Port Authority, as a good corporate citizen, to suspend operations should there by any potential for unacceptable dust emissions. Strict guidelines will be imposed on the Port Authority, to ensure that health, properties and the environment are fully protected. The Port Authority is committed to ensuring that environmental dust levels do not increase from those found at present in the Esperance environment. The Esperance development cannot be compared with Port Hedland for reasons stated throughout this report, and in the CER.

335. From my own cargo handling experience, when iron ore is transferred from a shore side outloader to the ships hold, a considerable amount of cargo disturbance occurs at this transfer point, as the ore pours into a hold from a chute several metres aloft. The resulting air turbulence causes dust particles in the ore cargo to become airborne, and subsequently escape through

the large hatch openings in the deck of the vessel. The Port Authority proposes to use outloaders for transfer of iron ore to ships. If dust emissions from cargo holds are not controlled, the airborne iron ore dust will have detrimental effects on the town, given the frequently prevailing 25-30 knot winds from a S-SE direction particularly during summer. Is the Port Authority going to install dust suppression equipment to prevent escape of iron dust from the holds?

The Port Authority is examining an interlock system that will close down operations if the wind exceeds a pre-determined strength known to create dust problems.

The Port Authority's design engineer has designed a dust-suppressing loading chute for the synthetic rutile shiploading operations at Geraldton. The Port Authority will monitor the effectiveness of this equipment with a view to having it modified for iron-ore operations.

336. The manual methods to be used are not detailed, and therefore their potential effectiveness cannot be assessed. What manual methods will be used if the dust suppression equipment fails?

Manual methods are still under investigation, but will not be employed unless they are as effective as the automated system. In any event, breakdowns of the dust-control system are not expected to be frequent or lengthy — based on experience from operations of similar systems at other locations.

The Institution of Engineers Australia
WESTERN AUSTRALIA DIVISION

Our Ref: COA/2

26 July 1993

Mr Colin Stewart
General Manager
Esperance Port Authority
PO Box 35
ESPERANCE WA 6450

Dear Mr Stewart,

Thank you for your inquiry about the letter signed by me on behalf of the Institution of Engineers, Australia, which was published in "The West Australian" on 27 April, 1993.

As you are probably aware the Institution of Engineers, Australia embraces all disciplines of engineering and provides a comprehensive learned society function to them all. The Western Australia Division embraces 21 engineering disciplines and hence it represents not only a wide range of expertise and experience but also an extensive pool of knowledge in the areas of 'best available technology' and 'international best practice.'

The letter to the editor was initiated and drafted by the Coastal and Ocean Panel and the Environmental Engineering Panel of the Institution. The letter was sent with the full knowledge and approval of the Chairman of the Division. The letter was not edited nor amended by The West Australian.

The WA Division of the Institution of Engineers and both panels wished to put on record the fact that current technology in today's regulatory environment is quite capable of protecting Esperance from degradation of its environment.

Yours faithfully,

R W USHER
Executive Officer
WA Division

712 Murray Street West Perth WA 6005. Phone (09) 321 3340, (09) 321 9553. Fax (09) 481 4332

Appendix 3

Proponent's environmental management commitments

Iron ore export through Esperance (781)

Esperance Port Authority

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.

Appendix 4

Westrail's letter

Westrail

The Western Australian Government Railways Commission
Westrail Centre, West Parade, Perth. Tel: 326 2222. Telex WARAIL AA 92879
Westrail, GPO Box S1422, Perth 6001.

Enquiries

My Ref

Your Ref

Date August 17, 1993

Mr C H Welker
Deputy Chairman
Environmental Protection Authority
8th Floor, Westralia Square
141 St George's Terrace
PERTH WA 6000

ENVIRONMENTAL PROTECTION AUTHORITY
17 AUG 1993
File No 2/93 Initials CHW

Dear Mr Welker

IRON ORE TRANSPORT FROM KOOLYANOBBING TO ESPERANCE PORT

In conjunction with the Esperance Port Authority's proposal to export iron ore from the port, Westrail will be transporting iron ore from Koolyanobbing to Esperance. Westrail is currently developing a State-wide environmental management strategy for all its operations, and is committed to good environmental management for this particular operation.

In recognition of the concerns of the communities potentially affected by the Koolyanobbing to Esperance rail transport operation, Westrail is committed to the following:

- Prior to the start of transport operations, Westrail will prepare an environmental management plan, in consultation with the Environmental Protection Authority, which addresses, amongst other things, the issues of dust, noise, scheduling, safety and public amenity.

- Westrail will implement the plan and monitor the potential impacts from the transport operation, and report to the Environmental Protection Authority annually.

- Westrail will implement appropriate remedial action where necessary, in consultation with the Environmental Protection Authority.

Yours sincerely

J I Gill
COMMISSIONER OF RAILWAYS

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