



ESPERANCE PORT AUTHORITY

ENVIRONMENTAL REFERRAL DOCUMENT

**REVISED PROPOSAL TO INCREASE IRON ORE
EXPORTS TO 8 MILLION TONNES PER YEAR**

DOCUMENT NO.: 04-08

Revision	Prepared	Reviewed	Approved	Date	Description
1	S Grasty	C Stewart	C Stewart	09/06/05	Issued to DoE



CONTENTS

FRONT PAGE

CONTENTS

ABBREVIATIONS AND DEFINITIONS

Page No.

1. SUMMARY OF PROPOSAL 1

2. BACKGROUND TO PROPOSAL 1

3. PROPOSAL DETAILS 2

 3.1 Operating Hours 2

 3.2 Transport..... 3

4. COMMUNITY CONSULTATION 4

5. POTENTIAL IMPACTS AND MANAGEMENT 4

 5.1 Operational Noise..... 5

6. NOISE FROM TRAINS..... 5

 6.1 Train Movements 6

7. TRANSPORT CORRIDOR 7

8. CONCLUSION..... 7

APPENDICES

- A Ministerial Statement 555, Issued 31 October 2000
- B Community Consultation Information
- C Operating Protocol – Rail Operations to and from the Port of Esperance
- D ARG Train Noise Study; and
Information on Safety Processes and Noise Management on the Proposed Increase Iron Ore Haulage task at Esperance
- E Port Maps



LIST OF TABLES

Table 1. Summary of environmental and community issues and their proposed management.



ABBREVIATIONS AND DEFINITIONS

ARG	Australian Railroad Group
DoE	Department of Environment (Western Australia)
mtpa	million tonnes per annum
Port	Port of Esperance
PDCC	(Esperance) Port Development Consultative Committee



1. SUMMARY OF PROPOSAL

The Esperance Port is proposing to increase iron ore exports to 8 million tonnes per annum (mtpa). This will require a minor modification to the rotary car dumper, to reduce the cycle time, allowing longer trains to be unloaded without changes to the existing rail schedule.

Although the DoE have indicated that there will be no further impact at the site when increasing iron ore export tonnages¹, the number of trains operating within the town of Esperance will be greater than that assessed by the EPA in Bulletin 989 of August 2000, and greater than that stated within Table 1 of Schedule 1 of Ministerial Statement 555, issued October 2000.

This iron ore increase is therefore being referred to the EPA under Part IV of the *Environmental Protection Act 1986* for an assessment of rail noise impacts due to the revised proposal.

2. BACKGROUND TO PROPOSAL

In October 2000 Ministerial Statement 555 was issued granting the Esperance Port Authority approval to upgrade its marine facilities. This Statement also granted approval to increase iron ore exports from 2 to 4 mtpa. A copy of this Statement is included in Appendix A.

In September 2002 the Port Authority applied for a non-substantial change to Ministerial Statement 555 to allow an increase in iron ore exports to 8 mtpa. In May 2003 the Port Authority requested that this application be put on hold and in September 2003 this application was re-initiated but revised to an application to increase iron ore exports to 6 mtpa.

By August 2004 approval for this non-substantial change had not yet been granted and the Esperance Port Authority applied directly to the Minister for the Environment under Section 45C of the Environmental Protection Act for approval to increase iron ore exports to 8 mtpa. This application to the Minister also included the construction of an additional iron ore storage facility.

The Minister for the Environment did not approve this change. With regards to changes proposed at the port, the Minister stated that *"The DoE has advised that the changes proposed at the port itself are not expected to have a significant detrimental effect on the environment, in addition to, or different from, the effects of the original proposals and can be managed under the existing Implementation Conditions and Part V licence."* However, with respect to the railing of iron ore the Minister indicated that *"...rail transport of the additional 4 mtpa iron ore to the port may have significant detrimental effect on the environment in addition to the effects of the original proposals, through noise emissions."*

The Port Authority was then required to formally refer the revised proposal to the Environmental Protection Authority for assessment.

¹ Audit Report 29/02, November 2002.



The additional iron ore storage facility proposed for the Port is required for improved management of the various iron ore products on site, and does not constitute part of the proposal to be referred by the Esperance Port Authority addressing the increase in the rate of iron ore export. The additional shed is planned to be integrated with existing transfer and storage infrastructure, and would therefore be routinely employed in any project of increased iron ore export. A works approval application for construction of the new shed was submitted to the Albany Office of the Department of Environment on 25 November 2004 and Works Approval 4078 was issued on 1 February 2005.

3. PROPOSAL DETAILS

Iron ore export will increase to 6 mtpa for 2004 – 2005 and to 8 mtpa for 2005 – 2006. Portman have indicated that they will be railing iron ore at the rate of 6 mtpa by January 2005 and at the rate of 8 mtpa by August 2005.

Iron ore will continue to be unloaded at the rotary car dumper. There will be a small modification to the cycle time of the rotary car dumper to allow longer trains to be unloaded without changes required to the current rail schedule.

Iron ore will continue to be outloaded via the existing iron ore handling system and shiploader at Berth 3.

Information such as site details and details of major infrastructure are included in the recently submitted works approval application. This information has not been repeated within this report. Maps showing the existing port layout and land uses surrounding the port have been included in Appendix E.

Further information on transport has been included in Sections 6 and 7.

3.1 Operating Hours

Port operations, including iron ore inloading and outloading have always occurred round the clock. Operating hours will continue to be 24 hours. The port has not received any complaints associated with noise due to port operations, whether it be during the day time or at night time.

With regards to rail operations, currently seven trains a week arrive from the mine during the night time (22:00 to 06:00). Although the port has no direct control over management of the railway schedule, it is understood that there is not expected to be any further increase in night time train movements.

In its response to submission during the EPA's assessment of the previous Public Environmental Review document (January 2000), the port advised that "*Iron ore trains will as far as practicable continue to be scheduled to arrive and depart outside the hours of 22h00 and 06h00.*" This statement was made following advice at the time that had been provided by the rail operator. However, the port now realises that it cannot have any direct control over rail scheduling and for the port to make commitments to the community regarding rail schedules is not practical nor could the port enforce any such scheduling constraints on the rail operator. For details on rail noise impacts refer to Section 6 – Noise from Trains.



3.2 Transport

Iron ore vessels will increase by 25 – 30 per year. During 2003 – 2004 there were 48 iron ore vessels, so it is expected that vessel numbers will increase to about 80 per year. Vessels will be predominantly Cape Class, carrying approximately 150,000 tonnes per vessel.

Iron ore will continue to be railed to the port. Currently, there are on average 18 trains per week arriving at Esperance from the mine. Each train that arrives at the Esperance rail yard is required to be split and brought down to the port in two sections. This results in two train movements into the port for every train that arrives at the rail yard. Therefore, 18 trains per week result in 36 train movements into the port and 36 train movements out of the port. There are also a number of light 'loco only' movements into and out of the port to manage the movement of the two sections of the train.

This is an increase in trains compared to the 14 trains per week assessed in EPA Bulletin 989 of August 2000 and as stated in Table 1 of Schedule 1 of Ministerial Statement 555 of October 2000. However, it should be noted that the port predicted that up to 18 trains per week could be in operation, and this is clearly stated within the Public Environmental Review issued for the port upgrade from 2 to 4 mtpa issued in January 2000:

Iron ore tonnage through the Port is expected to increase from 2 to approximately 4 million tonnes per year. The associated increase in iron ore railing means that the current average of 9 iron ore trains per week from the mine site to Esperance (18 train movements per week (Train movements = movements in + out of the Port)) will increase to a maximum of 18 iron ore trains per week (36 train movements per week). The actual train movements associated with the increase in iron ore may not double due to other options being considered by Koolyanobbing mine and Westrail, including longer trains and use of rail wagons with a higher capacity. Both these options will result in fewer trains from the mine.

Note: there is a limit of 64 wagons per train at the Port so that the train can fit into the Port without blocking The Esplanade intersection. Currently, the iron ore trains are approximately 74 wagons long and are split at the Esperance Station before being shunted into the Port. The need to split the train results in two trains into the Port for each train from the mine.

As is currently the practice, trains will be scheduled, as far as practical, to arrive at the Port either early in the morning or late in the afternoon.

Iron ore will continue to be delivered all year round. Rail transport from Koolyanobbing to the Esperance Port boundary will be managed by Westrail.

Page 68, Public Environmental Review, January 2000

Although the port recognises that it has no direct control over rail scheduling, it is understood from discussions with the rail operator, Australian Railroad Group (ARG), that the number of iron ore trains are not expected to increase significantly from the current number. ARG have indicated that there may be an increase of 1 or 2 iron ore trains per week, but that the most likely scenario is that there will be no increase in trains and the current rail schedule will be maintained.



It is important to note that the port can make no firm commitments to the EPA or the Esperance community with regard to future rail operations as they have no direct control over this activity. However, the port can commit to ensuring that community consultation would be carried out prior any future increases in rail activity.

Refer to Section 6 for further information regarding noise impacts due to trains. ARG has commissioned a noise study to predicted rail noise impacts due to the increase in rail haulage to 8 million tonnes per annum and this report is included as Appendix D. ARG has also prepared a document on *Information on Safety Processes and Noise Management on the Proposed Increase Iron Ore Haulage Task at Esperance*. This is also included in Appendix D.

4. COMMUNITY CONSULTATION

Community consultation information has been included in the works approval application. This includes details of the port's community consultation strategy. All aspects of the strategy have now been completed.

A port information day was held on 18 December 2004. A summary of the attendees and their concerns is included in Appendix B. Appendix B also includes community consultation information since submission of the works approval application on 25 November 2004.

The feedback from the consultation that has been carried out has indicated to the Port Authority that the Esperance Community is generally supportive of the iron ore upgrade.

5. POTENTIAL IMPACTS AND MANAGEMENT

The Esperance Port has in place a comprehensive environmental management system, documented within its Environmental Management Plan. Each year the port develops an annual Environmental Management Program covering the areas of community, dust, environmental management, noise, marine environment, odour and other emissions.

The port also has in place operational procedures for the train unloading and shiploading of iron ore. Procedures include both environmental and safety controls. It has also produced a guidance document for contractors involved in the outloading of the iron ore from the storage sheds.

There will be no change to the nature of the potential environmental issues. The main environmental issues are the potential for an increase in operational dust, noise and spillage associated with increased iron ore throughput. The Port Authority considers that these environmental issues can be adequately managed through existing site controls, environmental monitoring programs and legal environmental conditions.

The iron ore handling system at the port includes:

- Fully enclosed storage sheds, and associated conveyors and transfer towers;
- Dust extraction systems to maintain sheds at negative pressure and minimise potential for dust emissions;



- Water spray system installed in the shed; and
- Noise attenuation lining within the storage sheds.

Table 1 summarises the environmental and community issues associated with the handling of increased iron ore and their proposed management.

5.1 Operational Noise

The major sources of noise associated with the iron ore handling include:

- Unloading of the iron ore at the rail car dumper;
- Operation of the conveyor system to convey iron ore from the rail car dumper to the storage sheds and from the storage sheds to ship;
- Outloading of the iron ore from within the storage sheds; and
- Dust extraction equipment operating to maintain sheds at negative pressure.

The port's current environmental licence stipulates noise limits for front end loaders operating inside the iron ore storage sheds. All iron ore storage sheds are equipped with noise attenuation lining to the inside face of all sheeting.

Since commencement of the port's complaints database in 2001 the port has not received any complaints associated with noise due to its iron ore handling operations.

The port currently has a Regulation 17 Approval, the *Environmental Protection (Port of Esperance Noise Emission) Approval 2001*. An application to renew this approval was submitted to the DoE in June 2004.

6. NOISE FROM TRAINS

Noise from iron ore trains is generated along the entire rail corridor from Koolyanobbing to Esperance, but is experienced for longer duration along the section from the Esperance rail yard to the port due to the requirement to split the train at the rail yard and bring the train down to the port into two sections (refer to Section 3.2 – Transport).

As acknowledged by the EPA in Bulletin 989, the Esperance Port Authority has no control or direct influence over the rail line, raiing activities and/or the impacts thereof. Railing is controlled by Australian Railroad Group, Australian Western Railroads, and WestNet Rail.

However, the Port Authority has worked proactively with the rail operators to achieve acceptable environmental and social outcomes. This has included:

- A voluntary operating protocol between the Port Authority and the relevant ARG Subsidiary, Australia Western Railroads, is in place regarding the conduct of train drivers. This protocol recognises that rail operations between the Esperance railyard and the Port of Esperance need to be undertaken so as to minimize the



impact on the surrounding residential areas. A copy of this operating protocol is included in Appendix C.;

- Q-class locomotives are being used between the marshalling yards and the port; and
- Train drivers have been trained on the use of the dynamic braking system on the trains, to reduce use of the train brakes and therefore minimise noise due to wheel screech. ARG has advised that driving technique is monitored regularly.

Since August 2002, neither the Port Authority nor ARG have received any complaints about train noise or about the number of trains received at the port. Since February 2002, the Port Development Community Consultative Committee has not voiced any concerns in regard to the trains.

ARG has commissioned a noise study to predict impacts associated with the increased railing of iron ore to the port. This report is included as Appendix D. ARG has also prepared a document on *Information on Safety Processes and Noise Management on the Proposed Increase Iron Ore Haulage Task at Esperance*. This is also included in Appendix D.

6.1 Train Movements

Prior to 2000, when the port had approval to export 2 mtpa iron ore, there were on average 7 iron ore trains a week arriving into the Esperance railyard from the mine site. Trains were brought down into the port in one section, resulting in 7 movements into the port and 7 movements out of the port, or 14 movements per week. The locomotives generally waited at the port while the train was unloaded. Both “L” and “Q”-class locomotives were in operation at this time. Following complaints from nearby residents about noise due to idling locomotives at the port, the locos began returning to the railyard while the train was being unloaded. This resulted in two extra “light” loco movements per train, or 14 “light” movements per week.

With longer trains came the need to separate the train at the railyard and bring the train down in two sections. For the longer trains, this resulted in an extra train movement into and out of the port.

When the increase to 4 mtpa was approved in October 2000, the number of trains arriving from the mine site increased to 14 per week. This resulted in 28 movements into the port and 28 movements out of the port, or an average of 56 individual train movements per week in or out of the port, along with 28 “light” loco movements. Trains were generally scheduled to arrive in the morning and in the evening, however train schedules were rarely adhered to and trains often arrived at all times of the day and night.

At the beginning of 2002, upgrading of the railway line between Esperance and Kalgoorlie allowed an increase in the number trains operating between the Esperance railyard and the mine site. Train numbers increased to an average of 18 per week. Movements associated with each train remained at 4 train movements and 2 “light” loco movements, resulting in an average of 72 train movements and 36 “light” loco movements per week in or out of the port. Due to the increased railway schedule, trains were now scheduled to



arrive during the night time. Approximately 11 trains were scheduled to arrive during the day or evening and 7 during the night. With the increased rail schedule and therefore a need for improved management of the trains, trains became more predictable and arrived more often on time. The quieter “Q” – class locomotives were now in use on all trains operating between the rail yard and the port.

It was predicted in the Public Environmental Review (PER) for the Esperance Port Upgrade of Marine Facilities issued in January 2000 that trains from the mine would increase from 9 to 18 per week. Train movements in to the port were predicted to increase from 18 to 36 movements and the same increase was predicted for train movements out of the port. The PER did not explicitly predict the number of “light” loco movements that would be in operation.

7. TRANSPORT CORRIDOR

The transport corridor into the Esperance Port includes both a road and railway corridor. Planning for the future management of this corridor is important from both a town planning and freight movement perspective.

A preliminary meeting was organised by the Esperance Shire and held on 28 October 2004, at the Esperance Shire Offices to discuss the planning of the transport corridor for the future. Representatives included Shire of Esperance, Main Roads WA, Department of Planning and Infrastructure (DPI), Westnet Rail, Australian Railroad Group and the Esperance Port Authority. There was also a community representative in attendance.

At the meeting it was evident that planning for the future of the transport corridor was a high priority. A smaller working group was established to progress the planning and this included representatives from Main Roads WA, DPI, Westnet Rail, Esperance Shire and the Esperance Port Authority. A meeting of this committee was held on 19 May 2005 where a draft report “*Esperance Port Access Corridor Review Report*” was tabled.

The Western Australian Planning Commission have commissioned a noise impact assessment of the Esperance transport corridor and have circulated a preliminary draft report entitled “*The Esperance Port Access Corridor Review, Noise Impact Assessment and Land Use Planning along the Esperance Port Access Corridor*”. It is expected that this report will be finalised around the end of June 2005, and will give recommendations with respect to future town planning in proximity to the transport corridor.

8. CONCLUSION

The main environmental issues associated with the increase in iron ore throughput are the potential for an increase in operational dust, noise and spillage. The Port Authority considers that these environmental issues can be adequately managed through existing site controls, environmental monitoring programs and legal environmental conditions.

With regards to the transport of iron ore to the port, ARG has continued to improve the Esperance iron ore rail operation to meet increasing demand for export product and is now regarded as the one of the most efficient services within the organisation. Continuing on this trend, ARG has advised that the iron ore increase will be serviced by longer trains eliminating the need for any further increases in train numbers or movements. Since the



commencement of iron ore rail operations, various measures have been implemented by ARG in cooperation with the Port Authority to minimise noise impacts due to train movements between the Esperance railyard and the port. The Port Authority is committed to continuing to work with ARG to further improve the management of trains.

The Port Authority acknowledges the need for good planning for the future of the transport corridor into the Esperance port. There are many complex issues associated with the management of this transport corridor and there is a need for coordinated approach between the key stakeholders including The Shire of Esperance, The Department of Planning and Infrastructure, Main Roads WA, Westnet Rail and the Esperance Port Authority. The Port Authority is committed to working with these key stakeholders to address the various issues associated with the management of the transport corridor. The Port Authority acknowledges that one of the key issues is noise management. The planning needs to consider both road and rail impacts and must acknowledge the importance of the local town planning scheme. The Port Authority acknowledges that rail transport is a very efficient method of transport and reduces safety risks associated with truck movements within the Esperance townsite, however the noise associated with the operation of trains needs to be managed so as to not impact negatively on those living near the transport corridor.



Table 1 Summary of Environmental and Community Issues and Proposed Management

Environ/ Community Issue	Existing Environment	Potential Impact	Proposed Environmental Management	Relevant Conditions under Ministerial Statement 555 Oct 2000	Relevant Environmental Licence No 5099-9 Conditions
Operational Dust during iron ore receival, conveying, storage and ship loading ²	<p>No open stock piles onsite / sealed storage / extensive dust controls:</p> <ul style="list-style-type: none"> The Esperance Port is the only fully enclosed iron ore handling facility in the world. From time iron ore is unloaded from trains until it is loaded onships for export, the ore is enclosed. All iron ore stockpiles are enclosed in bulk mineral receival and storage sheds. The facility has been visited by people from around the world to observe the fully enclosed handling facilities. Dr James Stoddart, Environmental Manager of Hamersley Iron Pty Ltd, stated in 2002 that the community representatives on the Dampier-Samson Dust Working Group viewed the Esperance Port facilities as best practice in dust control. The iron ore storage sheds and unloading hoppers are kept under negative pressure for dust control, and are serviced with dust extractors. Conveyor system and transfer towers are enclosed, with dust extraction, operating interlocks and belt scrapers to prevent spillage. The ship loader has an enclosed chute capable of extending below the ship's hold. there is a dust control water spray 	The Port is located in close proximity to the town of Esperance, with residential areas abutting the Port to its southern, western and north western boundaries. Esperance Bay surrounds the Port to the north and east. If the handling of increased iron ore tonnages onsite is not properly managed, there is a potential for increased dust, and discolouration of the town and surrounds.	<ul style="list-style-type: none"> Continuation of existing controls and handling practices. Continuation of Dust Gauge Monitoring Program to assess effectiveness of controls and handling practices. 	<ul style="list-style-type: none"> 555:M9 Shutdown provisions: <u>Action:</u> If dust from iron ore operations is affecting or likely to affect surrounding landuses, proponent shall cease iron ore handling operations. <u>Objective:</u> To minimise dust impacts. <u>Evidence:</u> Operating records. <u>Timing:</u> Operation. 555:M11.1 Performance Review (Dust): <u>Action:</u> Submit a Performance Review Report on a 3 yearly basis. <u>How:</u> The performance review report shall be relevant to 1) the environmental objectives reported on in EPA Bulletin 989; 2) the proponent's consolidated environmental management commitments documented in schedule 2 of Statement 555 and those arising from the fulfillment of conditions and procedures in Statement 555; 3) the environmental management system environmental performance targets; 4) environmental management programs and plans; and/or, 5) environmental performance indicators. <u>Objective:</u> To: • 	<p>GENERAL CONDITIONS Reporting Requirement</p> <ul style="list-style-type: none"> G2: The licensee shall provide to the Director, an annual monitoring report containing the data required by any of the conditions in this licence over a 12 month period from October 1 to 30 September and shall be provided by November 1 each year. <p>General Requirement – Material Handling</p> <ul style="list-style-type: none"> G3: The licensee shall take measures to prevent or minimise: <ul style="list-style-type: none"> (i) the emission of visible dust pat the boundary of the premises <p>Log Book – Pollution Control Equipment</p> <ul style="list-style-type: none"> G4: The licensee shall maintain pollution control information that shall include the following details: <ul style="list-style-type: none"> (i) Pressure drop readings across fabric filters; (ii) Incidents of filter media failure/replacement; (iii) Condition of dust control equipment on all transfer points;

² During the Upgrade 2000 – 2002, new best practice technology was developed and existing technology was refined by SEMF, John Holland and Kerman Contracting in their design of the Berth 3 Ship loader, conveyors and the third iron ore storage shed to address dust, noise and spillage concerns.



Environ/ Community Issue	Existing Environment	Potential Impact	Proposed Environmental Management	Relevant Conditions under Ministerial Statement 555 Oct 2000	Relevant Environmental Licence No 5099-9 Conditions
	<p>hold, there is a dust control water spray on the chute discharge, and the outloading conveyors are serviced with dust extractors.</p> <ul style="list-style-type: none"> • A water spray operates over the railway line so that empty iron ore rail wagons are sprayed with water to dampen dust before leaving the site. • Iron ore rail car dumper is enclosed and two dust extraction systems operate during iron ore unloading. • A mobile industrial vacuum truck collects any spillage that has accumulated within the conveyor systems, rotary rail car dumper, iron ore sheds and ship loaders at the completion of outloading and recycles it back into the storage sheds. • Employee awareness and training in operational procedures. • Current routine dust gauge monitoring in areas surrounding the Port has established no trend of increased iron ore dust deposition since the beginning of iron ore handling operations, despite significant increase in export tonnages. A 1999 report by Dames & Moore stated that the "measures which have been implemented at Esperance are considered to represent 'state of the art' technology and have been included as a case study in Environment Australia's 'Best Practice Environmental Management in Mining Module' for Dust Management". The report stated that "monitoring at Esperance has shown that the dust management measures are 			<p>document the outcomes, beneficial or otherwise; • review the success of goals, objectives and targets;and • evaluate the environmental performance with respect to dust and noise over the 3 years. Note: The EPA may recommend changes and actions to the Minister for the Environment following consideration of the Performance Review Report. facilities.</p> <p><u>Evidence:</u> Submission of the Performance Review Report. <u>Timing:</u> Operation: 3 yearly following commissioning of the new port</p> <ul style="list-style-type: none"> • 555:P14.1 Dust: <u>Action:</u> Review and update dust management and monitoring plan for port operations. <u>How:</u> Such that port operations can accommodate upgrade without causing dust impacts. <u>Objective:</u> Protect surrounding landuses and environmental values. <u>Evidence:</u> Updated dust management and monitoring plan. <u>Timing:</u> Prior to commissioning Upgrade 2000 – 2002 Port Infrastructure. • 555:P14.2 Air quality: <u>Action:</u> Implement revised dust management and monitoring plan. <u>Objective:</u> Protect surrounding landuses and environmental values. <u>Evidence:</u> Reports. <u>Timing:</u> During Port operations. 	<ul style="list-style-type: none"> (iv) Times and date of loading into and outloading from the stockpile sheds; (v) Times and date of loading or unloading vessels. <p>AIR POLLUTION CONTROL CONDITIONS</p> <p>Dust Management Plan</p> <ul style="list-style-type: none"> • A1(a): The licence shall develop a dust management plan and submit to the Director by 1 April 2005 • A1(b): The licensee shall ensure the dust management plan described in condition A1(a) contains the following information: <ul style="list-style-type: none"> (i) General plant dust control measures; (ii) Dust control measures for iron ore, nickel, lead carbonate and fertiliser products; (iii) Dust control measures for conveyors and transfer points; (iv) Dust control methods and when they are employed, including use on stockpiles and rail cars; (v) Dust control methods used during feed hopper loading and ship loading; (vi) Dust control measures used for storage of product



Environ/ Community Issue	Existing Environment	Potential Impact	Proposed Environmental Management	Relevant Conditions under Ministerial Statement 555 Oct 2000	Relevant Environmental Licence No 5099-9 Conditions
	<p>extremely efficient at minimising dust emissions".</p> <ul style="list-style-type: none"> Despite the volume of iron ore handled through the Port of Esperance and the proximity of residential neighbours, the port rarely receives complaints. There have been four general dust complaints since the beginning of the complaints database in 2001. These complaints were due to what complainants believed was a build-up of dust, rather than a specific dust incident, and not all specifically related to iron ore dust. 			<p>555:P14.3 Air quality: <u>Action:</u> Enclose all iron ore conveyors and transfer towers. <u>Objective:</u> Protect surrounding landuses and environmental values. <u>Evidence:</u> As constructed. <u>Timing:</u> Prior to commissioning Upgrade 2000 – 2002 Port infrastructure.</p>	<p>used for storage of product, including when stockpiling or load out is occurring; and</p> <p>(vii) Dust control methods used during rail car unloading.</p> <p>General Plant – Dust Generation Control</p> <ul style="list-style-type: none"> A2: The licensee shall employ routine maintenance and housekeeping practices to ensure that there is no accumulation of waste or raw materials in or around the premises which may lead to the generation of airborne dust. <p>Dust – Conveyor Transfer Points</p> <ul style="list-style-type: none"> A3(a): The licensee shall maintain enclosures on all belt to belt transfer points to minimise dust problems associated with spillage at the transfer points. A3(b): The licensee shall use and maintain belt scrapers in the optimum working position at all conveyor transport points at all times. A3(c): The licensee shall maintain dust collection/extraction equipment such that the existing belt to belt transfer point are serviced by appropriate dust extraction equipment. <p>Dust Suppression – Conveyors and Transfer Points</p> <ul style="list-style-type: none"> A4: The licensee shall ensure that the loading and transfers points of the



Environ/ Community Issue	Existing Environment	Potential Impact	Proposed Environmental Management	Relevant Conditions under Ministerial Statement 555 Oct 2000	Relevant Environmental Licence No 5099-9 Conditions
					<p>conveyors systems which handle mineral concentrate/ores can be fitted with water sprays should dust suppression be required.</p> <p>Dust – Raw Material Storage</p> <ul style="list-style-type: none"> A5(a): The licensee shall ensure that all nickel concentrate products are stored within bulk storage sheds. A5(b): The licensee shall store all iron ore within the bulk storage sheds designated for iron ore, unless the iron ore is being loaded from train to ship without storage. A5(c): The licensee shall not perform iron ore stockpiling within the bulk storage sheds while both major doors of the iron ore storage sheds are open if it leads to dust blowing from the shed. <p>Dust – Feed Hopper Loading</p> <ul style="list-style-type: none"> A6: The licensee shall ensure that measures are taken so that no fugitive dust emissions escaping from the sheds from feed out hopper loading operations cross the boundary of the premises. <p>Iron Ore Stockpile Sheds – Dust Extraction</p> <ul style="list-style-type: none"> A7: The licensee shall operate and maintain the dust extraction equipment on the rail car dumper, which shall be operational at all times during rail car unloading operation, such that there is a negative pressure gradient into the car handling system to prevent dust escaping.



Environ/ Community Issue	Existing Environment	Potential Impact	Proposed Environmental Management	Relevant Conditions under Ministerial Statement 555 Oct 2000	Relevant Environmental Licence No 5099-9 Conditions
					<p>Rail Car Dumper – Dust Extraction</p> <p>A8: The licensee shall operate and maintain the dust extraction equipment on the rail car dumper, which shall be operational at all times during rail car unloading operations, such that there is a negative pressure gradient into the car handling system to prevent dust escaping.</p> <p>Dust Collectors – Iron Ore Stockpile Sheds and Rail Car Dumper</p> <ul style="list-style-type: none"> • A9: The licensee shall operate the dust collectors on the iron ore stockpile sheds and the rail car dumper to meet the following requirements: <ul style="list-style-type: none"> (i) Air discharged from the sheds or rail car dumper during stockpiling or retrieval operations shall pass through a dust collector fitted with either a mechanical rapping or a reverse pulse air cleaning system. (ii) The mechanical rapping or reverse pulse air systems shall be tested at least every two weeks and repaired immediately if found not to be working efficiently. (iii) The filter bags shall be routinely examined for evidence of leaks or unacceptable build up of a hard dust layer on the surfaces. The filter bags shall be replaced immediately if necessary. (iv) Spare filter bags, sufficient for a



Environ/ Community Issue	Existing Environment	Potential Impact	Proposed Environmental Management	Relevant Conditions under Ministerial Statement 555 Oct 2000	Relevant Environmental Licence No 5099-9 Conditions
					<p>total replacement, shall be kept by the licensee on the premises, or in a readily accessible location.</p> <p>Rail Cars – Water Sprays</p> <ul style="list-style-type: none"> A10(a): The licensee shall maintain a water spray system over the rail haulage line, which shall be operated when necessary to minimise the generation of dust while the empty ore carts are departing Esperance for the Koolyanobbing mine site. A10(b): The licensee shall maintain adequate drainage around the water spray area such that no runoff under normal operating conditions will result in the transfer of iron ore to the ocean. A10(c): The licensee shall clean out the area around the water spray system when necessary to prevent the generation of airborne iron ore dust. A10(d): The licensee shall return all other materia containing iron ore to the stockpile or remove off-site to a licenced facility. <p>Dust – Ship loading</p> <p>A11: The licensee shall undertake ship loading using a discharge chute, so as to prevent excessive dust emissions.</p> <p>Stockpiles – Dust Generation Control</p> <ul style="list-style-type: none"> A12(a): The licensee shall minimise dust emissions generated by wind whipping of any open stockpiles by



Environ/ Community Issue	Existing Environment	Potential Impact	Proposed Environmental Management	Relevant Conditions under Ministerial Statement 555 Oct 2000	Relevant Environmental Licence No 5099-9 Conditions
					either: (i) maintaining stockpiles in a damp condition; or (ii) sealing stockpiles to prevent dust lift off. <ul style="list-style-type: none"> A12(b): The licensee shall, when necessary and feasible, moisten the stockpiles of bulk materials prior to handling. Dust Gauge Sampling <ul style="list-style-type: none"> A13(a): The licensee shall undertake the dust gauge sampling in accordance with Australian Standard 3580 - 1991, 'Methods for sampling and analysis of ambient air'. A13(c): The licensee shall collect on a three-monthly basis in February, May, August and November each year, airborne particulate samples from the dust gauge locations described in part (b) of this condition. The samples shall be analysed for haematite, nickel and sulphur by a NATA Certified laboratory for those analyses. All measurements are to be reported in mg/m²/month. The results shall be presented in the annual environmental monitoring report.
Operational Noise during iron ore receipt, conveying, storage and ship loading.	Enclosed facilities with noise attenuation: <ul style="list-style-type: none"> Iron ore stockpiling, recovery and machinery operation (eg. loaders) are fully enclosed in storage sheds. All iron ore sheds have noise attenuation lining. 	<ul style="list-style-type: none"> If the handling of increased iron ore tonnages onsite is not properly managed, there is a potential for increased noise exposure to nearby residents. 	<ul style="list-style-type: none"> Regulation 17 Compliance Verification noise monitoring has been ongoing since April 2002 to quantify environmental noise 	555:M11.1 Performance Review (Noise): Action: Submit a Performance Review Report on a 3 yearly basis. How: The performance review report shall be relevant to 1) the environmental objectives reported on in EPA Bulletin 000:	NOISE POLLUTION CONTROL CONDITIONS Iron ore outloading – front end loaders <ul style="list-style-type: none"> N1: The licensee shall ensure that all front end loaders used for the outloading of iron ore from the stockpile sheds, shall have a



Environ/ Community Issue	Existing Environment	Potential Impact	Proposed Environmental Management	Relevant Conditions under Ministerial Statement 555 Oct 2000	Relevant Environmental Licence No 5099-9 Conditions
	<ul style="list-style-type: none"> Conveyors and transfer towers are enclosed. Where discretion is possible, operation of noisy equipment (eg. High volume industrial vacuuming near Shed 1 and 2 that are close to residential areas) is restricted to daytime hours. A buffer zone is being established immediately adjacent to the Port through the purchase of neighbouring properties to ensure the amenity of nearby residents are not compromised. The bulk of iron ore activities now occur through Iron Ore Shed No 3 and Berth No 3 which are located further away from neighbouring properties than what is the case with Iron Ore Sheds No 1 and 2. The new iron ore storage shed No.4 will be located still further than these neighboring properties. The Port it is subject to a specific set of noise criteria, the <i>Environmental Protection (Port of Esperance Noise Emissions) Approval 2001</i>. The noise levels that the Port Authority has to comply with are contained in Schedule 2. This set of noise criteria is valid for 3 years. In June 2004, the Port applied for another Regulation 17 approval as it could not reasonably meet the normal noise levels contained in the Environmental Protection (Noise) Regulations 1997. 		<p>emissions post commissioning of the Upgrade 2000 – 2002 Infrastructure (in March 2002) and to assess compliance with Schedule 2 of the Regulation 17 Approval.</p> <ul style="list-style-type: none"> Results confirm current compliance by the Port Authority with Schedule 2 Noise Levels. Continuation of Regulation 17 Compliance Verification Monitoring Program to assess effectiveness of controls and handling practices. The Regulation 17 Compliance Verification Monitoring Program is contained in the Port Authority's Annual Environmental Management Program. 	<p>reported on in EPA Bulletin 989; 2) the proponent's consolidated environmental management commitments documented in schedule 2 of Statement 555 and those arising from the fulfillment of conditions and procedures in Statement 555; 3) the environmental management system environmental performance targets; 4) environmental management programs and plans; and/or, 5) environmental performance indicators. <u>Objective:</u> To:</p> <ul style="list-style-type: none"> document the outcomes, beneficial or otherwise; review the success of goals, objectives and targets; and evaluate the environmental performance with respect to dust and noise over the 3 years. Note: The EPA may recommend changes and actions to the Minister for the Environment following consideration of the Performance Review Report. <u>Evidence:</u> Submission of the Performance Review Report. <u>Timing:</u> Operation: 3 yearly following commissioning of the new port facilities. <p>555:P12.1 Noise (operations): <u>Action:</u> Prepare noise monitoring and management plan (NMMP). <u>How:</u> Consistent with any statutory mechanisms and approvals. <u>Objective:</u> To ensure noise impacts resulting from on-</p> 	<p>maximum sound pressure level of no greater than 90 dB(A) measured at 7.5 metres from the vehicle in any direction</p> <p>Front end loader – reversing alarms</p> <ul style="list-style-type: none"> The licensee shall ensure that front end loaders used for the outloading of iron ore from the stockpile sheds shall use reversing alarms that adjust their output noise according to the background noise levels.



Environ/ Community Issue	Existing Environment	Potential Impact	Proposed Environmental Management	Relevant Conditions under Ministerial Statement 555 Oct 2000	Relevant Environmental Licence No 5099-9 Conditions
				going operations comply with statutory requirements. <u>Evidence:</u> Noise Management and Monitoring Plan. <u>Timing:</u> Prior to commissioning new port facilities. • 555:P12.2 Noise (operations): <u>Action:</u> Implement the Noise Management and Monitoring Plan. <u>Objective:</u> To ensure noise impacts resulting from on-going operations comply with statutory requirements. <u>Evidence:</u> Noise monitoring reports. <u>Timing:</u> During port operations.	
Spillage during iron ore receipt, conveying, storage and ship loading.	<ul style="list-style-type: none"> As part of the Port Infrastructure Upgrade 2000 – 2002, the Ship/Shore Cargo Handling Procedures were reviewed and updated. The objective of the update was to minimise spill incidents resulting from loading operations. A copy of the updated procedure was supplied to DoE, and received sign off in October 2003. 	If the handling of increased iron ore tonnages onsite is not properly managed, there is a potential for spillage which may find its way directly or indirectly to the marine environment.	<ul style="list-style-type: none"> Continuation of existing controls and handling practices. 	<ul style="list-style-type: none"> 555:P11.1 Marine water & sediment quality: <u>Action:</u> Review and update ship/shore cargo handling procedures. <u>Objective:</u> Minimise spill incidents resulting from loading operations. <u>Evidence:</u> EMS procedures. <u>Timing:</u> Within 3 months following commencement of dredging operations. 	<p>GENERAL CONDITIONS</p> <p>General Requirement – Material Handling</p> <ul style="list-style-type: none"> G4: The licensee shall take all reasonable and practicable measures to prevent or minimise: <ul style="list-style-type: none"> (ii) discharge of raw material to any waters during loading and unloading operations. <p>MARINE POLLUTION CONTROL CONDITIONS</p> <p>Cargo Spillage – Esperance Harbour</p> <ul style="list-style-type: none"> M1(a): The licensee shall ensure that all spillage of cargo onto the deck of the vessel being loaded/unloaded in a manner so as to prevent its access into the waters of Esperance Harbour. M1(b): The licensee shall collect all spillage of cargo onto the jetty in a manner so as to prevent its access



Environ/ Community Issue	Existing Environment	Potential Impact	Proposed Environmental Management	Relevant Conditions under Ministerial Statement 555 Oct 2000	Relevant Environmental Licence No 5099-9 Conditions
					into the waters of Esperance Harbour.
Environmental Management System	<ul style="list-style-type: none"> Management of environmental issues includes planning, action, monitoring, auditing, performance review and improvement. The site's Environmental Management Plan (EMP) forms part of the site's "Integrated Risk Management System". The EMP contains the Port Authority's environmental policies, and identifies the mechanisms by which significant aspects of its operations are managed so as to eliminate or control their potential to impact the environment. The EMP is improved and revised as new management issues arise. The EMP contains the annual Environmental Management Program. The annual program identifies action on the significant environmental issues and sets performance objectives and targets. <p>Monitoring is undertaken to establish environmental performance and to trend environmental impact such as dust deposition.</p> <p>A comprehensive database, <i>The Action Close Out Database</i>, is routinely used to track progress, expedite, and record closure of environmental, safety and occupational health audit findings, consultant recommendations, monitoring results, regulatory requirements, continuous improvement plans and incident investigations. It also provides auditable evidence of action closure.</p>	<p>If the handling of increased iron ore tonnages onsite is not properly managed, there is a potential for increased environmental and social impacts on the town and surrounds.</p>	<ul style="list-style-type: none"> Continuation of existing controls and handling practices. Continuation of current internal and external environmental auditing program to assess effectiveness of controls and handling practices. 	<ul style="list-style-type: none"> 555:M6.1 Environmental Management System: <u>Action:</u> Demonstrate that an Environmental Management System is in place. <u>How:</u> The EMS shall include the following elements: 1) Environmental policy and corporate commitment to the policy; 2) Mechanisms/processes to ensure • planning to meet environmental requirements • Implementation and operation of actions to meet environmental requirements; • Measurement and evaluation of environmental performance; and 3) Review and improvement of environmental outcomes. <u>Objective:</u> To manage the relevant environmental factors and to fulfill the requirements of the conditions and procedures of the Minister's Statement 555. <u>Evidence:</u> EMS documentation. <u>Timing:</u> Prior to commissioning of the Upgrade 2000 – 2002 Port Infrastructure. 555:M6.2 Environmental Management System: <u>Action:</u> Implement the EMS required by Condition M6.1. <u>Objective:</u> To manage the relevant environmental factors and to fulfill the requirements of the conditions and procedures of the 	-



Environ/ Community Issue	Existing Environment	Potential Impact	Proposed Environmental Management	Relevant Conditions under Ministerial Statement 555 Oct 2000	Relevant Environmental Licence No 5099-9 Conditions
	<p>Actions are added from new studies and reports as these are completed and become available.</p> <ul style="list-style-type: none"> Environmental complaints are recorded in the site's Complaints Database. The occasional enquiries/complaints from the community are investigated and closed-out with the instigator (when not anonymous). Registers are maintained of abnormal events (eg. dust or noise). Environmental procedures are followed to control and minimise emissions such as dust, noise, and product spills. 			<p>Minister's Statement 555. <u>Evidence:</u> First party (internal) audits annually, and second (consultant to client) or third party (accredited/certification agency) system audits after three years; or certification to AS/NZS ISO 14001 or equivalent where the scope covers the EPA's environmental factors. <u>Timing:</u> During commissioning of the Upgrade 2000 – 2002 Port Infrastructure and operation.</p> <ul style="list-style-type: none"> 555:M5.1 Compliance Auditing: <u>Action:</u> Submit periodic Compliance Reports. <u>How:</u> In accordance with the audit programme prepared in consultation between the proponent and the DEP. <u>Objective:</u> To provide evidence that the proposal is being implemented as approved, and the relevant conditions and commitments are being met. <u>Evidence:</u> Compliance report providing evidence of compliance for each relevant audit element in the audit table. <u>Timing:</u> ... 2) within 3 months of completion of construction (land-based); and 3) annually thereafter until further notice. <p>555:P7.1 Port Operations EMP: <u>Action:</u> Review and update existing port operations EMP. <u>How:</u> To incorporate the individual management and/or</p>	



Environ/ Community Issue	Existing Environment	Potential Impact	Proposed Environmental Management	Relevant Conditions under Ministerial Statement 555 Oct 2000	Relevant Environmental Licence No 5099-9 Conditions
				monitoring plans/programs specified in P8 - P16. <u>Objective:</u> To manage environmental issues identified through the upgrade assessment. <u>Evidence:</u> Revised EMP for operations. <u>Timing:</u> Prior to commissioning Upgrade 2000 – 2002 Port infrastructure. • 555:P7.2 Environmental management: <u>Action:</u> Implement the approved port operations EMP. <u>How:</u> Through the approved EMS. <u>Objective:</u> To manage environmental issues identified through the upgrade assessment. <u>Timing:</u> Operation.	
Community Reports	<ul style="list-style-type: none"> Community expectations cover a broad range of values. One sector of the community considers that Esperance, as a remote regional town, is reliant on the continued development of the Port for its sustained economic vibrancy and community health through development and employment. Another sector of the community expects the environment that drew people to Esperance to remain untouched by industrial development. Bodies such as the Local Environmental Action Forum (LEAF) maintain that economic development of the Port should proceed but not at an unacceptable cost to the local environment. The Port Authority concurs with these views. Its responsible approach to environmental management was recognised when it received the Engineering Excellence Award 2002 in the Environmental 	<ul style="list-style-type: none"> Since 2000, the Port Authority's long term plans for Port development have been discussed at length with the PDCC. There is a general community expectation of increased iron ore export. 	<ul style="list-style-type: none"> Continuation of the existing community consultation and participation programs. Continuation of use of the formal General Reporting System to investigate and respond to any complaints about Port activities, and to assess effectiveness of controls and iron ore handling practices. 	<ul style="list-style-type: none"> 555:P15.1 Community liaison: <u>Action:</u> Review and update community liaison procedures. <u>How:</u> To maintain and develop communication links between the proponent and local residents. <u>Objective:</u> To ensure the public is aware of project progress through design, commissioning and operational phases. <u>Evidence:</u> Updated procedures. <u>Timing:</u> Prior to commissioning Upgrade 2000 – 2002 Port infrastructure. 555:P15.2 Community liaison: <u>Action:</u> Implement community liaison procedures. <u>How:</u> To maintain and develop communication links between the proponent and local residents. <u>Objective:</u> To ensure the public is aware of project progress 	-



Environ/ Community Issue	Existing Environment	Potential Impact	Proposed Environmental Management	Relevant Conditions under Ministerial Statement 555 Oct 2000	Relevant Environmental Licence No 5099-9 Conditions
	<p>Category.</p> <ul style="list-style-type: none"> The Port was also recipient of a number of other awards related to the Upgrade Project 2000 – 2002 including State and National winner of the Case Earth Awards (Environmental Excellence in Project Management), Transport Achievement of the Year Award 2001/2002, Premier's Award for Excellence in Public Sector Management, Department of Mineral and Petroleum Resources Golden Gecko Award for Environmental Excellence in the Minerals and Petroleum Industries and the Australian Port of the Year for 2003. The Port Authority conducts ongoing community consultation. The Port Development Consultative Committee (PDCC) ensures that the community has an active say on matters of interest. The Committee is a community chaired forum of 11 members representing interests from commerce, regional development, State and local government, politics, the Shire, Coastcare, community advocacy groups and individuals, and the Chief Executive Officer of the Port Authority. The PDCC meets routinely to discuss port matters. Requests and recommendations of the PDCC have in many cases been adopted by the Port Authority in shaping its development. There is regular local media coverage in the Esperance Express of events and developments at the Port. 			<p>through design, commissioning and operational phases. <u>Evidence:</u> Records of community liaison. <u>Timing:</u> Prior to commissioning Upgrade 2000 – 2002 Port infrastructure.</p>	



Environ/ Community Issue	Existing Environment	Potential Impact	Proposed Environmental Management	Relevant Conditions under Ministerial Statement 555 Oct 2000	Relevant Environmental Licence No 5099-9 Conditions
	<ul style="list-style-type: none"> There is a periodic professionally produced newsletter, Esperance RePort, which is widely distributed as an insert in the local newspaper and issued to visitors to the Port Authority's offices. The newsletter always encourages feedback from the community and contact details are provided. The Port's website: www.esperanceport.com.au has information on all aspects of Port operations. There is a formal General Reporting System to investigate and respond to any complaints about Port activities. 				
Other - Trains	<ul style="list-style-type: none"> Since the commencement of iron ore exports, the port has worked together with the rail operator to reduce the impact to the community due to trains operating within the town of Esperance. There is a voluntary operations protocol in place between the rail operator ARG and the port. Q-class locomotives are in use. Driver training has been undertaken and is ongoing. 	<ul style="list-style-type: none"> Train noise has the potential to impact people living along the rail corridor 	<ul style="list-style-type: none"> ARG has continued to improve the iron ore rail operation to meet increasing demand for export product and is now regarded as one of the most efficient services within the organisation The Port is working proactively with other relevant parties including the Shire of Esperance, Main Roads WA, Department for Planning and Infrastructure and Westnet Rail to plan for the future of the Esperance transport 	<ul style="list-style-type: none"> No relevant conditions Note 2. Westrail will review and update the existing environmental management program for rail operations within 12 months following the issue of this statement. This revision will address issues of noise, dust, social amenity and traffic management associated with the upgrading and increased iron ore throughput. 	<ul style="list-style-type: none"> None



Environ/ Community Issue	Existing Environment	Potential Impact	Proposed Environmental Management	Relevant Conditions under Ministerial Statement 555 Oct 2000	Relevant Environmental Licence No 5099-9 Conditions
			corridor. <ul style="list-style-type: none"> Train numbers are not expected to further increase and the current rail schedule is being maintained. Increased tonnages will be handled with longer trains. 		



Title: **Revised Proposal to Increase Iron Ore Exports to 8 Million Tonnes per Year**

Document No : 04-08
Revision: 1
Issue Date: 09/06/05
Page: A1
Reference: PL009

APPENDIX A

MINISTERIAL STATEMENT 555



Title: **Revised Proposal to Increase Iron Ore Exports to 8 Million Tonnes per Year**

Document No : 04-08
Revision: 1
Issue Date: 09/06/05
Page: B1
Reference: PL009

APPENDIX B

COMMUNITY CONSULTATION INFORMATION



COMMUNITY CONSULTATION INFORMATION

This appendix contains the following community consultation information:

1. Esperance Express, letter to editor from Brett Thorp, Chairman, Port Development Consultative Committee, November 25, 2004
2. Kalgoorlie Miner – 2 December 2004
3. Esperance Express - Advertisement for Open Day, 14 and 16 December 2004
4. Media release, Port Public Information Day, 15 December 2004
5. Esperance Express – December 16, 2004, advising of upcoming port information day
6. Summary of attendees to Port Information Day, December 18th 2004
7. Esperance Express – December 30, 2004, follow up to Port information day
8. Information Note – Portman Upgrade, inserted into the Esperance Express with the RePort Newsletter, 16 December 2004 (in place of full page advertisement), and distributed to all Esperance residents in January 2005.
9. Esperance RePort Newsletter – December 2004, inserted into Esperance Express with Information Note, December 16, 2004
10. Information Sheet – Portman Mining

Note: This information is in addition to that included within the works approval application for the 4th iron ore storage shed.



Title: **Revised Proposal to Increase Iron Ore Exports to 8 Million Tonnes per Year**

Document No : 04-08
Revision: 1
Issue Date: 09/06/05
Page: C1
Reference: PL009

APPENDIX C

OPERATING PROTOCOL – RAIL OPERATIONS TO AND FROM THE PORT OF ESPERANCE



APPENDIX D

ARG TRAIN NOISE STUDY

&

INFORMATION ON SAFETY PROCESSES AND NOISE MANAGEMENT ON THE PROPOSED INCREASE IRON ORE HAULAGE TASK AT ESPERANCE



Title: **Revised Proposal to Increase Iron
Ore Exports to 8 Million Tonnes per
Year**

Document No : 04-08
Revision: 1
Issue Date: 09/06/05
Page: E1
Reference: PL009

APPENDIX E

PORT MAPS



PORT MAPS

This appendix contains the following maps:

1. Port layout.
2. Map showing adjacent land uses.